ETHNOBOTANY OF MAHER TRIBE IN PORBANDAR DISTRICT, GUJARAT, INDIA

A
thesis
submitted to the
SAURASHTRA UNIVERSITY
In partial fulfillment for the requirement
For the degree of

Doctor of Philosophy

In

Botany

In faculty of science
By

NATHABHAI K. ODEDRA

Under Supervision of
Dr. B. A. JADEJA
Lecturer
Department of Botany
M. D. Science College,
Porbandar - 360575.
January – 2009

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College Code: 212 Phone: - 02862244593

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CERTIFICATE

This is to certify that the content of this thesis for the requirement of Ph.D. degree in Botany entitled, "Ethnobotany of Maher tribe in Porbandar District, Gujarat, India" is original research work of **Mr. Odedra Nathabhai Kanabhai** (Registration No.3525, Date : 31/7/2006 Saurashtra University) who carried out this research work under my supervision.

I further certify the present work has not been submitted partly or fully to any other university or institute for the award of Diploma or Degree.

(Dr. B. A. Jadeja)
Research guide – Lecturer
Department of Botany,
M. D. Science College,
Porbandar – 360 575 (Gujarat) .

Forwarded through:

(Dr. C. G. Joshi)
Principal,
M. D. Science College,
Porbandar-360575(Gujarat).

DECLARATION

I the undersigned Mr. Odedra Nathabhai Kanabhai hereby declare that the research work has been carried out on "Ethnobotany of Maher tribe in Porbandar District, Gujarat, India" is original and the present work has not been submitted partly or fully to any other university or institute for the award of any diploma or degree.

Date:

Place: Porbandar

Signature of Candidate

(Mr. N. K. Odedra)

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Nathabhai K. Odedra

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LIST OF ILLUSTRATIONS

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ABBREVIATIONS USED

AD	*annodomini*	Alc.	Alcoholic
Alk.	Alkaline	Anon.	Anonymous
Aq.	Aqueous	Ass.	Assam
BC	before Christ	B.P.	Blood pressure
Beng.	Bengal	Bom.	Bombay
Bu-	Butyl	Ca	Calcium
C	Central	Cm	Centimeter
CNS	Central Nervous System	Cu	Copper
E	East	EBH	Ethnobotanical Herbarium
Et	Ethyl	Eng.	English
et al.	(L. *etalia*) and other quthors	etc.	(L. *et cetera*) an so on
Est.	Extract	Fig.(s)	Figure(s)
g	gram	H.P.	Himachal Pradesh
HCN	Hydrocyanic acid	Hin.	Hindi
i.e.	(L. *idest*) that is	K	Potassium
Kan.	Kannada	Kas.	Kashmir
Kg	Kilogram	Lf	Leaf
LVS	Leaves	m	metre
Me-	Methyl	Meo-	Methoxy
Mg	milligram	Mg	Magnesium
M.P.	Madhya Pradesh	ml	milliliter
mal.	Malayalam	Mar.	Marathi

N	Nitrogen	N.	North
-ve	Negative	Na	Sodium
NW	North-West	O	Oxygen
-OAC	Acetoxy	-OH	Hydroxy
-Ome	Oxymethyl	P	Phosphorus
+ve	Positive	Pb.	Punjab
%	Percent	Ph-	Phenyl
Pl.(s)	Plate(s)	Raj.	Rajasthan
Rt	Root	Sans.	Sanskrit
Sp	Specice	Spp	Species
Sqkm	Square kilometer	Syn.	Synonym
S.	South	S	Sulphur
Tam.	Tamil	Tel.	Telugu
Tsp	Teaspoon	U.P.	Uttar Pradesh
Px	Unspecified parts	Var.	Variety
Vern.	Vernacular	Viz.	*Videlicet* (namely)
Vit.	Vitamin	Vol.(s)	Volume(s)
w	woody	W.	West
Wp	Whole plant	WHO	World Helth Organisation

NKO Speciman collected by the researcher

CHAPTER I INTRODUCTION

1.1 General

The decade beginning from January 1, 1995 was observed as the international Decade for the World's Indigenous People.

About 300 million people one in every 20 on earth belong to indigenous cultures. The original inhabitants of their lands, they uniquely know how to live in harmony with nature. Indigenous people are scattered over the face of earth in around 70 countries. Among them well over 150 million live in Asia, two thirds in China and India. There are at least 30 million in Central and South America and a significant number in Australia. Many of the indigenous societies are highly primitive and still live in '*Stone Age Culture'* virtually cut off from the modern civilization. The Dani tribe of Indonesia, the Onges and Jarawas of India till recently almost lived naked in the Stone Age Culture and did not know what a wheel was.

The Agenda 21 of the Rio Earth Summit (1992) stated that indigenous people and their communities, and other local communities, have a vital role in environment management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

Indigenous and ethnic people learn to live in the most hostile environment from the pole to the equator, from the desert to the rain forest and they have evolved a host of sophisticated strategies for doing so. The world's remaining areas of high biodiversity are often found on indigenous community's lands and in their water bodies. All over world political conflicts are arising over conservationist's efforts to remove indigenous people from their native lands.

1.2 Origin of Ethnobotanic Study

Ethnobotany came into being when the earliest man observed the animals mostly the apes and monkeys eating certain plant often to satisfy his hunger and at

other times to heal his wound and to get rid from pains and sufferings. The observations on apes and monkeys (which were very close to human beings in morphology and also in anatomy and physiology) eating certain plant parts - roots, stems, leaves, flowers, fruits and seeds and the beneficial effects on their body gave a food for thought to these early men and it started the genesis of basic thoughts in human brain. An analysis of such observations provoked them to use plants for maintenance of life and alleviation of diseases. In this way, it helped them in formulating the basic concepts of science of life which were evaluated rationally later on over a period of time. Thus, on the basis of the uses of plants first by animals and later by human beings to give birth of ethnobotany.

Ethnobotany has assumed new significance and a new dimension today when the modern civilization realized that all those plant products they are using today either as a food or as a medicine are the gift of those early men who used those plants to satisfy their hunger and heal their wounds and to know and evaluate the utility of those plants often experimented on their own body.

1.3 Basic Notion of Ethnobotanic Study

Basic to any ethnobotanic study is the "recognition that humans form biological populations and are dependent on culture" (Ford, 1978). Human ability to use symbols and thus communicate with one another promotes this culture. This enables them to interact with name and use the plants and other things in a given situation. In ethnobotanic terms, it includes the classification of plants and the human psychological disposition towards them. These will then determine how the vegetation will be manipulated and what the consequence of human utilization will be "cultural beliefs determine the conditions of human existence and the biological properties of human population define the quantity of plants that must be obtained. Together they form the human ecology of ethnobotany" (Ford, 1978).

1.4 Ethnobotany – A Multi disciplinary Natural Science

The term ethnobotany first coined by Harshberger (1895), encompasses entire studies concerning plants which describe local people's interaction with the

natural environment (Martin, 1995). This interaction has been classified by Jain (1996), father of Indian Ethnobotany, into two categories (1) Abstract and (2) Concrete. The former aspect includes taboos, avoidance, sacred plants, worship and folklore, while the latter deals mainly with the material use and the acts of domestication, conservation, improvement or destruction of plants. More importantly, this study of the plant in relation to people includes both wild and domesticated plants (Heiser, 1995). Of late, the subject of ethnobotany has been recognised as a rapidly expanding multidisciplinary natural science throughout the world, with many workers becoming involved in the practical application of its data in areas such as biodiversity prospecting and conservation biology.

1.5 Importance of Ethnobotanical Studies

The importance of ethnobotanical studies is manifold, as these provide valuable data on (i) life support species (ii) new uses not recorded in literature (iii) new local names (iv) distributional area of new plant drugs (v) conservation of natural resources (vi) germplasm stocks of our cultures. In addition, these help in understanding plant human relationships.

1.6 Indigenous People

Indigenous people (rural communities/tribals/ethnic societies) are an invaluable bank of knowledge, which is passed on verbally from one generation to another. As it is a way of life, these people live harmoniously with nature. It is a fact realized every where in the world that indigenous cultures are under the danger of extinction due to the advent of modern civilization and changes in sustenance economy. Both indigenous culture and biodiversity are inseparable, as with its decimation, biodiversity is also disappearing. Often, the world's remaining areas of high biodiversity are found on indigenous people's lands and in their waters (Alcorn, 1996). In this regard, Schultes & Swain (1976) state: "Peoples whom we have chosen to consider members of less advanced societies have consistently looked to the plant kingdom… for betterment of life. Should we as chemists, pharmacologists and botanists with so many and varied means at our

disposal not take a lesson from them?" Due to the fact that plant - based derivatives are safer than the costly modern medicines, about 80% of the world population has taken recourse to traditional medicines for their primary healthcare needs (Tyler, 1986, Wambebe, 1990). Interestingly, of the 2, 50,000 to 3, 00,000 plant species on earth, only 7% of the vascular flora have been exploited for their medical potential (Iversen, 1988), whereas the number of plants utilized by man for food hardly exceeds 30 (Swaminathan, 1993, Khoshoo, 1995).

1.7 India – A Gene rich Bank

There could be no two opinions regarding the ethnic, floristic and agricultural diversity of India, possessing over 45,000 Spp. (including 15,000 SPP of flowering plants of which almost one third are endemic), where the people worship the various elements of mother nature to express their indebtedness for sustaining them. At present about 1500 plant Spp. are being used in the ancient Indian system of medicine, i.e., Ayurveda (Bhatnagar, 1997) from which plant drugs worth Rs.3400 million per annum are utilized for its various preparations (Gupta, 1986)

It is an established fact that this ancient science of human health had its origin in the state of Gujarat – the land of "Rishies' and 'Munies', which with a geographical extent of 196024 sq km ranging from 0 -1,117 m elevation falls under the latitudes 20^0-1' to 24^0-7' N and longitude 68^0-4' to 74^0-4 E. The Gujarat is a rich repository of medicinal and aromatic plants, diverse cultures and tradition. For their sustenance, the various inhabitants of Gujarat region use various plant species as subsidiary food, fibre, multi purpose socio-economically important and medicinal plants. Unfortunately; much of this wealth is alarmingly depleted.

It has been estimated that an average of 1 in 10 of the spp of vascular plants on this earth are endangered due to unplanned human activities (Lucas & Synge, 1978). Therefore, sincere efforts need to be made by one and all to conserve the rich Gujarat biological and cultural diversity.

1.8 Indigenous ansd Ethnic Community of World

There are an estimated 300 million indigenous people all over the world. Nearly half of them living in Asia (most in India and China). In India there are about 68 million in indigenous people called ‘tribes’ belonging to some 573 tribal groups.

Table 1.1 Ethnic an Indigenous People of World

Country/Continent	Indigenous Culture/Community
1. Western/Central Africa	Pygmy culture
2. Mali	Tuareg Nomad
3. Niger	Tuareg Nomad
4. Central Africa	Bororo people
5. Kenya	Maasai and samburu people
6. Botswana	Bushmen (san)
7. Namibia	Bushmen (san)
8. Bangladesh	Hill tribes
9. Thailand	Karen people
10. Malaysia	Kenyah, Punah, Kayan
11. Philippines	Manobo, Bangsa Moro people
12. India	Scheduled tribes
13. New Caledonia	Kanak people
14. Mexico	Lacondon Maya Indians
15. Guatemala	Mayan Indians
16. Nicaragua	Miskito Indians
17. Costa Rica	Indians
18. Panama	Guaymi Indians, Kune Indians
19. Colombia	Paez and Guambiano Indians, Kogi
20. Peru	Yagua Indians, Amuesha Indians
21. Brazil	Yanomami people, Apinaye Indians

22. Paraguay	Ache Indians
23. Chile	Mapuche Indians
24. Australia	Aborigines
25. Spain	Carib Indians
26. Indonesia	Kenyah
27. New Zealand	Maoris
28. Sweden	Lapps
29. Greenland	Inuits (Eskimos)
30. Artic nations	Inuits (Eskimos)
31. Ecuador	Amerindians

Source: 'Atlas of Environment' WWF.pub.Oxford, 1992.

There are 250,000 indigenous people in Australia called ''Aborigines', 300,000 in New Zealand called Maoris' and some 10000 in Arctic countries called 'Eskimos' or 'Inuits'. In Sweden the indigenous people called 'Lapps' make up less than 0.1 percent of the population and 'Amazonian Indians' comprise the same proportion of the Brazil. The indigenous societies of Greenland also called 'Inuits' make up 90 percent of its population and the Indians make up two-thirds of the people of Bolivia. The aborigines of Guatemala called 'Mayan Indians' makes up the majority of Guatemala's population. Cultural diversity exist with biological diversity every where in world and the two are intimately inter dependent on each other.

Table 1.2Estimated Population of Indigenous and Ethnic People in some countries (1992)

Country	Population in Million	Share of national population (%)
Papua New Guinea	3.0	77
Bolivia	5.6	70
Guatemala	4.6	47

Peru	9.0	40
Ecuador	3.8	38
Myanmar	14.0	33
Laos	1.3	30
Mexico	10.9	12
New Zealand	0.4	38
Chile	1.2	9
Philippines'	6.0	9
India	53.0	7
Malaysia	0.8	4
Canada	0.9	4
Australia	0.4	2
Brazil	1.5	1
Bangladesh	1.2	1
Thailand	0.5	1
United states	2.0	1
Former Soviet Union	1.4	1

Source: *World Watch Institute Paper,* 1993.

By virtue of their own distinct culture, belief, taboos, totems, religious rites, traditional habits of food and medicine, these indigenous people have accumulated enormous knowledge about the sustainable use of plant species available to them in their native lands. The knowledge of ethnic people about the food, medicinal and other cultural value of plants has infused in them a sense of ethnical responsibility to use these plant resources more sustainably and judiciously, conserve them in nature and pass on their traditional knowledge and wisdom with regard to their use to the posterity.

1.9 Ethnic Society of India

According to racial anthropologists, about six different races have migrated to India from outside and have taken root here. These are *Negrito,* the *Proto*

Austaloid, the *Mongoloid, the Mediterranean,* the *Western Brachycephals* and the *Nordic*. The indigenous people of India are called tribes. The Indian sub continent is inhabited by over 53 million tribes belonging to over 573 indigenous communities of 227 ethnic groups. They comprise nearly 22 percent of the world's indigenous people. Covering 5000 villages in India, mostly located in the central and peninsular region and in the northeast, with sporadic pockets in the northwestern plains, the Himalayas in the north and in the Andaman and Nicobar islands in the extreme south. They constitute about 7.7 percent of India's population. Some of the primitive tribes are facing the danger of extinction. The Constitution of India provides special care for the tribal.

Some tribes in India are most primitive human societies in world depending completely on the forest for their very survival and live in perfect harmony with nature. They include Onges, Jarawas, sentinelese & Shompens of Andaman & Nicobar Island. They subsist on hunting, food gathering and fishing. They observe several taboos and totems to ensure regeneration of wild plant species. The rich biodiversity in the Andaman are eroding with the decline in population of these tribes. From an estimated 4800 in 1858, they are today barely 500 or less. The Onges and Jarawas almost live in Stone Age culture and nearing 'extinction'. Jarawas has declined from 200 in 1911 to just 31 in 1992, while the Onges from 200 to mere 80 in the same period (GOI, 1995). The Jarawas are hostile to outsiders while the sentinelese live in complete isolation. Till recently they had no idea of world beyond the seas. The Totos of Bengal are also declining.

Table 1.3 Ethnic and Indigenous People of India

No.	Community name	Region	Race
1.	Garo, Mikir, Naga, Abor, Bobo, Angamikhasi	North East	Mongloid
2.	Gujjar, Lodhs, Majhi, Nats, Gonas, Gaddies	North & North west India in the	Mongloid & Proto Australia

		Subtlimalayam plains	
3.	Parhaiyas, Korwa, Oraon, Rabha, Saora, Asurs, Birja, Santhals, Ho, Juangs, Munda, Khonds, Birhor, Tato, Lodha, Malpharia	East – India plains	Proto – Australia
4.	Gonds, Marias, Kaya, Kurku, Baigas, Hill Korbhas,	Central India	Proto – Australia
5.	Bhils, Grassias, Dhankas, Gamits, Minas, Saharia, Siddis	Western India	Proto – Australia
6.	Todas, Badaga, Kotas, Chenchu, Kolam, Thoti, Trulas, Kurumbas.	South India in the Nilgiri Hills	Proto – Australia
7.	Onges, Jarwa, Shompen, Great Andamanese, Sentenalese	Indian Islands Andaman & Nicobar	Negrito (Vanishing tribes)

1.10 Global Indigenous and Ethnic Societies Under Assault

Indigenous people are now under assault everywhere in world under the impact of modernisation and they are fast declining. The tribals of India are also dwindling under the impact of industrial development and modernisation. Large tribal population have been uprooted and displaced as 'ecological refugees' in central India due to the construction of ambitious Tehri & Narmada Dams. Under the project Tiger Scheme large populations of indigenous people have been displaced from their original homes. Of the 6 to 9 million Aboriginal Indians who originally lived in the Amazonian rainforest. Only about 200,000 now survive. There were 300,000 Aborigines in Australia when the first fleet of modern people landed in Botany Bay. A century later only 60,000 remained. The Aborigines of Australia are often at receiving ends in their own mother land. Every single '*Carib Indians*' on the island of Hisopaniola in Spain was killed or deported by the Spanish Colonialist to be replaced by the slaves from Africa. The indigenous

people of the 600 Indian nations of North America were reduced by half to two thirds by 1860. *In the wake of material development the indigenous people are forced out from their homelands which they inhabited for centuries. As lands were discovered and civilization advanced they were massacred, uprooted and a number of them were absorbed in to the alien cultures.* A large number of them perished from the modern diseases (brought by modern civilization) to which they had no immunity. The Mayan Indians of Guatemala lives about eleven years less than the European minority who rules them. Australian aborigines on average live 20 years less than whiles and are nine times more likely to die of infectious diseases. Several primitive tribes of India became vulnerable to malaria as they came in contact with modern civilization. With the disappearance of the indigenous culture all over the world the indigenous knowledge of biodiversity use and conservation is also disappearing.

1.11 Prospects of the Study

This study is concerned with the ways human perception and uses of plants influence the vegetational environment; it covers the Maher in Porbandar district of Gujarat. Though this study is purely restricted to the Maher, the exploration and many of its implications are of general significance to the tribals of this area.

Effort has been made to adopt an interdisciplinary approach by probing into the Maher ethos and their understanding of their immediate environment that influence their relationship to plants and regulate their uses. In fact, it is these that regulate their personal, social and economic relationships as well.

A probe into the individual's perception of the environment, i.e. how one finds oneself in the given milieu, finally shows how the Maher as a group view themselves and how their outlook influences their behavior pattern and the subsequent interaction with the vegetational environment. It is this holistic view that finally determines one's use and management of plants. Special attention is given in this study to the factors that make plants a resource that sustains the Maher and how the management of this resource is vital to their survival and

progress. The investigation is preceded by a brief overview of the Maher life and factors that influence their decision- making in the use and management of the plant resources.

1.12 Hypothesis

The tribe Maher is restricted mainly in Porbandar district of Gujarat. There is no Ethnobotanical work was done in this area and especially on tribe Maher. It has their own life style, culture, tradition and belief. These tribal people can basically be categorized under a sect, which has acclimatized itself to the ecosystem prevailing around, since time immemorial and are evolved with a way of life style harmonious with the nature. Therefore, it was hypothesized that this tribe has there unique ethnobotanical use, which highlights tribal dependency on forest and forest product as their resource base and some new ethnobotanical use must be recorded.

1.12.1 Aims and Objectives

1.12.2 Aims

This will fill a long gap between the practitioner of Indian system of medicine and scientists and encourages them to rationalize it suiting the modern requirements of biotechnology.

This will be helpful in recognizing the vast wealth of diversity of plants in India and will interest biologist, chemist and biochemist equally who can utilize the information for further analysis to strengthen the traditional knowledge.

This compendium will stimulate researchers to under take studies so that the traditional technical knowledge is authenticated.

These investigations have brought to light indigenous knowledge on the utilization of plant species by the Maher tribe in Porbandar district.

It is hoped all such information provided should be utilized judiciously by all concerned for sustainable utilization of biodiversity and for well being of in humanity.

1.12.3 Objectives

The major objectives of this work are:

1. To present an inventory of the plants used by Maher tribe of Porbandar district for food and drinks, medicine, material culture like housing, wicker-works, fibers, dyes etc. and Magico -religious beliefs, mythology, ceremonies, folk-songs and tales etc.
2. To document the ethnobotanical data from existing literature and from actual field work.
3. To present data from several tribal weekly markets and various ceremonies of tribe.
4. To project the plant genetic resources of crops in the region.
5. To describe the basis, etymology or folk concept of vernacular names of plants.
6. To indicate gaps in ethnobotanical research, both region wise and tribe wise.
7. To compare and evaluate the ethnobotanical data for locating plants for further studies, economic up lift of the folk, conservation of biodiversity and eventually for welfare of society in general.
8. To record a biotic variables of the area.
9. To develop scientific approach among people towards their megico-religious beliefs.
10. Unknown ethnobotanical uses of tribes bring into form of literature.

CHAPTER II THE PRESENT STUDY

2.1 Research Site

2.1.1 Location

Porbandar district is located between 21^0 to 22^0 N latitude and 69^0 to 70^0 E longitudes. Porbandar is having three taluka namely, Porbandar (21.15^0 N & 70.25^0 E) Ranavav (25.50^0 N & 69.55^0 E) and Kutiyana (21.45^0 N & 70.10^0 E). It is bounded by Jamnagar district on the north, Junagadh district on the south, Rajkot district on the east and Arabian Sea on the west. The elevation the geographic area of this district is about 197419 ha. Total area of this district under forest is 20946 ha. and total irrigated area is 12700 ha.

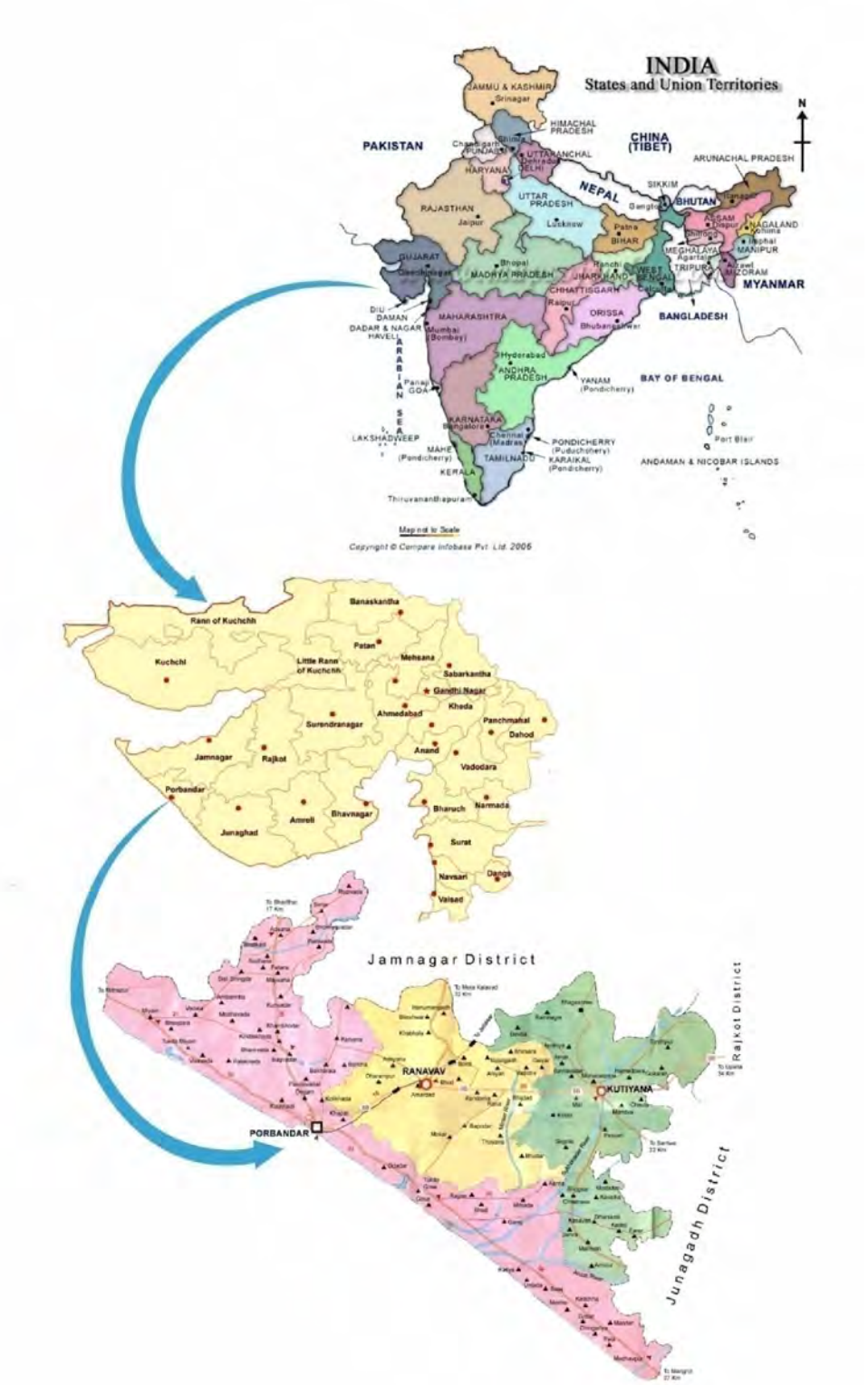
In Porbandar district, there are 155 villages and 23 Nesses. Harboring 5, 36,854 human beings of the former 2, 75,447 human beings are in rural areas. While 2, 61,407 are towards city (Census of India, 2001). Porbandar district has an average literacy rate 68.39% higher than the national average of 59.5%, male literacy is 78.36% and female literacy is 58.42%.

The Barda Hills situated at 15 Kms. north-east of Porbandar city. The portion lying in the Porbandar district was formerly a part of Porbandar state whose ruler was known as ‘Rana’. This portion is therefore locally known as Rana Barda.

2.1.2 Etymology

The name “Porbandar” came from the combination of two words: “Porai” the name of a local goddess and “Bandar” means port or harbour. Thus “Porbandar” translates to ‘Porai’s harbour’. Several sources refer to the area as ‘Pauravelakul’, a name known to have been in use during the tenth century, this ancient name may possibly translate to ‘land of Porai’s clan’ or to that effect.

Figure No.1 Map of study site in India and Gujarat



The guardian of the town was goddess Porai and the temple of goddess was on the bank of the creek.

The town finds mention in the Hindu epics as the hometown of Sudama, a beloved friend and class-fellow of lord Krishna, the town has also often been referred to as 'Sudamapuri' on that account.

The Jethwas who ruled Porbandar. Rana Khimji established his rule at Porbandar in 1700 A.D.

2.1.3 Historical and Mythological Perspectives

2.1.3.1 Harappan Settlement (1600-1400 BC)

Onshore explorations in and around Porbandar brought to light for the first time the remains of a late Harappan settlement dating back to the 16^{th} – 14^{th} century BC, which is similar to that from Bet Dwarka. This is another evidence to suggest that the Harappan legacy of maritime activity continued till the late Harappan period on the Saurashtra coast. The discovery of ancient jetties along the Porbandar creek signifies the importance of Porbandar as an active centre of maritime activities in the past.

2.1.3.2 Princely Porbandar (1600 AD onwards)

Porbandar was formerly the seat of the eponymous princely state in British India. The ruling family of the state belonged to the Jethwa clan of Raj puts and had been established in the area since at least the mid 16^{th} century. The state was subordinate to the Mughal governor of Gujarat until being overrun by the Marathas in the latter half of the 18^{th} century, where after they came under the authority of the Gaekwad court at Baroda, and eventually of the Peshwa. In common with the other states of Kathiawar, the state first came into the ambit of British influence in 1807, when the HEIC guaranteed security in the area in lieu of a fixed annual tribute to be paid to the Peshwa and Gaekwad. In 1817, the Peshwa ceded his share to the HEIC; in 1820, the Gaekwad agreed to have the HEIC collect his due tributes in Kathiawar and remit the same to his treasury.

During the Raj, the state covered an area of 1663 sq km, encompassing 106 villages and a population, in 1921, of over 100,000 people. It enjoyed revenue of Rs. 21, 00,000/- By 1947, the rulers held the style of “lightness” and the title of “Maharaj Rana Sahib”; they were entitled to a salute of 13 guns as a hereditary distinction.

Upon the independence of India in 1947, the state acceded unto the dominion of India. It was merged with the ‘United state of Kathiawar’ with effect from February 15, 1948 and eventually came to form part of the present day state of Gujarat.

2.1.3.3 Current situation

Newly formed Porbandar district came into existence on 2nd October 1997.Earlier it was a part of Junagadh district. Porbandar district comprises of total three Taluka (Tehsils) viz. Porbandar, Ranavav, & Kutiyana.

Porbandar is the birthplace of the “Father of the Nation’’ Mahatma Gandhi.

2.1.4 Geology

The rocks on the Barda Hills represent the inner cores of great extinct volcanoes. The Barda Hills north east of Porbandar are the custodians of nature’s precious treasure of the rare alacolite mineral. In the immediate neighborhood of this coastal belt the miliolite merges in to the raised beaches (Geological survey of India 1937). The western part of the Barda Hills are overlain by miliolite lime stones up to a height of 150-200 m The miliolite lime stone is overlain by alluvial soils. On the other hand the wide spread basaltic rocks are traversed by Dikes.

2.1.5 Drainage System

Porbandar district has six main ephemeral rivers, Bhadar, Ozat, Minsar, Vartu, Sorthi and Kalindri. These rivers usually dry up during the summer months but water can still be found round the year in the scattered water pools. There are also six large dams, Fodara, Khambhala, Sorthi, Bardasagar, Kalindri, Amipur (along with the many check dams) that supply water during the odd months of the year.

2.1.6 General Climate

The climate of the Porbandar district is tropical monsoonic and can be ecoclimatically classified as semi arid type. The area is markedly affected by the south western monsoon which is the on set-wet season in the mid June. The SW monsoon retreats by the end of September and occasionally lasts till October or November. This coincides with the lowering of temperature and the gradual onset of winter. The four distinct seasons that can be observed here are summer (March to mid June) monsoon (mid June to Mid September) post monsoon (mid September to mid November) and winter (mid November to February). The wind also assumes a great importance in the coastal areas. To some extent on the Ghed areas and on the western areas of the Barda Hills. During mid summer the wind blowing in SW direction carries salty seawater and sprays it over the adjoining coastal vegetation.

2.1.7 Soil

The soil of the Porbandar district is conspicuous by their deficiency in quality and depth. Porbandar district falls under south Saurashtra Agro climatic zone. The soil of this zone are medium black and silty loam with calcareous in nature. The soil on the seashore is saline and sandy. The upper layer of the soil is thin and shallow in depth.

The pH of the soil is ranging from 8.01 to 8.58. The infiltration rate of the soil is very fast. The under ground water table is brackish to saline with Ec value 8.1 mm/cm.

2.1.8 Biogeography

2.1.8.1 Gujarat

Of the 12 biogeographic zones of India (Rodgers and Panwar 1988), Gujarat is further sub-divided in to four zones: Zone 3, 4, 5 and 10. The provinces of these zones in Gujarat are province 3A-Kutch, 4B-Gujarat Rajwara, 5A-Malabar coast, 5B-Western Ghat Mountains and 10A-The West Coast. Gujarat has a territory of 1,96,024sqkm, and is endowed with a great diversity of natural

ecosystems ranging from desert, semi arid, mangroves, coral reef-rich coast and forest with dry deciduous, moist deciduous and evergreen trees. The floristic and vegetational studies in Gujarat have received much attention since the last decade of the nineteenth century (Pilo and Pathak, 1996).

2.1.8.2 The Porbandar district

Based on the revised classification of biogeographical zones by Rodgers and Panwar (1988), the diverse natural ecosystems in the Porbandar district are:

Biogeographical zone	**Biogeographic province**	**Natural ecosystems**
Zone 4 The semi Arid	4B Gujarat Rajwara	Dry deciduous teak forest, dry deciduous misc. forest, dry thorn forest Savannah, Shrub land and wet land
Zone 10 The coasts	10A-West coast	Mangroves, Mudflat, Sandy and rocky beaches, Coral reefs.

Porbandar district including Barda Hills falls under the type zone 4B and extends towards zone 10A. The teak mixed with dry deciduous species occurs in just pockets. Due to heavy grazing and annual fires in this region, the ground cover becomes inadequate at the peripheral zone.

2.1.9 Vegetation

In the western Barda Hills of Porbandar Taluka *Acacia senegal, Acacia nilotica var vediana, Manilkara hexandra* (along streams), *Dichrostachys cinerea* are the dominating species whereas the eastern Barda of Ranavav Taluka is dominated by thorny species such as *Acacia senegal, Euphorbia nerrifolia*, and *Zizyphus nummularia.*

The entire coastal belt of Porbandar, (except for the small patches of *Cocus nucifera, casuarina equisetifolia and Prosopis chilensis*) is a barren sandy stretch, however, the coconut plantation (which was raised by the Ex rulers of Porbandar state more than 80 years ago) remains the only patch of vegetation. Nothing else has either been naturally or artificially grown. It was only in the year 1951, when for the first time the Forest department created an artificial plantation of *Casuarina equisetifolia* (Juri) and *Prosopis chilensis* (Gando baval) near Porbandar. There after, the plantations of *Casuarina equisetifolia* and *Prosopis chilensis* have been regularly raised on an annual basis. The data documented shows that by 1969-70. An area of 1902 ha was covered under these plantations. However, on account of coastal climatic conditions the overall plant survival was restricted to only 40%.There was moreover no working plan/scheme for the management of this artificial forest (Sinha, Pinto and Patel, 1972).

The only dominating species to be observed in Mangroves is the *Avicennia offinalis* at the Porbandar.

In Rana Barda major reduction in degraded forest was seen in Ranavav range. Open forest area improvement was found in Ranavav range.

2.2 The People Setting

2.2.1 The Maher

The Maher population of Kathiawar region in Saurashtra also known as the Mer, Mihir, Mair or Mehr are a community of people who have evolved from the Kshatriya Varna within Hinduism. They are believed to be of Indo-Aryan descent, and have a rich and diverse history involving many battles, valour & sacrifice to uphold their honour & values. Some of the sacrifices made by them were related to fulfillment of sacred oaths, duties and responsibilities towards common people & also to the Jethwa Ranas of Porbandar. The population of Maher distributed in a number of 155 villages and some 23 nesses was reported to be 50,000 according to the Census of 1951. Presently population of Maher community is 2, 50,000 .The traditional occupations of the Maher are war and

agriculture. Some of the Maher villages & land was given to them by the Jethwa Ranas of Porbandar as a token for being part of their royal army against invading tribes in the Kathiawar region. (Keshwara, 1943-1945).

Colonel Dixon's portrait on the Mer character:

"He dilates in their fidelity, truth and honesty, their determined valour, their simple loyalty, and an extreme and almost touching devotion when put upon their honour. Strong as is the bond of kindred among the Mhairs, he vouches for their fidelity in guarding even their own relative as prisoners when formally entrusted to their care"

2.2.2 Origin and Settlements

2.2.2.1 Origin:

Fig.2.2. Path of migration of Maher tribe.

Variety of views exists among historian regarding origin of Maher race. According to the most common view Mahers (also known as the Mehars,

Mahars, Mihirs, Mers, Mharis or Mhers) are of Aryan race, (Trivedi, 1999). The word 'Aryan' originated in Iran, since the first Persian, Medes and Parth tribes moved to the warmer regions, which were located south of Caucasia. Those tribes (Persians, Medes and Parths) call themselves Aryans and therefore they named the region "Aryan=Land of Aryans, the country today known as Iran has its name based upon. Because of similarities in language between several languages, historians call people of several nations the so called "Indo-Europeans" or "Aryans".

Other view, originally Maher belongs to Gujjar, Padihar, Maitrak, Mihir race. According to racial anthropologists Maher is the Proto-Austroloid race.(Sinha & Sinha, 2001)

2.2.2.2 Settlements

Based upon historical evidence the ancestors of the tribe the Maher entered India through the North-west (Punjab/ Sindh region) and continued further south into Gujarat leaving settlements in Marwar region. They seemed to have settled down in the Kathiawar region and to day to be found in villages around Porbandar city known as the Mahers of Khthiawar, (Hoskyn John, 1922).

2.2.2.2 Maher Lineages

The Maher are divided into 14 exogamous lineages. Each of these lineages (referred to as Sakas) is further divided to minor or major segments (Clans) distributed in a number of villages (gotras). Some of the segments are names after names of the villages inhabited by the people of that segment. Out of the 14 lineages, four are outstanding in status on account of their population, land ownership and historical standing in the composition of the Maher community. These four lineages are: Keshwala, Sisodia, Odedra (sumra) & Rajshakha whose descendants are settled largely in the villages of the highland located in the Porbandar region.

The other 10 lineages are: Parmar, Vaghela (Waghela), Chudasama, Chauhan, Bhatti, Vala, Jadeja, Solanki, Chavda & Vadher who largely inhabit the villages in the lowland located in Ranavav & Kutiana Taluka.

2.2.3 Dialects

Maher are from Gujarat and hence speak and write Gujarati. The tone of voice is very strong and clear. Therefore Mahers can be easily recognised by tone of their voice. They are unable to speak Hindi but easily understand.

2.2.4 Housing Pattern

Living in hamlets that comprise shelters scattered sparsely throughout the plain ground in Barda region and in Ghed region shelters is situated on the hilly landscape. The number of shelters constituting a village may range from a small one like twenty-twenty five spread over two or more square kilometers to a thousand.

Such shelters denote the accepted authority of one i.e. the father over the sons of the eldest over the younger.

A typical tribal village is situated near sources of natural water supply. Whether a river, ponds or where water can easily obtained through wells.

A tribal generally constuents his shelters inside the agricultural field often on outskirts the filed. The dwelling units are medium sized rectangular rooms and Osari (Padsal). It bears a sloping roof on both the sides. The roof style prevents over heating by direct scorching sunrays in summer and facilitates the torrential water drops to speedily flow down in rains. The roof is made up of Aadsar, vala and Vangi with central pole.

Walls are made up to lime stones. A side wall reaches the highest points in triangular shape. The roof, covering the room and Osari runs down sloping from the centre to the front wall and to the rear wall. Slope towards Osari is quite longer than the rear side. The kitchen is housed on right or left side in the Osari.

As a rule, the toilets and cowsheds are constructed outside the houses. In old day houses of Maher community beautiful pictures and best specimen of art is

observed. Maher has sculptured wooden petara, Majus, Machi and Thala of stone churning mill, stairs, self are quite common. Besides the each village has sacred spot with deities' houses is constructed. Sacred spot may be in the centre of the village or on out skirts.

2.2.5 Social Customs

Diversity is observed in traditional customs of community. From birth of child to funeral rites a beautiful traditional customs are interwoven with their life.

2.2.5.1 Birth

Not many plants are ceremonially associated with the occasion of birth of a child though before this event and after. Their 'non-ceremonial' significance needs mention.

During pregnancy, women does not eat vegetables having sticky substances e.g. lady's finger, black fruits like black plum and Brinjal. Following the delivery salt, chilies etc are not given to the mother for few days. The diet after parturition however, for at least a week or more is altered 'rab' (preparations involving jaggery, ghee, dried rhizomes of *Zingier officinale* and wheat flour respectively) and laddoos with gums as essential ingredients (usually of *Anogeisus latifolia*) however there is no hard and fast rule.

The news of the arrival of new family member brings happiness. A dish is repeatedly beaten to announce the arrival of a boy in family. Leafy twigs of the auspicious *Azadirachta indica* tree are hung at the gates from a week to ten days. Laddoos and clothes etc. are given by the father of the new mother to her father-in-law immediately after birth of child few drops of *'Galthuthi'* is given orally. *'Chhathhi'* is performed after 6 days of the birth of child. A large number of the invited people are served good food after the function. *'Mundan'* ceremony (shaving of head) of the male/female child is performed during 1.3 years of age.

2.2.5.2 Costumes and Ornaments

Costumes of Maher community are traditional and precious. Maher men wear*'Choyno','Khamis','Angni','Paghdi'*(Turban), *'Bhetai'* etc. during working

hours they wear *'Bathiyu'*, while during various ceremonies and traveling they worn *'Paghdi'* on head.

Traditional costume of women precious and beautiful. Girls, younger girls and married and elder women are easily identified with her typical costume.

Jewellery in form of gold is regarded as status symbol and tradition still continues. Maher would spent a huge amount of money on buying gold jewellory, especially for their wives and daughters *'Zumana'* a ornament made up to 625gms gold is a pride Maher community.

Ornaments for Maher women are *'Dodi','Nath','Chud','Chudla, 'Har', Bhujbandh','Hansadi','Kanthali','Troda','Bedi','Hular','Mala','Ankota', 'Zumana','Kambi','Kadla','Vinti','Ativinti','Pochi','Thoria','Pandiyu','Dul', 'Vedhla', 'Sisoria'* etc.

Ornaments for men are *'Gantho','Kankul','Vari','Troda','Mala', 'Sisoriya','Tangal','Bedi','Vedh','Kada','Doro','Vinti','Ponchi'* etc.

2.2.5.3 Marriage System

Child marriage is rare occurrence in Maher community. Mostly engagement is done at mature age. Parents select proper counterpart for their children. In engagement ceremony, two rupees coin, gold ornaments are given to girls. Jaggery with coriander seed are distributed to closest relatives. Dowry has no place in this community. From engagement to marriage period on every Holi festival, parents of boy give *'Hardo'* to their future daughter in law is an old tradition. In which it gives one pair of cloth 1 ¼ kg sugar cube, Dates.

Before one day of marriage *'Mandap ropan'* is done and on same day evening bridegroom procession is arranged in village. The construction of Mandap is usually accompanied by ceremonies. Leaves of *Mangifera indica* are tied around the Mandap as *'Toran'* and also tied on a gate of house.

The construction of *'Thambhali'* apparently with in the presence of the bride/groom who sit facing east on its left, on a wood plank. In addition to a coin, *Panchamrut* (Sugar cube, honey, milk, curd and ghee) the bride/groom pours rice

and water with both hands in a hole dug earlier. In this hole bough of *Dendrocalamus* and *Tectona* are planted by four persons.

One of the important ceremonies is the *'Pithi'* in which turmeric is applied on the body of the bride/groom. From this day the bridegroom keeps a sword always, perhaps toward off evil influence. Lemons are kept for the same purpose. The invitations *(Notara)* are sent well in advance.

On the day of marriage 100 to 125 relatives of bridegroom goes to the house of bride called *'Jan'* and welcome ceremony is arranged by the relatives of bride. At the gate of the bride's house the mother-in-law offers *'Pokhana'*(aarti) to the bridegroom.

He takes his seat with the bride under the Mandap. Around the fire pit, the bride and groom with their clothes linked by knot (with rice, vermillion and coins enclosed) take four circles with the bridegroom leading the first three, Ghee being offered to the fire.

Marriage songs of Maher are melodious and meaningful. In this community during marriage simple, pure feast is served. Majority jaggery, ghee, *lapsi, khichdi* and green vegetables is served.

2.2.5.4 Divorce

For a Maher woman, if the situation warrants, the process of separation is simple. If both the partners agree for divorce, no money is paid to anybody, but if one partner is interested, payment is made to the other party. Both the partners are free to marry again after the separation. If the worsest condition is arise then there is a social organization called Shri Maher Supreme Council dialogue with both party and find out the way of separation.

2.2.5. Religion

The Maher are devout Hindus. They worship Hindu gods and goddesses and observe all the major Hindu festivals. They have their own temple for the community members. Each clan has its own clan Goddess worshipped by the head of the household on various occasions, the clans deity separates one clan from the

other. They make special offerings to her during the Navratri festival in the month of Aswin (September-October).

2.2.5.5.1 Maher Kuldevi Tradition

The Kuldevi has a crucial role in the religious lives of Maher men and women: she is the foremost divine guardian of their fortune and honour. Many of the myths that recount the miraculous deeds she performs as guardian not only make wonderful reading they abound in romance, intrigue, danger, and conquest they also give access to the worldview of Maher women.

A goddess begins her career as a Kuldevi when she becomes incarnate at a critical point in time in order to rescue an endangered group of Maher whom she judges worthy of her protection. In most cases she reveals herself to their leader and inspires him to surmount whatever problems he and his followers face. Afterward she helps him establish a kingdom, at which point he and his relatives become the founders of a kinship branch (Kul or Shakh) with a discrete political identity. Later the Kuldevi intermittently manifests her presence by helping the group overcome other military and political crises. These manifestations are celebrated in myths chronicling the origins and early achievements of the Maher groups that Kuldevi's protect.

Because when a woman marries she loses membership in her father's Kul and becomes a member of her husband's Kul, she is expected to worship the Kuldevi who protects its members. Thus, the very first thing a bride must do when she enters her husband's household is to give respect (Dhok) to her new Kuldevi. This is a caste norm; every Maher must loyally propitiate the Kuldevi's who has accompanied the family's Kul into battle.

2.2.5.5.2 Maher Deities

2.2.5.5.2.1 Ramdev Pir

Bhagvan Ramdevji Maharaj was a Tunvar Rajput regarded by Hindus as the incarnation of Lord Krishna who tried to rid the world of sin and hatred. He is known as the 'Dhori Dhaja' carrier which shows he was a warrior deity who

bought innocence and bravery here. History goes that five Pirs from Mecca came to test his miraculous powers and after being convinced, paid their homage to him. Since then he is venerated by Muslims as Ramshapir or Ramapir.

The fame of Ramapir reached far and wide. He believed in the equality of all human beings, both high and low, rich and poor. He helped the down trodden by granting them their wishes. Bhagvan Ramdevji Maharaj took Samadhi (conscious exit from the mortal body) in 1459 A.D. Maharaj Ganga Singh of Bikaner constructed a temple around the Samadhi in 1931 A.D. The devotes of Ramdevpit offer rice, coconuts, churma and toy wooden horses to Ramdevji. The Samadhi temple is in Ramdevra, Rajasthan.

2.2.5.5.2.2 Vachhara Dada

Vachhara Dada was of the Darbar caste and he was of Rajput origin, he became a Survirt in seven births. Every time he went to get married, Muslims would come and take the cattle kill them and they would do this whilst Vachhara Dada was walking around the fire getting married (pheras) it is said that he never managed to finish his pheras and he never got married

The medium man (bhuva) of Vachhara Dada is approached for diagnosis and curing of disease among men and animals. When a family member, a cow, a buffalo etc. falls ill or dies, it is believed that the spirit of an ancestor had been annoyed because of neglect of timely worship, lack of offering ritual food and respect. When someone is harassed by an evil spirit, a medium man of Vachhara Dada is consulted. If the evil spirit tries to evade the commands of Vachhara Dada, the medium man threatens to punish the spirit by inciting against it the wrath of this powerful deity.

Vachhara Dada sits on a white Kathiawari horse with a snake at his feet and a flaming sword in his hands. He is worshipped by Kheruds (Gujarati word for farmer) to protect their cattle and keep their crops thriving. Many temples/deras can be found in Gujarat devoted to him.

2.2.5.6 Maher Raas

Maher perform their own unique style of dandiya raas, a traditional folk dance common in Gujarat. Maher Rass is unique in style, pace and athletisum. The dance is seen by historians to resemble strikes in battle, and is revered internationally.

2.2.5.7 Death

The disposal of the dead of Maher is achieved by cremation. In spite of the fact that various customs of the tribes are similar to Hindu ones. The dead amongst the '*Bhagat'* of Ramdevpirs are buried and not cremated. In case of the death of child, his body is buried. The cremation or burial ground is generally outside the villages. Stones denote the site of disposal in case of a *'Bhagat'*.

At the time of death, a person is first laid on the earth and then a few drops of sacred water *(Gangajal) 'Panchdhatu'* and leaf of 'Tulsi' are put in to the mouth. The corpse is consigned to flames before sunset.

For carrying the dead body, a stretcher or bier *(Khapan)* is fabricated bamboo is the material almost universally employed. No particular wood is chosen by the Mahers.

Usually, freshly attired, the corpse is placed on the bier and covered by cloth. Ladoos (Preparations involving jaggery, ghee and wheat flour respectively) kept in a vessel is placed on the chest of the corpse. The body is taken in procession by men.

At the cremation ground a pyre is prepared by the wood brought by the people. The pyre is set on fire by igniting dry grasses with fire brought from the home of the dead in form of burning cow dung cakes.

The bones and ash after cremation are collected in a clay pot on a special day (generally the second following) after cremation to the dropped in an appropriate water spot as *'DamodarKund'* Junagadh. On the 11th day *'Kriya'* the eldest son get their heads shaved of. The death feast comprises of *'Malpuda'*.

Who the person died the protect cow, women and land there memories are conserved by placing memorial stones (*Paliyo).* The stones are carved or effigies. The carvings depict armed human figures on horse back. Plants are rarely or almost never carved.

2.2.6 Occupation

Traditional occupation of Maher community is farming and animal husbandry. Due to occupation, Maher community since its origin to today constantly maintains the livelihood with nature and river plains. Maher is known for their farming, agricultural implements and animal husbandry, farming practice of Maher is nature based and worship the *'Varun' 'Vayu'* and fire as their god. After initial shower they start sowing seed called *'Vavni'*. In early morning horn of bullock is smeared with ghee and *'Sindoor'*, fed jaggery and worships them. Swastika of green gram and table salt is done near the *payer* and betel nut is placed on Swastika. *'Kumkum'* and Rice spot is applied on forehead of bullock and farmer and red thread tied on wrist of farmer. At the evening Maher women cooked a meal called *'Malpuda'* for whole family. At harvesting time they worship *'Khetalia'*. Some part of crop is given to the temple of Lord Shri Ram; Brahmin of the village, for village cow and food for birds is tradition of the community.

Besides farming and animal husbandry they also work as farm custodian called 'Rakholia'.

2.2.6.1 Agriculture

Farming is the main livelihood for majority of Maher's in Porbandar district. Everyday is based around the farm and it is therefore no surprise that most of them lives on the farms.

Land of Porbandar district is divided into two parts, (i) Barda region – which has irrigation facilities while, (ii) Ghed region – totally depend on rainy water.

The main crops of the region are groundnut, castor, sesame, cotton, pigeon pea, green gram, cluster bean, black gram, pearl millet, sorghum, wheat, cumin, onion, garlic etc.

Seasonal vegetables are also grown in limited area, lift irrigation through tube well & dug well are the main sources of irrigation.

2.2.6.1.1 Agricultural Calendar

January: Irrigating wheat, cumin, pearl millet, caster & vegetable field, harvesting cotton, storing fodder, preparing seeds of groundnut for the next season. Other minor agricultural works.

February: Harvesting caster and vegetables & irrigating wheat, cumin, caster, cotton.

March: Harvesting cumin, ploughing land

April: Harvesting and threshing wheat ploughing land

May: Manuring fields with cow dung.

June: Sowing Groundnut & cotton, cultivating field with other crop & vegetable.

July: Culturing & Weeding in Kharif crop & prepare the land for caster crop.

August: Sowing the caster crop & culturing & weeding in crop.

September: Culturing in cotton & caster crop.

October: Harvesting Groundnut cotton & preparing fields for Ravi crop.

November: Manuring fields with cow-dung, sowing Ravi seeds. Harvesting cotton crop.

December: Irrigating Ravi crop.

2.2.6.2 Small Scale Industries

People of Maher community of Porbandar district are associated with small scale industries in which plants (seeds) sare used to run these industries.

Crude oil is obtained from seeds of Mogali arand (*Jatropha curcus* L.) and used as the substitute of Diesel in Auto-Rickshaw. Mulubhai (Kutiyana Taluka) is associated with this cottage industry.

In Hanuman gadh and Bagvadar of Porbandar district people are associated in making herbal shampoo from leaves of Aloe (*Aloe Vera* L).

Besides, these traditional old type small scale, oil-mills (Ghani) for extraction of oil from oil seed such as ground nut (*Arachis hypogaea* L.) Erand (*Ricinus communis* L.) and Til (*Sesamum indicum* L.) are there in Bagvadar, Kutiyana and Porbandar.

Ground nut oil and Til-oil are edible oils and Castor-oil is a good preservative for food grains.

2.2.7 Maher concept of taxonomy

Basic to any ethnobotanic study, as seen already, is the human ability to use symbols and communicate with one another. This develops language in a community. Constant interaction of the human between themselves and their environment necessitates systemizing of the concepts. Then they begin to classify and name the objects they interact with. As subsistence was their more important need, the first criterion applied for classification seems to be ‘utility’ to the community. Accordingly, two broad categories of ‘useful’ and ‘useless’ were distinguished first. They specified the useless ones with the pre-fix ‘Adbau’ or jungali (meaning wild), so they have ‘Tal’(*sesamum orientated* and Adbau Tal *(Sesamum laciniatum),* Drakhs *(Vitis vinifera)* Jungali Drakhs (*Vitis latifolia).*

General habit and morphological characters (tree, shrub, herb or climber) was another criterion of major distinction. Most of the woody trees have the Zadavu, small shrubs and herbs have the ghass and climbers have the ‘velo’ suffix or ‘velara’ prefix. Thus the full Maher name for holarrhena anti dysenteric will be ‘indrajav nu zadvu’ commonly (called Indrajav). *Saccharum Bengalese* is called munj ghass, *teramnus labialis* is called ‘valiavelo’ and *heliotropium ovalifolium* is called velara hathisundha etc.

Several plants get their suffixes or prefixes according to their usage or the disease they cure. Example, vegetables are suffixed with 'bhaji' like chil ni bhaji (*Chenopodium album*) a like *Hemidesmus indicus* gets its name from common medicinal use. i.e. Kamar vel, Kamaro (common dialect of the Maher) means hepatitis.

The suffix 'kand' refers to tubers or underground parts. Example Vidarikand *(Pueraria tuberose)* etc.

Several plants get their suffixes or prefixes according to their flowers, fruits and stem colours or Habitat. Example, pilo kantasalio (*Barleria prionitis*). Kalo katakiya (*Cadaba indica*) dholo katkiyo (*Maerua arenaria*). Some plants get their suffix according to their location. Example: Vagadau tal (*Sesamum laciniatum*) Khetaru Jinjvo (*Andropogon pertusus*) Dungari jinjvo (*Andropogon foveolatus)* etc.Some plants get their suffix according to their test. Example Khati Chhas (*Pavonia ceratocarpa*) Mithi jar (*Salvadora oleoides*) Khari jar (*Salvadora persica*).

2.3 Methodology

2.3.1 Introduction

In ecosystem analysis, both abiotic and biotic variable provide clues to the system function (especially in the interrelationship between living and non-living components) for adaptation or otherwise distribution of the components to habitats (landscape approach of Whittaker, 1962) thus, interaction between both these components also provides survival or otherwise disappearance of some species, which might lead to a successful entry/survival and dispersion of exotic species in such landscape. It is usually advantageous to consider the abiotic variables for the expression of the biotic diversity and therefore both the abiotic and biotic variables are studied and accounted here.

2.3.2 Climatic variable

The rainfall, air temperature, relative humidity wind speed is the climatic variables that govern the ecosystem and subsequently the diversity of the area.

Hence they are referred the driving variables. The structure and functioning of ecosystems is determined by several factors that both affect, and are affected by ecosystems processes.

In the present investigations rainfall, temperature, relative humidity wind speed and wind direction are considered as climatic variables of the ecosystem. The data presented here under climatic variables have been collected from salinity control department, Porbandar for last ten years (1998-2007).

2.3.2.1 Rainfall

Table 2.1 gives the annual rainfall and the total number of rainy days for the year 1998-2007. The mean rainfall recorded was 584.83 mm and the mean number of annual rainy days was 25 for the period of 1998-2007. The monthly maximum rainfall in the last ten years was 864.2 mm in the month of Aug.2007 where as the minimum rainfall was 3.11mm (Oct.2000). It is evident from the table that the rainfall is ambient.

2.3.2.2 Temperature

Table 2.2 states that during the period of 1998 to 2007 the mean monthly maximum temperature varied from 26.61˚C (Jan) to 31.50˚C (May) and the mean monthly minimum temperature from 18.46˚C (Jan) to 27.73˚C (June). The highest temperature being in the month of May 2007(32.67˚C).

2.3.2.3 Relative humidity

Table 2.3 depicts the relative humidity in the last ten years. During 1998-2007 the mean maximum relative humidity was 80.59 %. While the mean minimum relative humidity was 45.46 %. However the maximum humidity in the last ten years was 83.26% (Aug. 2004) and minimum was 32.78 % (Jan 2001).

2.3.2.4 Wind speed

The south-west and west winds are remarkable strong and steady on the coast. These winds blow from June to September with an average speed of 14.68km/hr; they follow more or less the same direction throughout the greater part of the year. During the last ten years the maximum speed was observed in the

months of May-1999 (20.68 km/hr). The minimum speed recorded was 6.61 km/hr. during the month of Nov. (2007). A gradual increasing trend of wind speed in the rainy season (June-October), followed by the summer season (March-May) and the winter season (November-February) was also observed.

2.3.2.5 Sun Shine

Table 2.5 depicts the sun shine in the last ten years. During 1998-2007 the mean maximum sunshine was 9.97 hrs/day. While the mean sunshine was 1.93hrs/day. However the maximum sunshine in the last ten years was 10.32 hrs/day (Mar.-1999 & May-2007) and minimum was 0.26 hrs/day (Aug-2006).

2.3.2.6 Panevoparation

Table 2.6 states that during the period of 1998 to 2007 the mean monthly maximum panevoparation 9.49mm/day (Feb.) and the mean monthly minimum panevoparation 2.03mm/day (Aug.). The highest panevoparation being in the month of May 2007(10.32mm/day).

2.3.2.7 Soil Temperature

Table 2.7 states that during the period of 1998 to 2007 the mean monthly maximum **soil** temperature 35.93˚C (May) and the mean monthly minimum soil temperature 26.45˚C (Jan.). The highest soil temperature being in the month of May 1998(40.37˚C).

2.3.2.8 Wind Direction

Table 2.8 depicts the wind direction in the last ten years. During Nov-Jan normal wind direction north, Feb-Apr. and Sept-Oct normal wind direction west and May-July normal wind direction west south west.

2.3.3 Ethnobotany

2.3.3.1 General

To study ethnobotany, the plant human interaction has to be observed carefully within the dynamic ecosystem in which they exist. The central point of observation was: what role do the plants play in Maher life? What ethnobotanical processes are occurring and what is the net result?

2.3.3.2 Literature Survey

Literature screening can be categorized into botanical and non-botanical lines. Various floras, publications on economic botany, relevant journals etc. were consulted to spot out local uses of plants by Maher in the study area.

Books and journals of the fields of Anthropology, Sociology and Ethnology, Historical accounts, folk literature Government reports, census publications, gazetteers etc., were the non-botanical works screened. Newspapers and Maher cast magazine *'Sukalp'*, website : http://www.Maher online org/history/origin.asp were also used as source of data.

Though there is no specific Ethnobotanic work on the Maher, some good floristic and ethnographic works on the region inhabited by the Maher were consulted prior to the field work. Thaker, (1910) Nurani, (1997) and Jadeja, (1999) give supplementary information on Ethnobotany among the tribals of Barda Hills, but nothing specific on the Maher.

For comparison of Ethnobotanic uses, Dictionary of Indian Folk Medicine and Ethnobotany (Jain, 1991), Wild relatives of Crop Plants in India (Arora 1951), and Useful plants of India (Ambasta, 1984) have been used.

2.3.3.3 Collection of Data

Before embarking on trips the localities were carefully selected on the basis of the available information on the areas to be visited, and the people to be studied taking aid of maps, divisional forest working plans, floras, icones, literature on the Maher and obviously, discussions with relevant personnel.

To collect first hand information on new sources of drugs, foods and folk knowledge regarding conservation of biodiversity, intensive Ethnobotanical explorations were undertaken in all the 155 villages and 23 nesses under Porbandar district, Gujarat, during 2006-2008. Ethnobotanical data was collected first hand through.

2.3.3.3.1 Enquiry

This was on general lines e.g., on fuel, crops, vegetables, timbers for construction etc. or on specific lines formulated on the spot, varying situation wise.

2.3.3.3.2 Observations

At the village and hut level observations as on cultigens, constructions, farm boundaries and fences, agricultural and food gathering, techniques, domestic and day to day chores and articles were taken.

2.3.3.3.3 Interviews

Based on plants were taken in three situation: Plants available CAS in floristic surveys with the local medicine man or village head man accompanying, plants were collected and brought to *'chora'*, the headman's house or a farm where rural people were interviewed. Selected and knowledgeable Maher of assorted ages were taken for excursions within forest and ethno botanically important plants were collected. Individual interviews were also taken on prior collected plants.

Plants not at hand but available (interviews on plants in the area were taken with local names and notes. The plants were collected later)

Plants neither at hand nor available (while gathering information, the local names of plants with details on the morphology, habit and habitat, structure, size, colour of flowers and fruits together with season were taken. Plants were collected whenever opportunity arose)

Field tours to study site were planned in such a way as to collect ethnobotanically interesting species either in flowering or fruiting stage.

2.3.3.3.4 Questionnaire

Based on the specific Performa designed by Jain & Goel (1995), questionnaire appendix were prepared and questions were asked and the resultant information was recorded in the Ethnobotanical field not book along with the name of locality, attitude and local names. An attempt was also made to note

whether the village herbalists prepare pastes, pills, powders, aqueous extracts, infusions and decoctions from some parts of medicinal plants for the treatment of various diseases and disorders. Approximate close given was worked out by showing a tea-spoon in the internal use of drug. There is a common belief in the villages that chanting mantras enhances the medicinal effect of herbs.(App.-IV)

2.3.3.3.5 Informants

The local informants were of for types, chosen by selected sampling and random sampling methods:

1. The medicine men.
2. Village headmen (sarpanch), Brahmin and other prominent leaders, their wives or other women.
3. Men and women working in the filed.
4. Men and women in weekly market, temple and other places.

The information collected was considered notable when the researcher himself observed its actual application or three informants in the same or different villages reported a similar use. Major informants are Parbatbhai (Ratdi village) Kankbhai (khambhodar village) Rambhai (Kandorna village).

2.3.3.3.6 Participation

By organizing folk gatherings, participating in their various activities-ceremonial and otherwise, notes were taken. Documentation of information during and after field work was carried out on scientific lines. Voucher plant specimens tagged with field-numbers along with products or produce were invariable collected photographs are taken and talk is recorded were taken with interpretations.

Herbarium sheets of all the ethnobotanically important plants were prepared as per standard herborizing practices (Jain & Roa, 1977), and identified with the help of floras of the adjoining areas, India and various monographic and reversionary works (Hooker, 1872-1897; Thaker, 1910; Bole and Pathak 1988; Shah, 1978).

2.3.3.4 Miscellaneous

Forest personnel, school teachers, government physicians and veterinary doctors, mines personnel, postal authorities and other personnel with experience in or posted in these regions were interviewed and exhaustive discussions were held with them for collecting fresh information or confirming the prior collected one.

2.3.3.5 Laboratory work

Laboratory work mainly consisted of processing, study of morphology, dissection, identification, matching mounting, labeling and preservation of the specimens. At the conclusion of each field trip, the collection was brought to M.D. science college, Porbandar and all the above processes were completed there.

2.3.3.6 The plan

The plants are arranged alphabetically by their generic and specific names followed by synonyms, name of family, vernacular, English, Sanskrit and regional names, distribution, brief description of systematic account, flowering and fruiting, habitat ecology, material examined (voucher specimen number), parts used, folk uses from own field observation. If known, the information pertaining to phytochemistry and biological activity has also been included.

Indices to Local Names, Uses and Families are appended.

Table 2.1 Rainfall in mm and Rainy days during the period of 1998-2007

Month/Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total	Avg
January	-	-	-	-	-	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-	-	-	-
April	-	-	-	-	-	-	-	-	-	-	-	-
May	-	11/1	-	27.2/3	-	-	41.2/4	-	-	-	79.4/4	7.94/0.4
June	144.6/5	45.9/2	-	393.1/4	118.7/3	92.4/2	102.2/5	257/11	54.4/3	153.6/8	1361.9/43	136.19/4.3
July	197.7/8	48.2/5	283.3/9	127.7/11	23.0/3	305.1/3	125.4/7	186.6/7	387.6/4	78.6/8	1793.2/85	176.32/8.5
August	162/3	23.8/3	126.7/8	92.2/7	117.7/5	245.8/10	152.8/8	62.2/4	191.8/8	864.2/14	2039.2/70	203.92/7.0
September	11.7/3	20/1	4/1	4.2/1	-	-	14.0/2	233.4/10	111.02/5	33.80/4	432.12/27	43.21/2.7
October	142.2/7	59.2/3	3.1/1	7.0/1	-	-	24.2/3	-	-	-	2357/15	23.57/1.5
November	-	-	-	-	-	-	-	-	-	29.8/1	29.8/1	2.98/0.1
December	-	-	-	-	-	-	-	-	-	-	-	-

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Rainy fall	658.2	208.1	417.1	561.4	259.4	643.3	456.8	739.2	744.82	1160
Rainy day	26	15	19	27	11	25	29	32	30	35

Fig. 2.3 Rainfall in mm and Rainy days during the period of 1998-2007

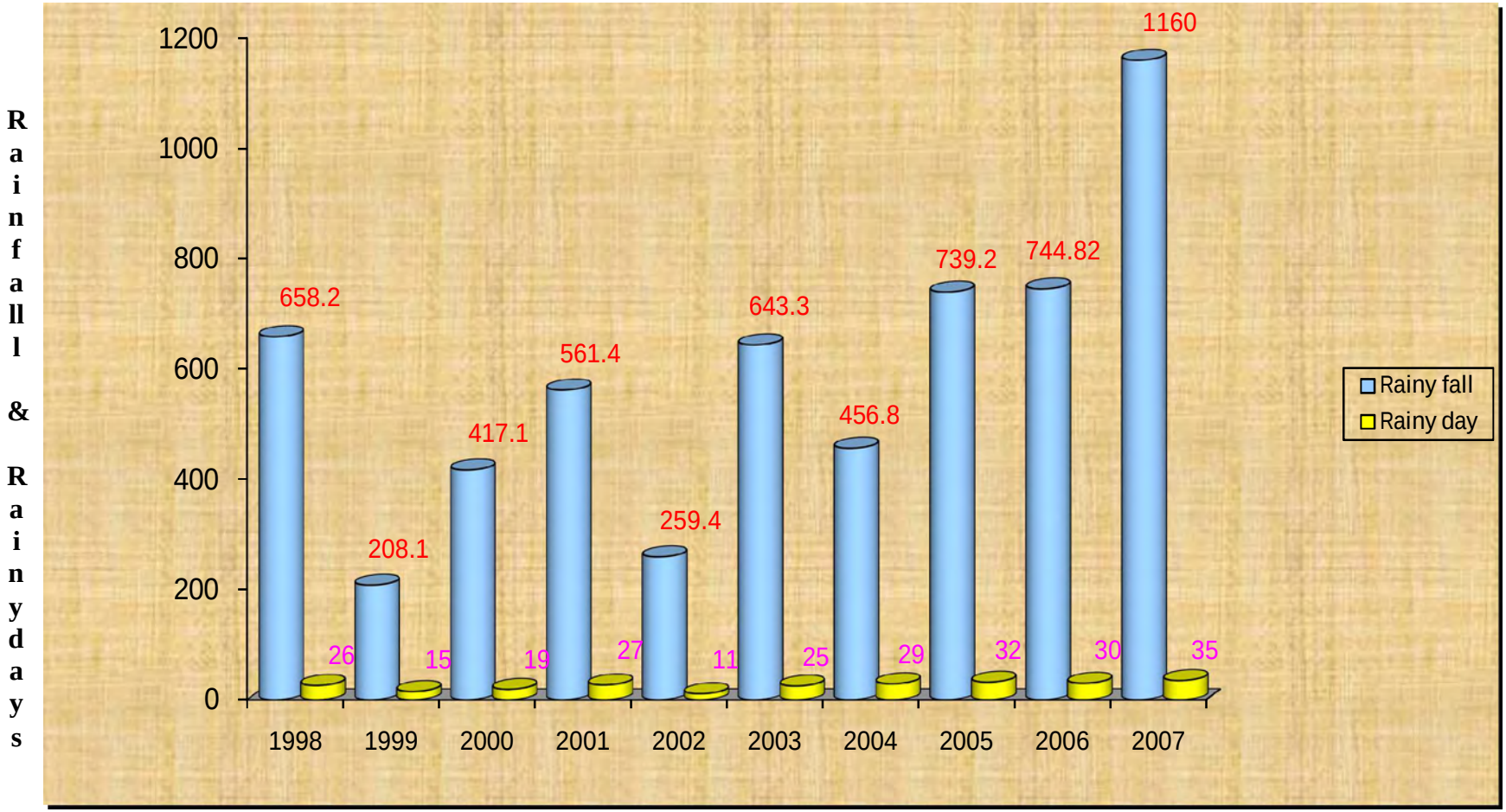


Table 2.2 Temperature (˚C) during the period of 1998-2007.

Month	Year																			
	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
January	17.92	26.50	19.43	25.79	18.85	26.67	18.57	27.35	18.44	26.56	19.54	28.11	17.93	26.28	14.91	25.29	18.84	26.80	20.21	26.78
February	19.58	27.16	21.68	28.53	20.15	27.38	19.31	27.79	21.06	28.34	20.84	28.06	19.21	27.28	16.45	25.98	21.83	29.74	21.50	28.04
March	22.39	29.63	22.65	29.64	22.54	29.64	22.97	29.40	24.76	30.74	21.99	30.02	23.92	31.69	22.20	28.18	22.37	30.97	22.51	30.00
April	26.13	30.72	24.66	30.77	25.41	30.81	24.76	31.55	25.74	30.47	24.01	30.68	24.92	29.97	26.85	32.50	24.22	31.04	24.48	31.87
May	28.01	32.16	26.54	30.39	26.74	31.07	28.17	31.21	28.22	32.38	27.07	31.18	27.35	31.37	26.52	31.10	26.30	31.50	26.19	32.67
June	28.45	31.46	27.88	30.65	27.64	31.72	27.96	30.45	27.88	31.59	28.22	31.85	27.96	30.72	27.70	30.70	26.91	31.64	26.71	31.81
July	27.34	30.00	27.34	29.65	26.75	29.38	26.37	28.67	27.07	29.91	26.52	29.64	26.96	29.95	26.13	29.62	25.65	28.59	26.92	30.23
August	26.37	29.13	26.41	29.20	26.76	29.21	26.47	28.95	25.95	28.39	25.87	28.46	25.74	28.33	25.65	28.99	25.49	28.78	25.77	28.56
September	26.95	29.61	27.00	30.09	26.87	29.94	26.81	29.79	26.11	29.18	26.63	29.57	26.94	30.03	25.72	28.60	25.76	29.61	26.80	30.60
October	26.84	30.75	25.59	30.76	27.84	31.82	26.69	30.80	26.60	32.38	26.49	31.90	26.19	30.93	26.80	31.62	25.34	30.50	25.52	30.31
November	23.60	30.16	23.79	29.53	24.94	30.96	24.78	31.26	24.56	31.18	23.59	30.02	25.04	31.84	24.69	29.82	24.76	29.25	23.34	28.87
December	19.70	28.42	20.67	28.11	20.62	29.34	21.81	29.25	20.10	28.83	20.87	27.20	19.32	27.84	19.20	26.95	21.75	25.61	20.32	26.90

1998		1999		2000		2001		2002		2003		2004		2005		2006		2007	
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
17.92	32.16	19.43	30.77	18.85	31.82	18.57	31.55	18.49	32.38	19.54	31.90	17.93	31.84	14.91	32.50	18.84	31.64	20.21	32.67

Fig. 2.4 Temperature (˚C) during the period of 1998-2007.

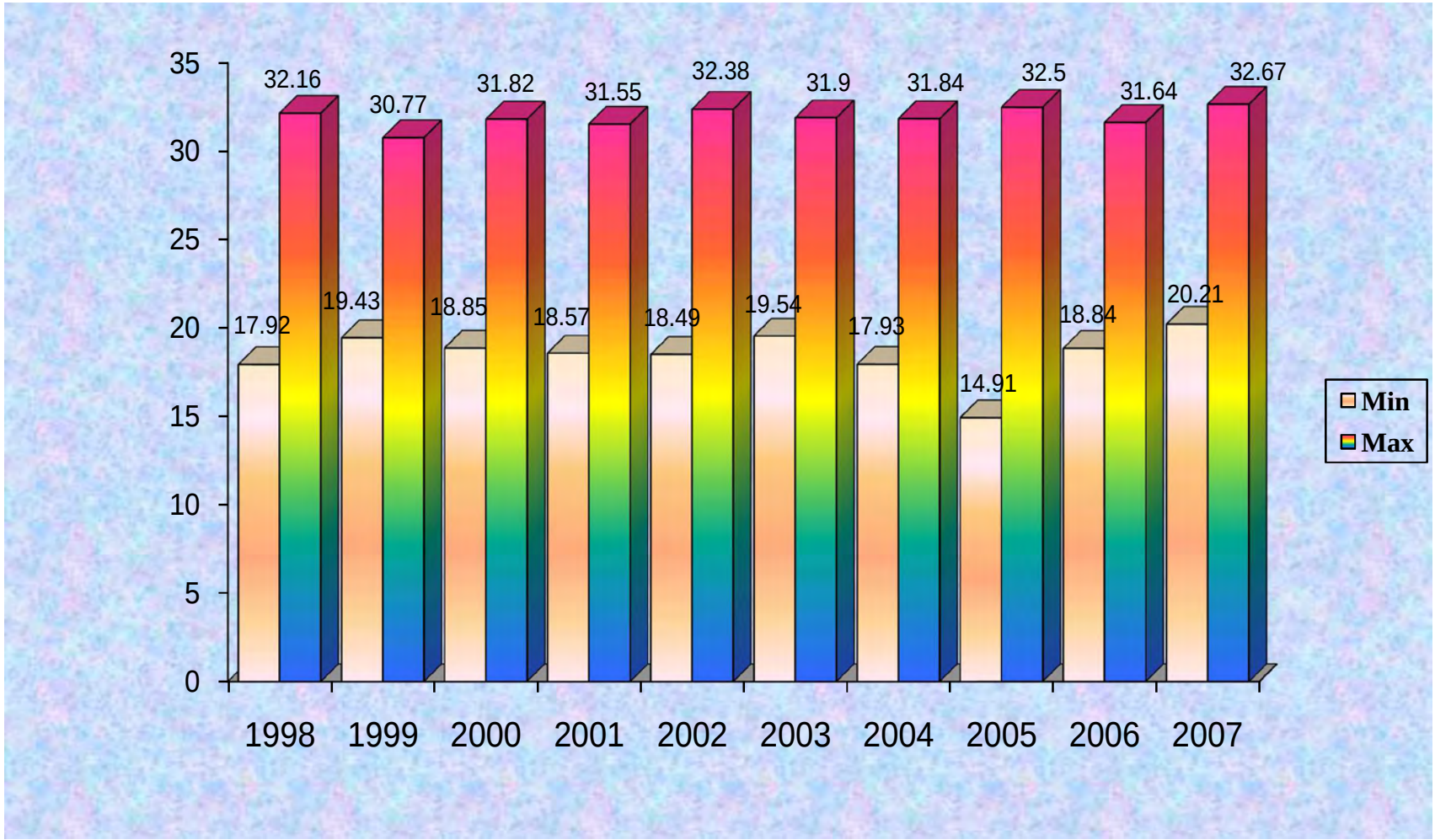


Table 2.3 Humidity in percentage during the period of 1998-2007.

Month/Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Avg.
January	36.56	44.98	44.49	32.78	33.94	33.04	43.45	46.33	72.60	66.38	45.46
February	43.93	41.18	40.73	45.64	32.38	45.79	43.46	45.55	74.85	72.04	48.56
March	51.88	44.94	45.72	49.12	39.84	42.72	42.10	52.63	70.78	66.59	50.63
April	62.24	61.70	62.71	53.44	57.95	59.88	68.78	44.68	59.85	67.30	59.85
May	68.16	71.90	68.73	71.42	64.70	66.93	66.95	66.79	65.27	68.85	67.97
June	75.94	74.45	67.39	72.77	71.79	71.15	74.26	75.03	68.28	71.38	72.24
July	79.39	81.04	78.38	81.23	74.17	79.02	75.66	83.11	81.83	78.36	79.22
August	78.73	79.47	78.39	78.88	78.51	82.95	83.26	81.45	80.85	82.29	80.54
September	75.73	69.54	70.63	71.62	68.32	71.50	70.97	83.13	72.91	75.30	72.97
October	65.41	61.01	60.30	59.73	47.53	53.67	52.73	72.06	65.02	76.11	61.36
November	39.93	45.16	36.19	37.93	35.41	44.54	40.10	66.79	68.58	74.45	48.31
December	37.85	34.06	33.61	34.90	42.97	35.94	44.85	73.24	70.23	72.40	48.01

Fig. 2.5 Relative Humidity in percentage during the period of 1998-2007.

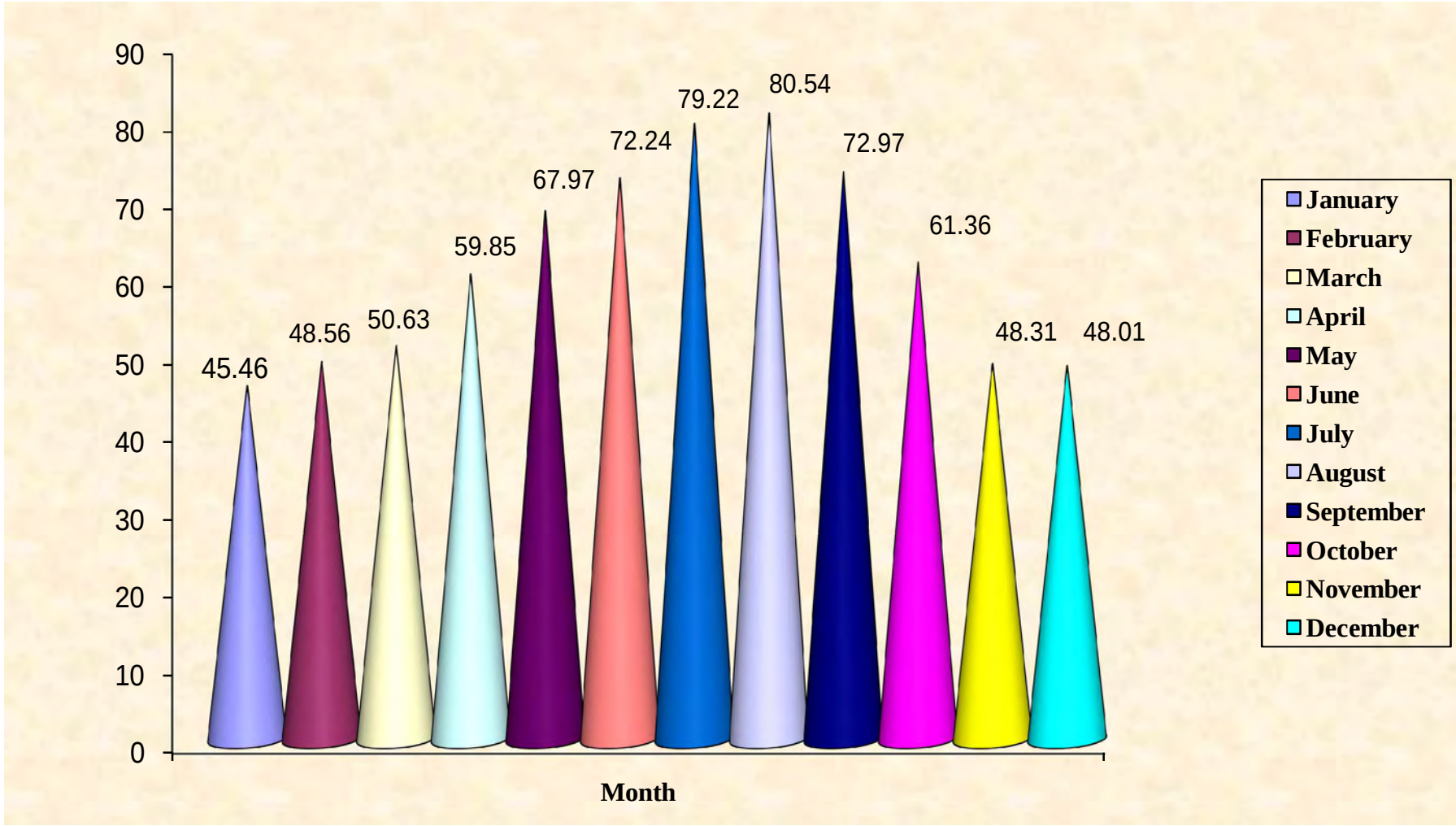


Table 2.4 Wind Velocity (Km/hrs) during the period of 1998-2007.

Month/Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total	Avg
January	9.40	9.60	11.38	10.24	10.97	11.00	9.01	10.09	9.82	9.22	100.73	10.07
February	10.65	9.55	11.70	12.70	12.01	12.30	11.15	12.51	11.09	10.18	113.84	11.38
March	12.86	12.94	13.78	14.31	13.72	14.32	14.18	14.71	14.83	12.86	138.51	13.85
April	15.37	15.09	16.48	15.66	18.14	15.36	15.73	15.03	15.50	14.27	156.63	15.66
May	16.31	20.68	17.43	18.49	16.96	18.22	15.69	16.65	17.30	15.51	173.24	17.32
June	17.89	16.07	18.56	17.33	17.46	17.20	15.94	15.66	15.27	15.97	167.35	16.74
July	15.52	17.66	16.15	16.32	18.96	15.17	15.21	16.22	16.70	14.70	162.61	16.26
August	13.26	15.15	14.27	14.51	14.57	14.37	15.13	14.42	15.92	12.65	144.25	14.43
September	12.83	13.47	11.79	12.84	13.46	13.26	12.44	14.63	9.75	8.59	123.06	12.31
October	9.85	7.57	9.97	12.23	10.99	9.91	9.35	7.50	8.71	7.45	93.53	9.35
November	8.49	9.01	9.01	8.61	9.57	8.98	8.45	7.36	6.77	6.61	82.86	8.29
December	8.79	8.83	8.05	8.48	9.13	8.30	8.40	9.35	8.23	8.46	86.02	8.60
Average	12.60	12.97	13.21	13.48	13.83	13.20	12.56	12.84	12.49	11.37		

1998		1999		2000		2001		2002		2003		2004		2005		2006		2007	
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
8.49	17.89	7.57	20.68	8.05	18.56	8.48	18.49	9.13	18.96	8.3	18.22	8.4	15.94	7.36	16.65	8.23	17.3	6.61	15.97

Fig. 2.6 Wind Velocity (Km/hrs) during the period of 1998-2007.

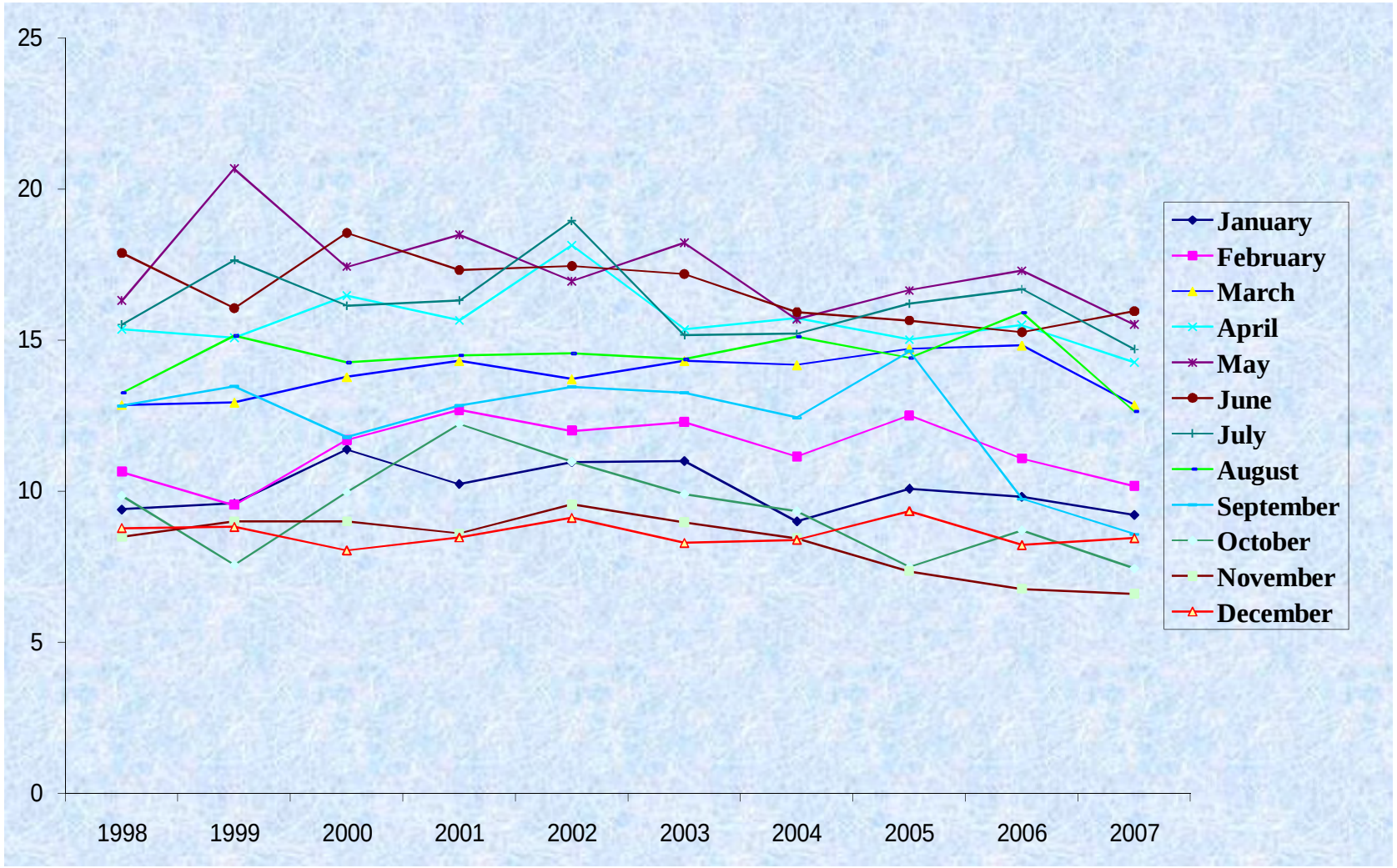


Table 2.5 Sunshine (hrs/day) during the period of 1998-2007.

Month/Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total	Avg
January	9.20	9.11	9.41	9.46	9.40	9.25	9.09	9.18	9.26	9.43	92.79	9.28
February	9.34	9.22	9.49	9.46	10.01	9.12	9.52	9.35	9.76	9.64	94.91	9.49
March	9.44	10.32	9.55	9.12	9.03	9.08	9.15	8.37	9.41	9.86	93.33	9.33
April	9.47	10.21	10.27	9.47	9.45	9.18	9.07	9.54	9.71	9.49	95.86	9.59
May	10.18	1.57	8.48	9.17	9.28	9.34	7.19	10.04	9.97	10.32	85.54	8.55
June	7.22	6.27	6.44	5.28	7.32	6.32	5.01	6.64	4.05	9.81	64.36	6.44
July	3.12	2.47	2.38	1.40	5.30	2.40	4.31	2.59	0.47	2.65	27.09	2.71
August	2.35	1.59	3.54	3.08	4.79	1.45	1.47	1.28	0.26	0.45	20.26	2.03
September	6.07	7.22	6.54	6.49	8.04	6.25	7.34	3.46	8.26	8.11	67.78	6.78
October	6.54	8.02	9.21	7.44	9.04	9.11	7.50	8.20	8.11	9.05	82.22	8.22
November	9.09	9.41	9.35	9.05	8.30	9.29	7.09	9.21	8.33	5.76	84.88	8.49
December	9.02	8.54	9.14	9.22	8.41	9.15	7.58	8.43	9.23	8.58	87.30	8.73

1998		1999		2000		2001		2002		2003		2004		2005		2006		2007	
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
2.35	10.18	2.47	10.32	2.38	10.27	1.4	9.47	4.79	10.01	2.4	9.34	1.47	9.82	1.3	10.04	0.26	9.97	0.45	10.32

Fig. 2.7 Sunshine (hrs/day) during the period of 1998-2007.

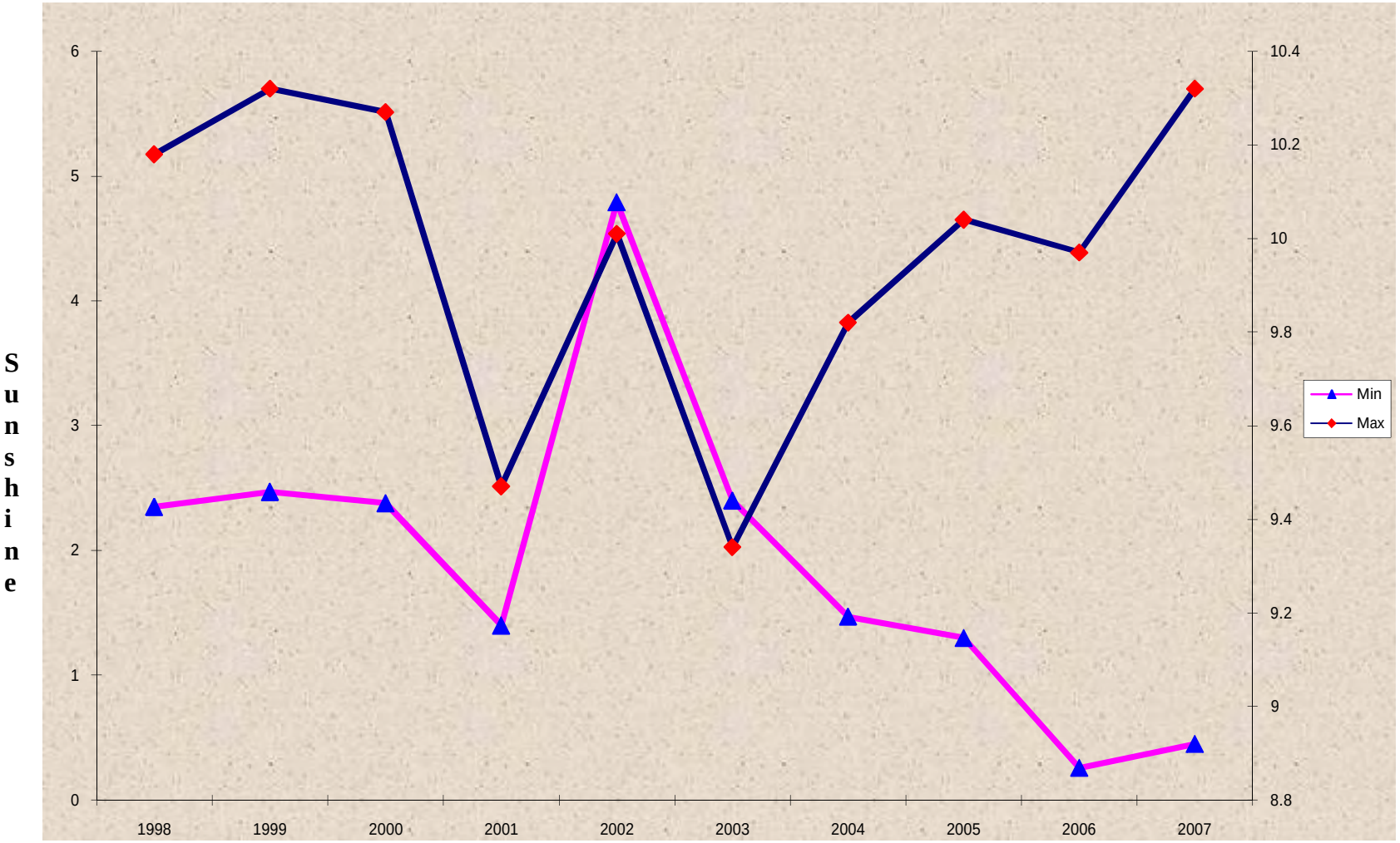


Table 2.6 Panevoparation (mm/day) during the period of 1998-2007.

Month/Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total	Avg
January	9.20	9.11	9.41	9.46	9.40	9.25	9.09	9.18	9.23	9.43	92.76	9.28
February	9.34	9.22	9.49	9.46	10.01	9.12	9.52	9.35	9.76	9.64	94.91	9.49
March	9.44	10.32	9.55	9.12	9.03	9.08	9.15	8.37	9.41	9.86	93.33	9.33
April	9.47	10.21	10.27	9.47	9.45	9.18	9.07	9.54	9.71	9.49	95.86	9.59
May	10.18	1.57	8.48	9.17	9.28	9.34	7.19	10.04	9.97	10.32	85.54	8.55
June	7.22	6.27	6.44	5.28	7.32	6.32	5.01	6.64	4.05	9.81	64.36	6.44
July	3.12	2.47	2.38	1.40	5.30	2.40	4.31	2.59	0.47	2.65	27.09	2.71
August	2.35	1.59	3.54	3.08	4.79	1.45	1.47	1.28	0.26	0.45	20.26	2.03
September	6.07	7.22	6.54	6.49	8.04	6.25	7.34	3.46	8.26	8.11	67.78	6.78
October	6.54	2.08	9.21	7.44	9.04	9.11	7.50	8.23	8.11	9.05	76.31	7.63
November	9.09	9.41	9.35	9.05	8.30	9.29	7.09	9.21	8.33	5.76	84.88	8.49
December	9.02	8.54	9.14	9.22	8.41	9.15	7.58	8.43	9.23	8.58	87.30	8.73

1998		1999		2000		2001		2002		2003		2004		2005		2006		2007	
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
4.9	7.8	5.4	8.4	5.8	8.7	7.5	8.5	5.7	9.1	5.3	7.7	4.4	6.4	4.0	7.6	4.8	7.3	4.1	6.3

Fig. 2.8 Panevoparation (mm/day) during the period of 1998-2007.

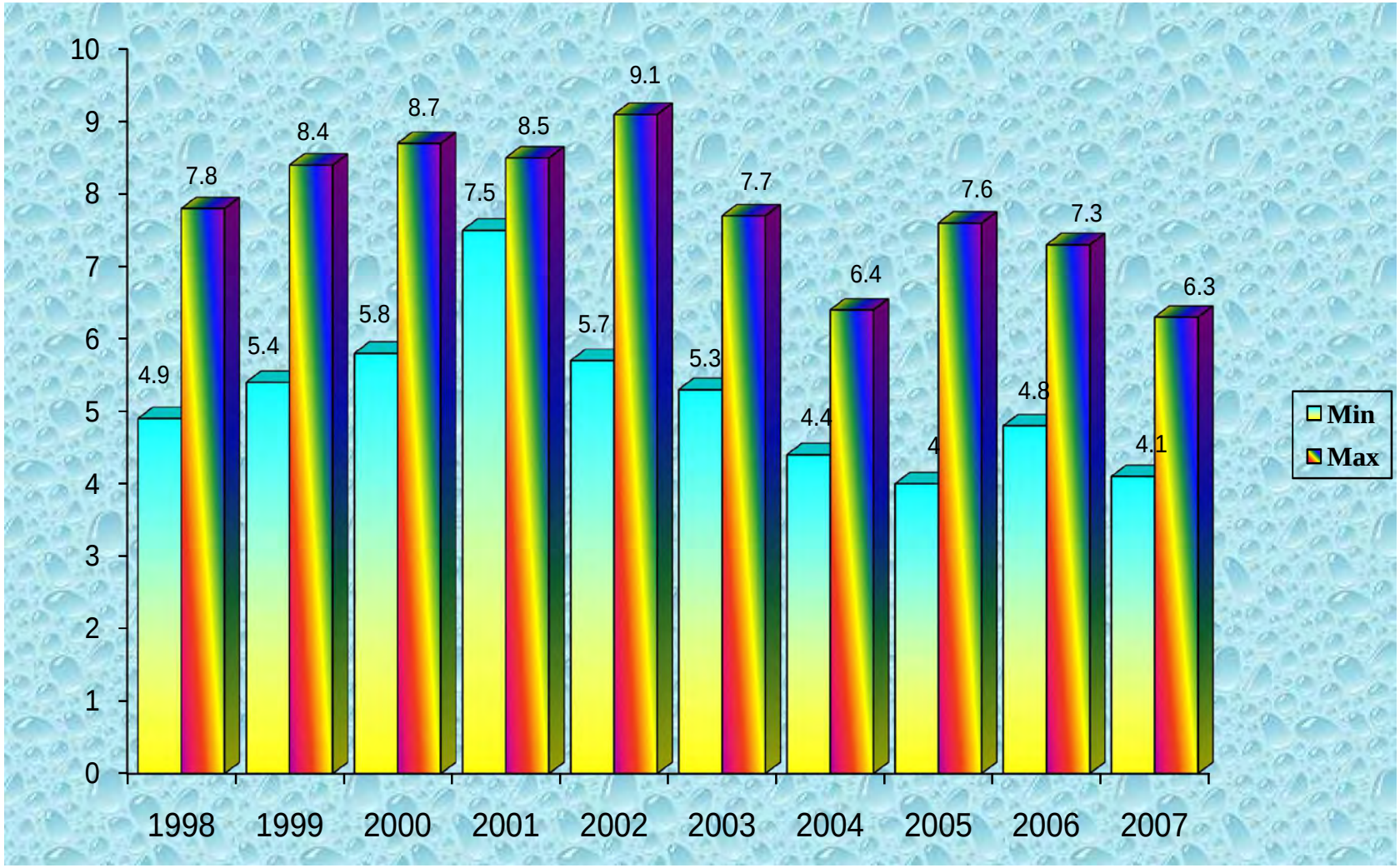


Table 2.7 Soil Temp(C) at 5 cm depth during the period of 1998-2007.

Month/Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total	Avg
January	29.03	28.72	27.23	28.00	26.84	27.38	25.75	23.84	23.60	24.15	264.54	26.45
February	30.88	30.83	31.88	29.00	29.65	28.07	27.06	25.24	31.58	25.79	289.98	28.99
March	34.22	34.11	34.37	32.72	34.83	29.76	32.53	28.19	31.17	27.62	319.52	31.95
April	37.90	36.13	37.53	35.85	37.63	31.69	31.76	31.76	32.40	29.34	341.99	34.20
May	40.37	36.92	39.74	38.40	39.45	36.38	32.70	30.88	34.13	30.35	359.32	35.93
June	36.81	36.07	40.33	34.27	37.96	37.04	32.55	30.29	30.98	30.10	346.40	34.64
July	31.51	32.09	32.45	30.57	32.47	31.29	31.25	28.44	28.45	29.12	307.64	30.76
August	32.48	32.92	32.15	31.34	31.31	29.70	28.67	27.56	28.25	27.69	302.07	30.21
September	35.13	35.44	34.00	35.21	32.87	31.38	31.15	27.75	29.88	29.51	322.32	32.23
October	35.87	34.69	36.35	35.60	36.01	33.00	31.52	30.04	30.90	28.86	332.80	33.28
November	32.97	31.60	33.66	33.10	32.88	30.02	31.23	27.58	29.56	26.60	309.20	30.92
December	30.13	28.82	28.91	30.17	28.49	26.61	27.59	24.16	25.71	24.97	275.56	27.56

Fig. 2.9 Soil Temp. (C) At Cm depth during 1998-2007

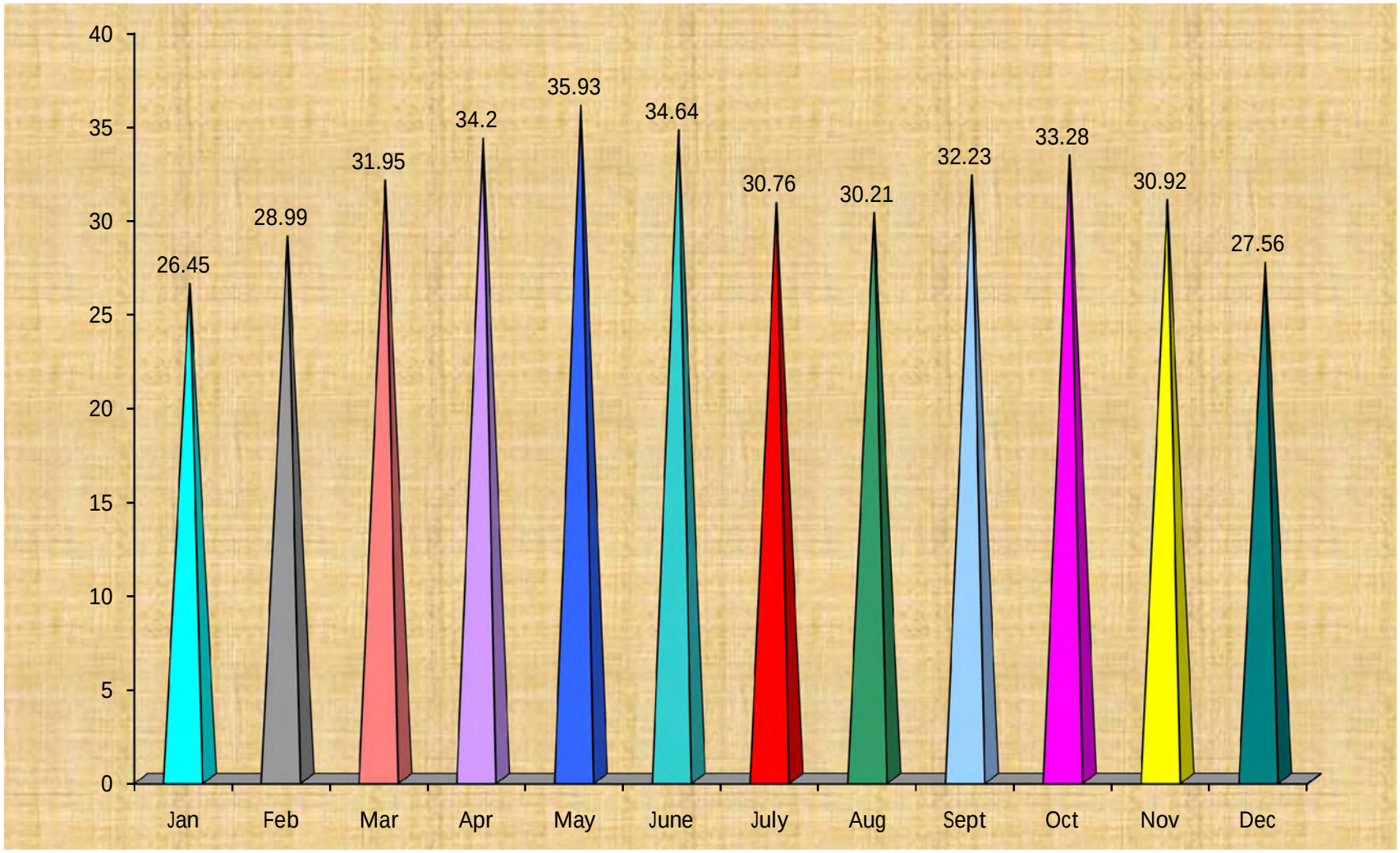


Table 2.8 Wind Direction during period of 1998-2007.

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Normal wind direction
January	Ne	WSW	W	WNW	W	N	N	N	NW	N	N
February	WSW	N	WSW	W	W	W	W	W	W	N	W
March	WSW	WSW	WSW	W	W	W	W	W	W	W	W
April	WSW	WSW	WSW	W	W	W	W	W	W	W	W
May	WSW	WSW	SW	SW	SW	WNW	WSW	W	W	W	WSW
June	WSW	WSW	WSW	SW	SW	WSW	SW	W	W	SW	WSW
July	WSW	WSW	WSW	WSW	W	SW	SW	W	SW	SW	WSW
August	WSW	WSW	WSW	WSW	W	W	SWS	W	W	SW	WSW
September	WSW	WSW	WSW	W	W	W	W	NW	SSW	W	W
October	WSW	NW	W	WSW	W	W	W	Ne	W	W	W
November	N	WSW	N	Ne	N	N	W	WSW	N	W	N
December	Ne	WSW	N	Ne	NW	N	W	N	N	NW	N

CHAPTER III REVIEW OF THE PREVIOUS WORK

3.1 Vedic and other Literature

Plants have existed on land for the last 430 million years and humanity has been dependent on them from time immemorial. In India, documented knowledge regarding the curative properties of plants can be traced back to the Vedic period dating back from 3500 to 1800 BC. The sacred Vedas, i.e., 'Rigveda' (4500-1800 BC), 'Atharvaveda' (4500-2500 BC); eight divisions of Ayurveda; 'Charak Samhita' (100-800 BC), Sushruta Samhita' (800-700 BC) and the contributions of some of the learned scholars – patanjali, Nagarjuna, Charkradattu, Sarangadhar, Bangsen (500-100 BC) contained comprehensive records of Magical efficacy of the plants. Besides, another monumental contribution in the pre-Christian era – 'Kalpastanum' or 'Vrikshayurveda' by prasara formed the actual basis of medical studies in ancient India, as it described characteristics, distribution, habitat, season of collection, direction of efficacy and method of storage of vegetable drugs. Likewise, in other civilizations of the world, the works Hippocrates (5 BC), The oprastus (372-287 BC) – 'History of plants', Pliny (23-79 AD), Natural History Dioscorioides (23-79 AD) Ibn Sina (980-1037 AD) – 'Canon of Medicine', Fuchs (1542) – 'De historia stirpium', Turner (1551) – 'A new Herball' and Gerad (1597) – 'The Herbal' are noteworthy. These mostly dealt with the ancient traditions related to plants and animals. Which now form the core of interdisciplinary science known as ethnobotany.

- Chopra *et. al*, 1956, 1969. 'Glossary of Indian medicinal plants'.
- Faulks, 1958. The publication of the first book on ethnobotany, 'An Introduction to Ethnobotany', literature on the subject is mushrooming all over the world.
- Mudgal, 1987 and Chandra, 1990. Complied the diverse ethnobotanical literature existing in various languages of the world.

- Rastogi and Mehrotra, 1990, 1991, 1993. The comprehensive works on compendium of Indian medicinal plants, Vols. I-IV.
- Jain, 1991. 'Dictionary of Indian Folk medicine and Ethnobotany' presented information dealing with 2352 taxa belonging to 1174 genera fewer than 259 families in his book.
- Jain *et al*, 1991. "Notable plants in ethnomedicine of India".
- Asolkar *et al*, 1992. Deal with the phytochemical and pharmacological works.
- Binu *et al*, 1992, gave an outline of ethnobotanical research in India.
- Saklani and Jain, 1994. "Cross cultural ethnobotany of North India". This book deals with 1296 species of plants, of which 472 are reported to be used among more than one ethnic group, and 824 are unique to a particular region or tribe. Ethnobotanical data on 51 species have been reported for the first time.
- Joshi, 1995. "Ethnobotany of the primitive tribes in Rajasthan". Who gave a comprehensive account of the primitive tribes of Rajasthan and presented 304 spp. belonging to 83 families are embraced by the tribals in their lives.
- Martin, 1995, Ethnobotany – methods Manual (A people and plants conservation manual) some of the notable contributions in recent years.
- Arora & Pandey, 1996. Wild Edible plants of India – Diversity conservation and use.
- Balick & Cox, 1996. 'Plants people and culture the science of Ethnobotany'.
- De Rios, 1996. 'Hallucinogens; cross cultural perspectives'.
- E. Varghese SVD, 1996. "Applied ethnobotany a case study among the Kharias of Central India". Who gave details of 280 spp. of ethnobotanic importance used by Kharias.
- Jain, 1996. Assessed the credibility of folk claims in north-west Himalaya through cross-culture ethnobotanical studies.

- Lal *et al*, 1996. Reported about the ethno medicinal uses of some plants practiced by the 'Gaddies' – The migratory shepherds of Himachal Pradesh.
- Neuwinger, 1996. 'African Ethnobotany – Poisons and Drugs'.
- Newall *et al*. 1996. 'Herbal medicines; A Guide for Health-care professionals'.
- Sinha,1996. Ethnobotany; The renaissance of traditional Herbal medicine.
- Gill *et al*, 1997. Folk medicinal plants: practices and Beliefs of the Bini people in Nigeria. Deals with 39Species used by Bini People.
- Jamir, 1997. Ethnobiology of Naga tribe in Nagaland. Deals with 45 species used by Naga Tribe.
- Red ford & Mansour, 1997. Traditional people and biodiversity conservation in large tropical landscapes.
- Roy Vickery, 1997. 'A Dictionary of plant lore'.
- Schultes & Reiss, 1997. 'Ethnobotany – evolution of a Discipline'.
- Upadhye *et al*, 1997, Ethno-Medico-botany of some sacred plants of western Maharashtra.
- Brussell, 1998. 'Potions, Poisons and Panaceas: An Ethnobotany study of Montserrat'.
- Pandy, 1998. 'Ethno-Forestry, local knowledge for sustainable Forestry and livelihood security.
- Sensarma, 1998. 'Ethnobiological Information in Kautiliya Arthasastra'ico
- Dagar & Dagar, 1999. Ethnobotany of Aborigines of Andaman and bar Islands.
- Pieroni, 1999. 'Herbs, Humans and Animals – Ethnobotany and traditional Ethno veterinary practices.
- Sinha and Sinha, 2001. 'Ethnobiology – Role of Indigenous and Ethnic societies in Biodiversity conservation, human health protection and sustainable development'.

- Trivedi, 2002. 'Ethnobotany' Ethnobotany contains 28 articles by eminent ethnobotanists of the country on different aspects of the subjects. The book provides a good glimpse of the rich ethnobotanical heritage of India.
- Dhiman, 2003, gave an account of medicinal uses of about 149 sacred plants in his entitled 'sacred plants and their medicinal uses'.
- Sood & Thakur, 2004. Ethnobotany of Rewalsar Himalaya. This book deal with Indigenous knowledge on the utilization of 265 plant species belonging to 82 families and 220 genera.
- Sood *et al*, 2005. 'Sacred and Magico religious plants of India. This book deal with the compendendium lists 468 such plants spread over 133 families and 340 genera.
- Udayan *et al*, 2007, 'A note on the medicinal plants used by the Kaadar Tribes, Kariyan shola, Top slip, Tamilnadu' Deals with 51 species used by Kaadar Tribes.

3.2 Work on Gujarat

3.2.1 Floristic Diversity of Gujarat

- Thaker, 1886-1906. The curator of forest and gardens (Porbandar state) was the first to extensively explore the vegetation around Porbandar (Thaker, 1894); His work is the only comprehensive documentation available on medicinal plants and their properties of Saurashtra region. The work was published as "*Vanaspati Sastra – Barda Dungar ni Jadibuti, Pariksha ane Upayog"*. (Botany – A complete and comprehensive account of the Flora of Barda mountain) by the Gujarati printing press and *Nirnaya-Sagar vardhak Karyalaya* Ahmedabad in 1910. This has documentation on 613 medicinal species.
- Cook, 1901-1908 "Flora of the presidency of Bombay" which covered floristic documentation of Gujarat state as well as neighboring Sindh (Pakistan) state. It has recorded 626 plant species; 450 species in Gujarat and around 176 in Sindh. Though the systematic documentation of medicinal plants was not the aim of this exercise, it has mentioned

medicinal uses of a few species. The ethnobotanical knowledge on the documented species therefore, is not comprehensive.

- Saxton and Sedgwick, 1918 and 1922, "*The plants of Northern Gujarat*". Elaborate research in the north Gujarat region. However the scope of the work was limited to only northern Gujarat.
- Thaker, 1926, *Kutch Sawasthan ni Vanspatiyo ane teni upyogita* describes flora of Kutch and reserved grasslands. Their distribution and uses including medicinal ones.
- Borgensen, 1929. Notes on vegetation at Dwarka with reference to Raunkiaer's life forms and statistical methods.
- Blatter and McCann, 1935, in "Grasses of Bombay Presidency" have worked out a descriptive study of the grasses occurring in the Bombay presidency, the Gujarat and the Saurashtra regions. They provide a detailed list of 110 genera and 319 species.
- Kapadia, 1954, Notes on some grasses of Kutch.
- Santapau, 1950-1953, Flora of Saurashtra (part-1) provides detailed account of medicinal properties of various species. The families covered in the flora are Ranunculaceae to Rubiaceae.
- Kapadia, 1951, Forest wealth of Gir and Girnar in Junagadh district of Saurashtra.
- Santapau & Raizada, 1954, contribution to the flora of the Gir forest in Saurashtra.
- Raizada & Vaid, 1957. Glimpses of the vegetation of Okhamandal.
- Sutaria, R.N. 1958, Books of Systematic Botany provides Taxonomic details and medicinal use.
- Patel, 1965, Grasses of Gujarat state. They gave great variability and their correct identification as well as classification is possible only by study of many minute characteristics.
- Santapau and Janardhanan, 1966, did give a checklist of the plants occurring in Saurashtra and listed 1136 species under 591 genera and 126 families.

- Patel, 1971, Forest flora of Gujarat state, also mentions medicinal uses of the plans described by him.
- Malahotra and Wadhwa 1973, studies on the botany of Jamnagar district.
- Pandya 1976, Flora of and vegetation of Saurashtra
- Shah, 1978, Flora of Gujarat, for it gives description of 153 families, 788 genera, 1580 species, 124 varieties and 14 subspecies.
- Raghwan *et.al*, 1981. A checklist of the plants of Gujarat gives a detail of 155 families, 861 genera, 1964 species and 87 varieties.
- Rao, 1981. Provides an account of flora richness of south-Eastern Kutch and lists 273 species with medicinal use.
- Thakrar, 1987. Biological flora of Rajkot.
- Bole and Pathak, 1988. 'Flora of Saurashtra' they have documented the occurrence of 750 plant species belonging to 335 genera covering the Asteraceae to Poaceae families.

3.2.2 Ethnobotany of Gujarat

Of the various parts of Gujarat, Ethnobotanical information is available, as is evident from the works of:

- Thakar, 1926. "Kutch Sawasthan ni Vanaspatiyo anae teni upyogita" (Plants of Kutch and their utility). He has listed about 507 Angiospermic plants belonging to 75 families with economic and other utilities.
- Bapalal Gadhbadas Vaidya, 1935. "Gujarat ni Vanaspatio". It covers 528 plants with medicinal uses.
- Ahluwalia, 1964 and 1965, published his work on Jamnagar region as 'Medicinal plants of Jamnagar"
- Joshi et al, 1980, Provides information on folk medicines of Dangs. Describe ethnobotanical used of about 200 plants in the forest of Dang.
- Joshi and Audichya, 1981, enumerated 288 medicinal plants available in the forest of Rajpipla.
- Shah *et al*, 1981, given an account of ethnobotany for 133 species available in the forest of Saurashtra.

- Shah and Gopal, 1982, Provides ethno-botanical profile of the Dangi community of Dang region, involving 145 medicinal species.
- Shah and Gopal, 1985, Provide information on the plant species used by the Bhils, Rabaries, Dubias and Garashias tribes of Gujarat.
- Bhatt and Sabnis, 1987, 'Ethnobotany of Khedbrahma' reports 41 species used as medicine by Bhil, Dhank, Mayaka and Dubaba tribes.
- Nurani, 1997, worked on ethnobotanical aspect of Barda Hill. He found that total 62 plants belonging to 42 families were used by Rabaries for their life style.
- Punjani, 1997, carried out ethnobotanical study of tribal areas of Sabarkantha District.
- Jadeja, 1999, worked on ethnobotanical aspects' of 'Barda Hills'. He found 38 taxa belonging to 38 genera and 28 families are used by Rabaries of Barda Hills in their traditional modes of treatment of diseases.
- Ismail Master, 2000, has documented 113 species from Kala Dunger in Pachcham area of Bhuj Taluka in northern Kutch with mention their medicinal uses.
- Silori and Rana, 2000, have documented the traditional knowledge on 34 medicinal plants in Narayan Sarovar Sanctury, Kutch.
- Anjaria e*t al*, 2002, "Ethnovet Heritage" Indian ethnoveterinary medicine an overview. This book deals with 750 medicinal plants used by traditional animal healers throughout India.
- Bhatt *et al.,* 2004, Provides information of 83 wild food plant of Barda Hill, Porbandar.
- Pandey *et al.,* 2005, Medicinal plants of a very comprehensive study about the medicinal flora of Gujarat. (1315 plant spp.)
- Chavda, 2006, worked on Ethnobotanical aspect of Keshod, Mendarda and Vanthali Talukas of Junagadh district. Provide information on the 459 angiospermic plant species.

- Jadeja *et al*, 2006a, gave a brief account of ethnoveternary practices in Porbandar and reported 74 plant species that are used for treating ailments in the animal.
- Jadeja, 2006b, has documented 380 angiosperm plant spp. belonging to 290 genera of 99 families have been identified and recorded for ethnobotanical used in Barda hills.
- Jadeja *et al,* 2007, 'Fodder resources during famines in Gujarat. Reported 106 plant species of wild plants used as fodder during droughts.

CHAPTER IV OBSERVATIONS

4.1 Introduction

The 1978 technical report of the WHO discusses the role of traditional medicine in treating the masses in traditional ways. It says…. " (The traditional method is) the sum total of all the knowledge and practices whether explicable or not, used in diagnosis, prevention and elimination of physical , mental and social imbalance and relying exclusively on practical experience and observation handed down from generation to generation, whether verbally or in writing."

The aim of this chapter is to study the information possessed by ethnic groups either remained buried or forgotten and lost in antiquity. The listing of plants of ethnobotanical value is important for evaluating human-plant relationship and for understanding the regional human-ecology relations to their environment. Maintaining such traditional knowledge in the face of sweeping modern medicine and diminishing folk medicine is imperative and should be encouraged. Therefore ethnobotanical uses of plant species by the Maher community of Porbandar district is enumerated.

4.2 Enumeration of Ethnobotanical Uses:

In the early period of evolution, man was a food gatherer, totally dependent on forest for food and shelter. Gradually, he learnt to grow food, rear animals and build houses. With this process of development, his dependence on forest gradually decreased but the pace of development has not been uniform for all human beings. Some human races went much ahead, while others living in comparative isolation in hilly, remote and densely-forested area, were left behind in the race of development and still in varying stages of primitiveness. These people aboriginal or indigenous people of Porbandar district.The life style of the Maher has evolved over centuries and direct use of natural resources such as plants and their products is inseparable part of their life and culture. The Maher cure their ailments using simple remedies. They use different parts of plants that were locally available, in trying to cure different types of diseases. The ethnobotanical information was collected from the Maher community with the help of two questionnaires. Plants used by the Maher in their day-to-day life are listed below.

*1. **Abelmoschus esculentus*** Moench.

Syn. : *Hibiscus esculentus* Moench

Family: Malveceae. **Vern.: Bh**indo.

Sanskrit Name: Bhenda. **English Name**: Lady's Finger, Okra.

Regional Names:-

Hin. Bhindi, Bhindi-tori; **Kan.**: Bendekayl; **Mal.**: Venta; **Tam.:** Vental;

Tel.: Bendakaya.

Distribution: Tropical Africa, India.

Description: A Hairy, erect, annual shrub. Leaves cordate, 3-5-lobed toothed, hairy, petiole hairy, stipulate. Flowers axillary, large, yellow with purple centre. Capsules oblong, 5-6—ribbed.

Flowering: Sept.-Nov. **Fruiting**: Oct.-Jan.

Habitat Ecology: Cultivated as a vegetable in agriculture fields.

Material Examined: NKO-24

Parts Used: Leaves, Fruits.

Folk Uses:-

- Tender capsule used as a vegetable.
- Extract of leaves mixed with egg albumin and applied on hair which makes black and silky hair.

Chemical Constituents:- The pods contain carotene, iron, potassium, sulphur, vitamin A, folic acid, thiamine, riboflavin, niacin vitamin C, oxalic acid and the essential amino acid. The mucilage of the fruit on hydrolysis affords glucose glucosamine and amino acids. The seeds afford protein lipids, gossypol, thiamine, riboflavin and tocopherol. Oil yields myristic, palmitic, palmitoleic, oleic, linolenic, tocopherols and acids.

Biological Activity:- The fruits are sweet, mucilaginous, emollient, cooling, aphrodisiae, stomachic haematinic, demulcent, diuretic, constipating and tonic.

2. Abrus precatorius Linn.

Syn. : *A. minor* Desv., *A. pauciflorus* Desv.

Family: Fabaceae. **Vern**. : Chanothi.

Sanskrit Name: Gunja, Kakachinchi, Krishnala. **English Name**: Indian or Wild Liquorice Root.

Regional Names. :-

Bom. Ghungchi–gunja;**Hin.**: Charmoi, Chirmiti, Gaungchi;**Kan.**:Gurugunji, Ghumchi, Gunj, Karjani, Lalgadi, Rati;**Mal.**: Kunni;**Pb.**: Labri, Ratak;

Tam. : Gundumarni;**Tel.** : Ghurie-ghenza.

Distribution: Pakistan, India, Sri Lanka.

Description: Perennial twiner. Leaves paripinnate leaflets opposite, oblong, blunt. Flowers pink or white in racemes. Pods flat, beaked, silky. Seeds scarlet with a black spot, polished, shining.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Common in rocky habitats, climbing on *Euphorbia niriifolia.*

Material Examined: NKO-72

Parts Used: Leaves, seeds.

Folk Uses:-

- Leaves are eaten with sugar cube to cure mouth ulcer.
- 6g paste of seeds is fed to cattle for expulsion of placenta.

Chemical Constituents:- Roots and leaves contain glycyrrhizin, precol, abrol, abrasine and precasine. Gallic acid, abrine, hypaphorine, alanine, serine valine, choline, trigonelline, precatorine and methyleast 5B-cholanic acid, abrin A and abrin B from seeds.

Biological Activity:- Abrin A is toxic to cell-free protein Synthesis (Rastogi & Mehrotra, 1993) Px hypotensive.

3. Abutilon indicum (Linn.) Sw.

Syn: *Sida india* Linn.

Family: Malvaceae. **Vern**: Khapat.

Sanskrit Name: Atibala. **English Name**: Country Mallow.

Regional Names:-

Ben. : Potari; **Hin:** Jhampi, Kanghi; **Kan.**: Gidutingi, Hettukisu;**Mal.**: Katturam;**Mar.**: Akakaj; **Oriya**: Nakochono;**Tam:** Nallatutli;**Tel.**: Adavibenda.

Distribution: Afghanistan, Tropical Africa, India.

Description: A small shrub, hairy. Leaves cordate, ovate, acuminate, toothed, and stipulate. Flowers yellow. Fruit a carserule. Seeds brown.

Flowering: Oct.-May. **Fruiting**: Nov.-June.

Habitat Ecology: A common species of waste places throughout the study area.

Material examined: NKO-25

Parts Used: Leaves.

Folk Uses:-

- Leaves ground with butter milk and extract given orally for thrice a day to cure dysentery.

Chemical constituents:- Leaves contain mucilage, tannin, organic acid, traces of Asparagin, mucilaginous substance, ash (contains alkaline, sulphates, chlorides, magnesium phosphate and calcium carbonate). Roots contain Asparagines.

Biological activity:- Bark is astringent, diuretic, febrifuge, anthelmintic, alexeteric. A root is diuretic, antipyretic. Plant is demulcent, lentitive, and diuretic, laxative.

4. Acacia catechu (Linn. f.) Willd.

Syn. : *Acacia catechuoides* Wall, *A polyacantha* Willd, *A. walichiana* Dc. Prodr., *Mimosa catechu* Roxb, *M .catechuoides* Roxb, *A. sundra* Bedd.

Family: Mimosaceae. **Vern.** : Kher.

Sanskrit Name: Khadira. **English Name**: Cutch Tree.

Regional Names:-

Ass. : Kat, Khoira, Koir;**Beng:** Khayer, Kuth; **Bom:** Khaderi, Khaira, Khera;

Hin. : Katha, Khair, Khair-babul;**Kan.**: Kagali, Kagli;**Oriya**: Khoiru;

Tam. : Bega, Karangalli, Vodalai, Vodalan, Wodaliar; **Tel.**: Kaviri-Sandra, Nalla-Sandra, Podala-manu.

Distribution: India.

Description: A small tree. Leaves bipinnate, main rachis with glands between many pairs of pinne and a large conspicuous gland at or near the middle of the petiole. Stipules spiny, hooked. Flowers pale-yellow, axillary spikes. Pods stalked, flat thin, brown, with a triangular beak at the apex.

Flowering: Apr.-Aug. **Fruiting**: May-Oct.

Habitat Ecology: Common in Barda Hills.

Material examined: NKO-108

Part Used: Stem.

Folk Used:-

- Stem used in preparation of cart wheel and '*Data*'.

Chemical Constituents:- Bark contains catechin, catechu tannic acid, tannin, wood yields α,β,γ – catechin and l-epicatechin. Gum consists of D-galactose (a mols) L-arabinose (4 mols) D-rhamnose (3 mols) and L-glucuronic (3 mols); on hydrolysis gum yields aldobiuronic acid found to be 6-D glucuronoside, D-galactose.

Biological Activity:- Seeds exhibit marked hypo glycaemic activity in normal rats, but not in alloxan diabetic rats. Antiviral, anti, inflammatory, hepatoprotective and spasmolytic (Chakravarty *et al.,* 1983; Rege *et al.,* 1984; Nirmal *et al.,* 1985).

5. Acacia farnesiana (Linn.) Willd.

Syn. : *Acacia indica* Desv., *Mimosa farnesiana* Linn, *Vachellia farnesiana* W. & A. Prodr.

Family: Mimosaceae. **Vern.** : Tal baval.

Sanskrit Name: Arimaedah. **English Name:** The Cassie Flower.

Regional Names:-

Beng.:Guya babula; **Hin.**: Gand-babul; **Kan.**: Jali; **Mar.:** Gubabhul;**Tam.**:Puj-velam, Vedda-vala;**Tel.**:Kamputumma,Kasturi,Murkitumma,Naga-tumma, Odasal.

Distribution: India, Srilanka, Brazil.

Description: A small thorny tree. Leaves bipinnate. Flowers in globose heads, bright yellow, small and sweet scented. Pods turgid, pointed, dull brown.

Flowering: Nov.-Dec. **Fruiting**: Dec.-Jan.

Habitat Ecology: Common in waste land, especially sandy areas.

Material examined: NKO-109

Parts Used: Branches.

Folk Uses:-

- Branches are used to prepare fencing surrounding the cropland.
- Dried branches are used as fuel.

Chemical Constituents:- Gallic acid, ellagic acid, menthylgallate, kaempferol, aromadendrin are obtained from flowers. Epigenin-6,8-bis-C-glucopyranoside is obatained from leaves.

Biological Activity:- The bark is acrid and hot, alexiteric, anthelmintic and anti-dysenteric. The gum is sweetish, tonic, aphrodisial.

6. Acacia leucophloea (Roxb.) Willd.

Syn. : *A. alba* Willd, *A. arcuata* Decaisne Herb., *Mimosa alba* Rottl., *M. leucophloea* Roxb.

Family: Mimosaceae. **Vern.** : Harmo baval.

Sanskrit Name: Shveta-barbura-vrikshaha. **English Name**: Babool White.

Regional Names:-

Beng. : Safed-babul;**Hin.**:Jhind, Karir, Nimbar, Raung, Reru, Ringa, Rinj, Rohani, safed Kikar;**Kan.**: Bili-jali, Bilijali-topal, Nayi-bela, Togral-naibela, Vel-vaila;**Mal**: Velvelam;**Mar.**: Hewar;**Oriya**: safed-Kikar;**Tam.**: Vel-uel, Vel-uelam, Vevaylam;**Tel.**: Tella-tuma.

Distribution: India, Sri Lanka.

Description: A medium-sized, deciduous tree with yellowish bark. Leaves bipinnate, leaf lets 12-30 pairs. Flowers in terminal, head creamy to pale-yellow. Pods flats, linear-oblong. Seeds spherical, pale-brown.

Flowering: Sept.-Nov. **Fruiting**: Nov.-Mar.

Habitat Ecology: Common in Barda Hills and surrounding.

Material Examined: NKO-110

Parts Used: Roots, Branches.

Folk Uses:

- 20g root paste is given on empty stomach as an abortifacient.
- Branches are used to prepare fencing surrounding the cropland.

Chemical Constituents:- Bark contains 7 to 12 % tannin, mainly arabin which is a mixture of calcium, magnesium and potassium salts of Arabic acid.

Biological Activity:- Bark is astringent, bitter thermogenic, styptic, alexiteric, anthelmintic, vulnerary, demulcent, constipating, expectorant and antipyretic.

7. Acacia nilotica (Linn.) Del. Subsp. ***indica***(Benth) Bren.

Syn. : *A. arabica* Willd.

Family: Mimosaceae. **Vern.** : Desi baval.

Sanskrit Name: Barbura. **English Name:** Babool Black, Indian Arabic Tree.

Regional Names:-

Hin.: Babul, kikar;**Kan.**: Karijali;**Mal.**: karuvelam;**Tam.**: karuvelam;

Tel.: Nallatumma.

Distribution: Arabia, Tropical Africa, Natal ECP, India, Sri Lanka.

Description: A moderate-sized ever green tree. Leaves bipinnately compound. Flowers golden yellow in globose heads. Fruits stalked compressed. Seeds 8-12, black-brown, smooth.

Flowering: May-Oct. **Fruiting**: June-Nov.

Habitat Ecology: Very common on open ground and on stream bank.

Material Examined: NKO-111

Parts Used: Stem, Fruits, Gum.

Folk Uses:

- Fresh exuding gum is eaten and liked by children.

- Dry branching is used to prepare fencing surrounding the crop lands.
- Stem used in preparation of Plough (*Hal*), '*Sati'* and '*Data'*.
- Dried stem used as fuel.
- Young pod piece is kept in the mouth to hasten healing mouth ulcer.

Chemical Constituents:- Mainly arabin, which is a mixture of calcium, magnesium and potassium salts of Arabic acid. Presences of tannin in bark and oxidiase enzyme in gum. Moisture 15% Alkali 3.5%.

Biological Activity:- Bark is astringent, acrid, cooling, styptic, emollient, vulnerary, anthelmintic, constipating, depurative, aphrodisiac, diuretic, expectorant alexeteric, emetic and nutritive. Gum is sweet, astringent, cooling, emollient, expectorant, constipating, liver tonic, aphrodisiac, haemostatic, antipyretic and tonic.

8. Acacia senegal Willd.

Syn. : *Mimosa senegal* Linn.

Family: Mimosaceae. **Vern.** : Goradiyo.

Sanskrit Name: Swetkhadir **English Name:** Gum Arabic.

Regional Names:-

Hin.:Kumla;

Distribution: Arabia, Pakistan, Tropical Africa, India.

Description: A small, prickly tree, branches fluxous, glabrous-grey. Leaves bipinnate, main rachis pubescent, with a gland between the lowest pair and another gland between uppermost pair of pinnae, prickles just below the nodes usually three two laterals nearly straight or slightly curved upwards, middle one curved downwards. Flowers fragrant spikes axillary peduncles. Pods linear oblong, thin, flat, attenuated at both ends, reticulated, pale brown when ripe seed suborbicular lenticular.

Flowering: Sept.-Nov. **Fruiting:** Oct.-Dec.

Habitat Ecology: One of the chief jungle forming tree. This species is found on Barda Hills.

Material Examined: NKO-112

Parts Used: Stem.

Folk Uses:-

- Dry branching is used to prepare fencing surrounding the crop lands.
- Dried stem is used for fuel.

Chemical Constituents:- Bark contains tannin.

Biological Activity:- Gum is demulcent, emollient, tonic and expectorant.

9. Achyranthes aspera Linn.

Syn: *A. wightiana* Wall., *A. lanceolata* Wall.

Family: Amaranthaceae. **Vern**: Aghedo.

Sanskrit Name: Aghta, Apamarga. **English Name**: The Prickly Chaff Flower.

Regional Names:-

Ass.: Apang;**Beng.**: Apang;**Hin.**: Chichra, Chirchira, Chichita Latjira;

Kan.: Uttarane;**Mal.:** Katalati;**Mar.:** Aghadha;**Pb.:** Kutri;**Tam.:** Na-Yurivi;

Tel. : Antisha, Utta-revi.

Distribution: Tropical Africa, India, Sri Lanka, Brazil, Australia.

Description: An annual, erect herb, 90-180 cm tall with leathery leaves abruptly attenuated at the base. Branches some what 4-sides. Flowers grayish white, borne in terminal, robust spikes, 30-40 sum long and sharply deflexed against its rachis. Seeds inverted.

Flowering: Sept.-Dec. **Fruiting**: Sept.-Jan.

Habitat Ecology: Moist rocky slopes, waste lands, grass lands and in hedges.

Material Examined: NKO-257

Parts Used: Whole plant.

Folk Uses:-

- Juice extracted from whole plant paste is given 1 teaspoon full 3 times a day for 3 days to patients of Asthma.
- A paste of leaves is made with turmeric and smeared on the infected area of Psoriasis as an effective remedy.

Chemical Constituents:- Achyranthine, bectaine, ecdysterone, hentriacontane and two glucosides of olenolic acid have been identified (Asolkar *et al.*, 1992, Chatterjee & Pakrashi, 1997).

Biological activity:- Hypertensive and cardiotonic activity found positive (Anon., 1975) Benzene-soluble fraction of the plant showed 100% abortifacient activity in rabbits at a single dose level of 50 mg/kg total alc. Ext. neither estrogenic nor antiestogenic or androgenic (Pakrashi & Bhattacharayya, 1977).

10. Adansonia digitata Linn.

Family: Bombacaceae. **Vern** : Rukhdo

Sanskrit Name: Goraksi. **English Name**: The Baobab Tree, The Monkey Bread, Tree of Africa, The Sour Gourd.

Regional Names:-

Bom.: Choyari-chich,Gorakhehincha,Gorakh-chintz;**Hin.:**Chora, Gor-amli, Gorak-amali,Gorakhamli;**Kan.:**GorakshTunachi,Brabmalika;**Tam.:**Anai-puli, Paparapuli.

Distribution: Tropical Africa, India.

Description: 10-20 m tall tree. Leaves compound, digitate, deciduous, leaflets 3-9 entire, obovate, acute, petioles hairy. Flowers axillary, large pendulous. Fruits pale brown densely hairy. Seeds reniform embedded in pulp.

Flowering: Mar.-Apr. **Fruiting:** May-June.

Habitat Ecology: Cultivated near religious places and gardens. (Gorakhnath-Odadar Village)

Material Examined: NKO-32

Parts Used: Stem.

Folk Uses:-

- Paste of stem bark is used to fresh mouth.
- The plant is considered sacred by Maher tribe.

Chemical Constituents: Pulp of fruit contains mucilage, gum, glucose, and tartrate. Leaves and bark contain tannin and a glucoside adansonin**.**

Biological Activity:- Leaves are antiphylogistic, diaphoretic, and antipyretic. Pulp of fruit are astringent, aperients, demulcent and sour. Bark is astringent, antipyretic.

11. Adhatoda zeylanica Medic.

Syn.: *Justicia adhatoda* Linn., *Adhatoda vasica* Nees

Family: Acanthaceae. **Vern. :** Ardusi.

Sanskrit Name: Arus, Atarusha, Vajidantakaha, Vasaka.

English Name: Malabar Nut Tree.

Regional Names:-

Beng. : Bakas, Vasaka;**Hin.:** Adalsa, Adulasa, Adulaso, Arusa, Arusha;

Mal.: Atalotakam;**Mar. :** Adulsa;**Oriya :** Basongo;**Tam.:** Adhatodai;

Tel.: Adasara, Addasaram;**Urdu:** Arusa.

Distribution: India, Sri Lanka, Burma, Malaysia.

Description : Tall, strong-smelling, glabrous shrubs with 2-lipped, irregular, white streaked pink dotted flowers in short spikes having overlapping bracts, capsule hairy 4-seeded. Seeds glabrous.

Flowering: Dec.-Feb. **Fruiting: Dec**.-Feb.

Habitat Ecology: Cultivated.

Material Examined: NKO-239

Parts Used: Whole plants, Leaves.

Folk Uses:-

- 2-3 drops leaf extract is given orally to children in cough.
- It is grown as fence surrounding human settlement.
- 5-6 ml leaves juice is taken orally with honey twice a day for a week to cure pneumonia.

Chemical Constituents:- Leaves contain vasicine and an essential oil and roots contain vasicinol (6-hydroxy vasitine) besides, vasicoline adhatodine, anisotine, betaine 6-hydroxy paganine have also been reported from the plant (Beri *et al.*, 1935; Groeger & Johne, 1966; Johne *et al.*, 1971). Fatty oil of seeds shows presence of arachidic, betienic, lignocoric, oleic, linoleic acid and sitosterol (Anon, 1990).

Biological Activity:- Alkaloid vasicine acts as a uterine stimulant, uterotonic, abortifacient, bronchodilator, respiratory stimulant and hypotensive in action.

Root ext. exhibits positive and hypogly caemic activities (Atal, 1980; Gupta *et al.*, 1978).

12. Adina cordifolia Hook. f. ex. Brandis

Syn. : *Nauclea cordifolia* Willd.ex Roxb.

Family: Rubiaceae. **Vern. :** Hardarvo.

Sanskrit Name: Giri kandamba; **English Name:** The Yellow Teak;

Regional Names:-

Beng. : Petpuria;**Hin.:** Haldu;**Kan.:** Anavu;**Mal.:** Manja-kadamba;

Mar. : Heddi; **Tam.:** Manja-kadamba;**Tel.:** Pasupa-kadamba.

Distribution: India, Sri Lanka.

Description: A large deciduous tree with horizontal branches and buttressed base. Leaves circular, shortly pointed at tip and heart-shaped at the base. Stipules whitish. Flowers heads yellow, round, 1-3 from one leaf axial, densely hairy. Fruit head a collection of numerous small capsules numerous small winged seeds.

Flowering: Aug.-Sept. **Fruiting:** Sept.-Oct.

Habitat Ecology: Rare in rocky habitats.

Material Examined: NKO-159

Parts Used: Stem.

Folk Uses:-

- Stem used in preparation of *'Modari'* and handle of *'Khapari'*.

Chemical Constituents:- The orange coloured oleoresin by incision of the trunk yields an essential oil. Analysis of the wood gave α-cellulose, β-cellulose, γ-cellulose, lignin, hemicellulose A and B. the heartwood contains adifoline, cordifoline, 10-deoxy adefoline, 10-deoxy cordifoline, benzoic acid, umbelliferone and B-sitosterol. It also contains a yellow pigment adinin.

Biological Activity:- Roots are astringent and constipating bark is acrid, bitter, astringent, refrigerant vulnerary, diuretic, demulcent, deobstruent aphrodisiac and tonic.

13. Aegle marmelos (Linn.) Corr.

Syn. : *Crataeva marmelos* Linn., *C. religiosa* Ainslie, *Feronia pellucida* Roth.

Family: Rutaceae. **Vern. :** Billi.

Sanskrit Name: Balva, Bilva, Bilvaphalam, Malura, Sriphal.

English Name: Bel Fruit Tree, The Bael, The Bengal Quince.

Regional Names :-

Ass.: Bel, Beng, Bela, Vilva;**Bom.:** Bela, Bila;**Hin.:** Bel, Siphal, Siriphal;

Kan.: Belpatri, Bilapatri;**Mal.:** Kuvalap-pazham;**Tam.:** Vilva-pazham;

Tel.: Bilvabandu, Maluramu, Maredu, Patir.

Distribution: India, Sri Lanka.

Description: A small thorny tree. Leaves trifoliate, aromatic; leaflets lanceolate. Flowers greenish white scented. Fruits globose. Seed numerous oblong.

Flowering: Mar.-Apr. **Fruiting: Apr**.-June.

Habitat Ecology: Cultivated near religious places and found in forest area.

Material Examined: NKO-48

Parts Used. : Leaves, Fruits.

Folk Uses:-

- The tree is sacred to the Maher.
- Ripe fruits eaten raw. Unripe ones boiled and eaten without any other treatment.
- Tender leaves are used to prepare ‘Chutney’.

Chemical Constituents:- Mucilage is active constituent. Unripe and ripe fruits contain tannin. It also contains marmemlosin a furocoumarin shown to be identical with imperatorin. A fruit contains two alkaloids (i) O methyl halfordinol (ii) Isopentyl halfordinol.

Biological Activity:- Skummianine isolated from px is reportedly sedative hypotonic, analgesic, acticon vulsive and antipyretic (Rastogi & Mehrotra, 1993) Rt anticancer, hypoglycemic, fr. Antiviral.

14. Aerva lanata (Linn.) Juss. ex Schultes

Syn. : *Achyranthes lanata* Linn.

Family: Amaranthaceae. **Vern. :** Gorkh ganjo.

Sanskrit Name: Astmabayda.

Regional Names:

Beng. : Chaya; **Hin.:** Chaya, Gorakhganja; **Kan.:** Bilihindisoppu;

Mal. : Cerula, Ceruvula, Cerupula;**Mar. :** Kapur-madhura, Bui-kallan;

Tam. : Sirru-pulay-vayr;**Tel.:** Pindieconda.

Distribution: Arabia, Tropical Africa, India, Srilanka, Java Sumatra & Sundan, Philippines.

Description : A small, erect or prostrate herb, branched at base, hairy, leaves alternate, elliptic or obovate or sub orbicular obtuse, entire, upper surface hairy, lower white with cottony hairs. Flowers white, small, and sessile, in axillary heads or clusters. Utricle Ovid. Seed black.

Flowering: Sept.-Jan. **Fruiting:** Sept.-Feb.

Habitat Ecology: Common in waste lands throughout area.

Material Examined: NKO-258

Parts Used: Leaves, Flowers, Roots.

Folk Uses:-

- Leaves, flowers and roots crushed in curd and given orally in jaundice.

Chemical Constituents:- α-Amyrin, campesterol, β-sitosteryl palmitate, chrysin and four flvonoid glucosides have been reported in the plants.

Biological Activity:- The plant is astringent, bitter, cooling, expectorant, emollient, vermifuge, suppurative, diuretic and lithontriptic.

15. Agave americana Linn.

Syn : *A. cantula* Roxb.

Family: Agavaceae. **Vern. :** Ramban, Ketki.

Sanskrit Name: Kantala. **English Name:** American Aloe, Century Plant.

Regional Name:-

Beng. : Banaskeora, Bilati-ananash, Bilatipat, Koyan;

Hin.: Banaskeora, Barakanwar, Kantala, Hathisengar, Rakas-patth, Ramkanta;

Kan.: Bhuttale, Budukattalenaru;**Mal.:** Panam-katrazha;**Mar.:** Parkand;

Tam.: Anaik-kat-razhai, Pitha kalabuntha;**Tel.:** Rakashimatalu.

Distribution: India.

Description : A woody rhizomatous plant with stout fleshy, dark green leaves with curved tips and marginal hooked teeth leaves crowded at the base of the stem and with a terminal spine 2.5-5 cm long flowers dull-green.

Flowering: Jan. - June. **Fruiting:** Jan. - June.

Habitat Ecology: Wastelands, Field borders.

Material Examined: NKO-298

Parts Used: Whole plant, Leaves, Spine, Inflorescence, Roots.

Folk Uses:-

- Leaves yield a fibre, employed for rope making.
- Leaf apes spine is used to remove spines or thorn inserted in farmer's legs during agricultural work. ?
- Stalk of inflorescence is used in preparation of roof of huts.
- It is grown on outskirts of field to prevent soil erosion and also act as live field Fencing.
- Boiled root used as food.

Chemical Constituents:- Leaves yield hecogenin piscidic acid and 10 steroidal saponins-agavoside A, B, C, C', D, E, F, G, H, and I, besides hecogenin. Seeds contain neotigogenin, kamnogenin and diosgenin. From flowers, chlorogenin (0.5%) kaempferol-3-glucoside and 3-rutinoside been isolated (Ambasta, 1986; Asolkar *et al.,* 1992; Chopra *et al.* 1956 ;).

Biological Activity:- Anticancer activity confirmed.

16. Ageratum conyzoides Linn.

Syn: *A. cordifolium* Roxb.

Family: Asteraceae; **Vern. :** Gandhari sedardi.

Sanskrit Name: Visamusti. **English Name:** Goat Weed, White Weed.

Regional Names:-

Ben.: Dochunty;**Bom.:** Osari, Sahadevi;**Hin.:** Visadodi;**Kan. :**Nayitulasi, Vralgidda;**M.P.**: Koobhi;**Mal.**: Appa, Muryanpacha;**Mar.**: Ghaneraosadi;
Oriya : Boksunga, Poksuna.

Distribution: Arabia, Persia, Mesopot, Afghanistan, Pakistan, India, Sri Lanka, China, Malaysia, Philippines.

Description: An annual, erect, hairy herb up to 90 cm with pale blue flowers in small heads, borne in dense terminal corymbs. Achenes black, sharply angled. Pappus awned.

Flowering: Sept.-Nov. **Fruiting:** Oct.-Dec.

Habitat Ecology: As a Weeds in cultivated areas and waste places.

Material Examined: NKO-166

Parts Used: Whole plant.

Folk Uses:-

- 5 to 7 leaves is taken orally twice a day for three days to cure seasonal fevers.
- Plants are used as lean fodder.

Chemical Constituents:- Essential oil isolated from leaves and flowers contains phenols (eugenol) 5% and a phenol ester. Friedeliin, β-sitosterol and stigmasterol; hydrocarbons, 2 unidentified esters, stigmasterol and α-spinasterol; cumarin and stigmasterol; flavonoids and anti gonadotropic hormones isolated from the plant (Asolkar *et al.,* 1992; Chopra *et al.,* 1956).

Biological Activity:- Antibacterial, anthelmintic and anticancerous activities confirmed (Asolkar *et al.,* 1992).

17. Ailanthus excelsa Roxb.

Family: Simaroubaceae. **Vern. :** Arduso.

Sanskrit Name: Madala Aralu **English Name:** Tree of Heaven, Copal Tree.

Regional Names:-

Hin.: Arua;**Kan.:** Doddamaru;**Mal.:** Matti pongilyam;**Tam.:** Perumaram
Tel.: Peddamanu.

Distribution: India, Australia.

Description : Large deciduous foetid smelling trees with grayish stem and prominent leaf scars. Leaves long petioled, pinnate, leaflets coarsely toothed. Flowers in large lax panicles, unisexual, greenish in colour, samaras 4-6 cm long, red.

Flowering: Jan.-Feb. **Fruiting:** Feb.-Mar.

Habitat Ecology: Common in waste land and planted as a road side's tree.

Material Examined: NKO-53

Parts Used: Wood.

Folk Uses:-

ν Wood is used for preparation of *'Dholak'* and toys.

Chemical Constituents:- Bark shows presence of triacontane, hexa-triacontane and a non-glycosidal bitter, excelsin. It contains β-sitosteril, 2, 6-dimethoxybenzoquinone, vitexin and melanthin also. Root bark gave a compound, 13, 18-dehydroglaucarubol-15-isovalerate, ailanthione, glaucarubinone, glaucarubol-15-isovalerate and an alkaloid, 8-hydroxy canthin-6-one along with canthin-6-one, 1-methoxycanthin-6-one and 5-methoxycanthin-6-one.

Biological Activity:- Ailanthine showed anticancer activity in p-388 lymphocytic leukaemia in dose range 0.12-400 mg/kg in mice, also active in KB test system. Glaucarubinone showed wider spectrum of activity in p-388 lymphocytic leukaemia and lewis lung B-16 melanoma in dose range 0.12-0.5 mg/kg also active in KB system. Hypotensive and spasmolytic activity positive.

18. Alansgium salvifolium (Linn.f.) wang.

Syn: *A. lamarckii* THW. Enum. *Grewia salvifolia* Linn.

Family: Alangiaceae. **Vern. :** Ankol.

Sanskrit Name: Ankola, Ankoda. **English Name:** Sage-Leaved Alangium.

Regional Names:-

Hin.: Angol,Dhera,Dhela;**Kan.:**Ankolamara;**Mal.:**Ankolam,Velittondi,Alinnil;

Tam.: Alangi;**Tel.:** Ankolamu, Udugucettu.

Distribution: India, Srilanka, China, Malaysia, Philippines.

Description: Small spiniscent deciduous trees with grayish branches. Leaves oblong or ellipticlanceolate or acute or acuminate, glabrous above, pubescent beneath. Flowers white fragrant, in axillary fascicles. Fruits baccate, ellipsoid, young green, mature turning pinkish, pulp inside white, toft, slimy.

Flowering: Oct.-Nov. **Fruiting:** Nov.-Dec.

Habitat Ecology: Grows near rivers on the outskirts of forests.

Material Examined: NKO-158

Parts Used: Whole plant.

Folk Uses:-

- It is grown on outskirts of field as a fence.
- Sourish sweet, mucilaginous, ripe berries eaten.

Chemical Constituents:- The root-bark contains the following alkaloids: Alangine A and B, alangicine, desmethylpsychotrine, marckine, markindine, lamarckinine, psychotrine, tubulosine, isotubulosine, cephaeline and emetine. The presence of protoemetinal and alangiosterol. The root bark also contains fatty acid composition: myristic, palmitic, oleic, linoeic and resin acid. The unsabonifiable matter contains stigmasterol and β-sitosterol. The fruit contains the alkaloids cephaeline, N-methylcephaeline, deoxytubulosine and alangiside. The seed contain the alkaloids emetine, cephaeline, pshytotrine, N-methylcephaeline and alangmide. Betulinic acid, betulinaldenhyde, betulin, lupeol along with hydroxylactone-A of betulinic acid and β-sitosterol have been isolated from the seed kernels.

Biological Activity:- Leaf antiprozoal, hypoglycemic. Roots are acrid, astringent, emollient, anthelmintic, thermogenic, emetic, diuretic & purgative. Fruits are sweet, cooling and purgative.

19. Albizia lebbeck (Linn.) Benth.

Syn: *A. latifolia* Boivin, *A. lebbek* Willd, *A. spectosa* Willd, *A. sirissa* Ham, *Mimosa strissa* Roxb, *M. speciosa* Jacq.

Family: Mimosaceae. **Vern**: Kalo sirish.

Sanskrit Name: Pit-Shirish. **English Name**: The Siris Tree.

Regional Names:-

Beng.: Siris, Sirisha;**Hin.**: Kalsis, Lasrin, Mathishi, Sirai, Sirar, Siras, Sirin, Siris;**Kan.**: Bengha, Dirisana, Gadda-hunshe, Kal-baghi;**Mal.**: Nenmenivaka, Vaga;**Mar.**: Chichola, Motha-Siras;**Oriya**: Tinia;**Tam.**: Kot-vaghe, Vaghe;

Tel.: Darshana, Dirasan, Katvaghe, Pedda-duchirram;

Distribution: Afghanistan, Tropical Africa, India, Sri Lanka, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea.

Description: An unarmed deciduous tree, Leaves abruptly bi pinnate with a large gland on the petiole above the base, and one below the uppermost pair of pinna. Flowers white, fragrant in globose umbellate heads. Pods oblong, thin, bluntly pointed, pale yellow smooth, shining, 4-12 seeded.

Flowering: Mar.-Apr. **Fruiting**: May (Fruits are seen throughout the year).

Habitat Ecology: Mostly as avenue tree.

Material Examined: NKO-113

Parts Used: Fruits.

Folk Uses:-

- Pounded fruits with the latex of *Euphorbia neriifolia* are applied over dog or fox bites as sedative.

Chemical Constituents:- The bark yields tannins of condensed type, viz. D-catechin, saponin, isomers of leucocyanidin & melacacidin and a new leucoanthocyanidin, lebbecacidin. It also gives friedelin & β-sitosterol. Seeds gave crude protein, calcium, phosphorus, iron, and niacia, & ascorbic acid, amino acid. Composition of the protein is: - arginine, histidine, leucine & isoleucine, lysine, methionine, phenylalanine, threonine, tyrosine & valine. The flowers contain lupeol α & β-amyrin & a pigment similar to crocetin.

Biological Activity:- Root anticancer hypotensive, spermicidal. Stembark hypoglycemic, antiallergic.

20. Alhagi pseudalhagi Desv.

Syn: *A. camelonum* Fisch.

Family: Fabaceae. **Vern. :** Javaso.

Sanskrit Name: Yavasa, Marudruva. **English Name:** Camel Thorn.

Regional Names:-

Hin.: Jawasa, Jawas;**Kan.:** Billidurava;**Tel.:** Grikarmika.

Distribution: North America, Pakistan, Tropical Africa, India, Brazil.

Description: A perennial, armed under shrub. Leaves simple, coriaceous, oblong, obovate, stipules minute. Flowers red in short racemes on the thorns. Fruit pods, falcate, glabrous.

Flowering: Mar.-May. **Fruiting:** Apr.-June.

Habitat Ecology: Grows in water logged areas (Ghed).

Material Examined: NKO-73

Parts Used: Whole plant.

Folk Uses:-

- Plants are used as fodder during famine condition in Ghed region. ?

Chemical Constituents:- Plant contains a bitter principle (Alhagin). Its exudates are called manna.

Biological Activity:- Plant is laxative, diuretic, antibiliow, antiseptic, expectorant, anti phlogistic, restorative, cholagogue, blood purifier.

21. Allium cepa Linn.

Syn: *A. cumaria* Herb. Ham.

Family: Liliaceae. **Vern. :** Dungari.

Sanskrit Name: Palandu. **English Name:** Onion.

Regional Names:-

Ass.: Piyas;**Beng.:**Palandu;**Bom.:**Kanda, Piyaj;**Hin.:** Piyaz;**Kan.:** Kunbali, Nirulli, Vengayam;**Mal.:**Bawang;**Mar.:**Kanda;**Tam.:**IRa-vengay-am, Irulli, Vella engayam;**Tel. :** Nirulli, Vulli-gaddalu.

Distribution: India.

Description: A small herb with tunicate bulb. Leaves radical tubular, hollow. Flowers on a scape in many flowered umbel, white or lilac, capsule small.

Flowering: Jan.-Feb. **Fruiting:** Jan.-Feb.

Habitat Ecology: Mostly cultivated in farm.

Material Examined : NKO-300

Parts Uses: Bulb

Folk Uses:-

- Children suffering from nasal bleeding are asked to inhale the smell of the bulb of the plant.
- Person suffering from hysteria to inhale the smell of bulb of the plant.
- Bulb is eaten raw with food.
- It is considered impious to eat 'Piyaz' during fast or on religious days.
- 1piece crushed bulb with a little turmeric powder and warmed, paste is tied with cloth bandage on corn for relief. ?

Chemical Constituents:- It contains essential amino acid composition of arginine, histidine, lysine, tryptophan, phenylalanine, methionine, threonine, leucine, and isoleucine. The bulbs steams distillation yields an essential oil known as onion oil. The bulbs contains several phenolic acids, protocatechuic acid, p-hydroxybenzoic acid, vanillic acid, caffic acid, and o- and p-coumaric acids, citric, mialic, abietic and oxalic acids are also present. It also contains several oligosaccharides, starch.

Biological Activity:- The bulbs are acrid, sweet, aromatic, cooling, antiperiodic, antibacterial, aphrodisiac, emmenagogue, emollient, expectorant, carminative, stomachic, diuretic, anodyne and tonic.

22. Allium sativum Linn.

Family: Liliaceae. **Vern. :** Lasan.

Sanskrit Name: Lasuna, Maha-ushadha. **English Name:** Garlic.

Regional Names:-

Ass.: Naharu;**Beng.:** Rasun;**Hin.:** Lasan;**Kan.:** Belluli;**Mar.:** Lasunas;

Tam. : Vallai-Pundu;**Tel. :** Vellulu-tella-gaddu.

Distribution: India.

Description: A small herb with half tunicated bulbs. Leaves that, linear, grass like. Flowers on a scape, white in many-flowered globose umbels. Capsule small.

Flowering: Jan.-Feb. **Fruiting:** Jan.-Feb.

Habitat Ecology: Cultivated in farm

Material Examined: NKO-301

Part Used: Bulb.

Folk Uses:-

- Paste of the bulb (50g) is given orally twice a day for carminative and gastric stimulant to cattle.
- Considered impious to eat garlic on religious days.
- Bulb is used as spice & condiments.

Chemical Constituents:- The essential oil obtained from the bulb, contains allicin, diallyldisulphide (6%), allylprophyl disulphide (6%) and other Sulpher compounds.

Biological Activity:- Bulblets are acrid, bitter, sweet, astringent, salty, thermogenic, aperient, anodyne, oleaginous, aphrodisial, anthelmintic, expectorant, febrifuge, diuretic, alexeteric, emmenagogue, rubefacient, stimulant, anticholesterol, anti bacterial, antifungal and tonic.

23. Aloe barbadensis Mill.

Syn: *A. vera* acut.non Mill.

Family: Liliaceae. **Vern. :** Kuwar.

Sanskrit Name: Kumari, Ghritakumari;

English Name: Curaeao Aloe, Barbados Aloe;

Regional Names:-

Hin.: Ghikuanar, Ghikumari, Kumari;**Kan.:** Kathaligida, Lolisar;**Mal.:** Kattuvala, Kattavala,Kumari;**Tam.:** Kattalai, Sirukattalai;**Tel.:** Kalabanda, Chinnakatabanda.

Distribution: Mediterranean, India.

Description: A small herb with stolons. Leaves radical very fleshy, broad at base, narrowed from base to apex, pale green, with distant horny prickles on the margins. Flowers on long scapes, yellow-orange-scarlet in dense raceme. Capsule 3-angled.

Flowering: Aug.-Dec. **Fruiting:** Aug.-Feb.

Habitat Ecology: Wild everywhere or cultivated

Material Examined: NKO-302

Parts Used: Whole plant.

Folk Uses:-

- It is grown on outskirt of field to prevent soil erosion and also act as a live fence.
- A leaf used as pickles and pulp is eaten.
- The pulp of leaves is applied on boils.

Chemical Constituents:- The plant contains aloin, aloesone and aloesin. The leaves contain barbaloin, chrysophanol glycoside and the aglycone, aloe-emodin. The mucilage of the leaves contains glucose, galactose, mannose and galacturonic acid in addition to an unidentified aldopentose and a protein with 18 amino acids.

Biological Activity:- Unspecified parts hypolipidaemic.

24. Alstonia scholaris R. Br.

Family: Apocynaceae. **Vern. :** Saptparni.

Sanskrit Name: Saptaparna; **English Name:** Scholar Tree, Devil's Tree;

Regional Names:-

Hin.: Chattiyan;**Kan.:** Hale;**Mal.:** Elilampala;**Tam.:** Elilappalai;

Tel.: Phalagaruda.

Distribution: Tropical Africa, India, SriLanka, Java Sumatra & Sunda, Australia.

Description: A large evergreen tree often fluted or buttressed, branches whorled. bark grey. Yellow inside, exuding milky latex when out. Leaves 3-7 at a node, in whorl, coriaceous, oblong-lanceolate or obovate, lower surface with whitish bloom. Intramarginal nerve present. Flowers, small greenish-white, in terminal corymbose or umbellate cymes, hairy. Fruit of two long slender follicles hanging in clusters. Seeds linear oblong with tufts of hair at each end.

Flowering: Jan.-Mar. **Fruiting:** Feb.-Apr.

Habitat Ecology: Cultivated.

Material Examined: NKO-185

Parts Used: Stem bark.

Folk Uses:-

- 1 cup decoction of stem bark is given orally to three days in malaria.

Chemical Constituents:- Bark contains ditaine, echitenine, echitamine, echitamidine, alkaloids, triterpenes, α-amyrin and lupeol.

Biological Activity:- The bark is bitter, astringent acrid, digestive, laxative, anthelmintic, febrifuge depurative, galactagogue, stomachic, cardiotonic and tonic. Leaves are bitter and antiulcer.

25. Amaranthus hybridus (Linn.)

Var**.** ***Paniculatus*** Linn.

Syn : *A. anacardana* Ham., *A. farinaceus* Herb., *A. frumentaceus* Ham., *A. sanguineous* Linn. *A. speciosus* Sims., *A. strictus* Willd.

Family: Amaranthaceae. **Vern. :** Rajgaro.

Sanskrit Name: Rajagira. **English Name:** Rajgira.

Regional Names:-

Ben.: Chuko; **Hin.:** Chua-marsa; **Kan. :** Rajgiri; **M.p.:** Rajagaro;**Mar.:** Rajgira; **Tam. :** Kainee;

Distribution: Arabia, Persia, Mesopot, Afghanistan, Tropical Africa, India, Burma.

Description: A large beautiful annual herb with grooved stem. Leaves alternate, ellipticlanceolate, acute, base cuneate, red in colour. Flowers many forming spikes of golden yellow or red colour. Fruit ovoid, and tip narrowed. Seed smooth**.**

Flowering: Aug.-Oct. **Fruiting:** Aug.-Oct.

Habitat Ecology: Cultivated or as an escape.

Material Examined: NKO-259

Parts Used: Seeds.

Folk Uses:-

- Seeds considered pious and used during various occasions.
- Grains flour especially eaten during fasts.

Chemical Constituents:- Seeds contain starch, protein fibres. Leaves contain minerals, fibres, carbohydrates.

Biological Activity:- Seeds are diuretic, nutritive. Leaves are diuretic, laxative, haemostatic, blood purifier.

26. Amaranthus lividus Linn.

Syn : *A. blitum var. oleracea* Hk. F.

Family: Amaranthaceae. **Vern**: Tandaljo.

Sanskrit Name: Alpmaris.

Regional Names:-

Hindi : Sada natiya; **Mar :** Rantanduraja.

Distribution: India.

Description: A tall erect, succulent herb. Stem stout, pale, grooved and striate, glabrous. Leaves ovate, obtuse, notched at the tip, glabrous, base cuneate. Flowers in axillary clusters and in terminal, simple and branched spikes. Fruit an utricle, broadly ovate, acute indehiscent. Seed lenticular, smooth, shining brown-black.

Flowering: Sept.-Feb. **Fruiting**: Sept.-Feb.

Habitat Ecology: As weeds in farm & waste land.

Material Examined: NKO-260

Parts Used: Aerial part.

Folk Uses:

- Leaves are cooked as vegetable.
- Aerial part is also a cattle fodder.

Chemical Constituents: The plant contains albuminoides, carbohydrates, minerals and fibers.

Biology activity: Leaves are digestive, diuretic, cooling, mild laxative and blood purifier.

27. Amaranthus viridis Linn.

Syn :*A.gracilis* Desf.**,** *Euxolus viridis* Moquin

Family : Amaranthaceae. **Vern. :** Dhimdo.

Sankrit Name : Tanduliya, Vishaghna. **English Name :** Green Pigweed**.**

Regional Names :-

Beng.: Ban note; **Mal.:** Bayam munyit; **Mar.:** Lhanamat; **Tam.:**Kuppai keerai, sinna keerai;**Tel.:** Chailaka thotakura.

Distribution : Arabia, Afghanistan, Tropical Africa, India, Sri Lanka, Malysia, Brazil.

Description : Glabrous, much branched herb, 30-60 cm tall with purplish branches, long petioled leaves and pale green flowers in panicled slender spikes. Sepals membranous, keeled. Utricle indehiscent. Seeds shining black.

Flowering : Sept.-Mar. **Fruiting :** Sept.-Mar.

Habitat Ecology : Frequent on waste lands, cultivated fields

Material Examined : NKO-261

Parts Used : Whole plant.

Folk Uses :-

- Leaves are used as vegetable.
- Plants are used as cattle fodder.

Chemical Constituents :- Plant contains saponins.

Biological Activity :- Petroleum ether ext. juvenomi metic positive.

28. Ammannia baccifera Linn.

Syn : *A. salici folia* Hiern.

Family : Lythraceae. **Vern** : Jal-agiyo.

Sanskrit Name : Agnigarba.

Regional Names :-

Hin. : Banmarich;**Mar. :** Aginbuti;**Tel. :** Agnivendrapaku.

Distribution : Japan, Afghanistan, Tropical Africa, Natal ECP, India, SriLanka, Malaysia, Australia.

Description : A msall herb in mud. Stem 4-angled. Leaves opposite, sessile, narrowly oblong, acute, narrow at base. Flowers in axillary clusters or in whorls of short cymes. Capsule membranous, depressed, globose, red, not fully covered by calyx. Seed suphemisheric.

Flowering : Aug.-Nov. **Fruiting** : Sept.-Dec.

Habitat Ecology : Commonly found in the moist places.

Material examined : NKO-129

Parts Used : Whole plant.

Folk Uses :-

- 2 spoonful decoction of entire plant is taken orally twice a day for a week to treat gonorrhoea.

Chemical Constituents :- Resin, glucose and active principle.

Biological Activity :- The plant is bitter, acrid, cooling, appetiser, rubefacient, laxative, stomachic, diuretic aphrodisiac and lithon triptic.

29. Ampelocissus latifolia (Roxb.) Planch.

Syn : *Vitis latifolia* Roxb.

Family :Ampelideae. **Vern**: Jangali draks.

Regional Names :-

Ban. : Gaveli;**Mar.** : Golinda.

Distribution : India

Description : An extensive climber, tendril forked. Leaves round, cordate 3-5-7 lobed, serrate, petioles and tendrils long. Flowers in close clusters, 5-merous, deep reddish-brown berry 2-seeded, black.

Flowering : Aug.-Sept. **Fruiting** : Sept.-Oct.

Habitat Ecology :Abundant in Barada Hills & field boundries.

Material Examined : NKO-64

Parts Used :Leaves, Stembark.

Folk Uses :

- 10 ml stembark juice is give orally twice daily in typhoid fever.
- Leaves paste mixed with 'turmeric' powder is smeared over the fractured area and bandaged. The bandage is changed with a fresh one on alternate days till cured.

30. Andrographis paniculata (Burm.f.) Wall. ex Nees in Wall.

Family : Acanthaceae. **Vern. :** Kriyatu.

Sanskrit Name: Bhunimbah, Kiratatiktah. **English Name:** Green Chiretta.

Regional Names :-

Hin.: Kalamegh, Kalpaath;**Kan.:** Nelaberu;**Mal.:** Nilaveppu, Kiriyatta;

Tam.: Nilavempu;**Tel.:** Nelavemu;

Distribution : India, Sri Lanka, W.Indies.

Description : An erect branched annual with square stem, often narrowly winged. Leaves lanceolate acute, wavy. Flowers small, in terminal or axillary racemes of panicles corolla rose coloured. Capusule linear-oblong, many seeded**.**

Flowering : Aug.-Dec. **Fruiting :** Aug.-Jan.

Habitat Ecology : Common in waste land and agriculture field.

Material Examined : NKO-240

Parts Used : Whole plant

Folk Uses :-

v 25 ml of whole plant decoction taken internally three times a day for 2 days against cold and fever.

Chemical Constituents :- Drug yields kalmeghin and a bitter principle andrographolide, B-sitosterol-glucoside, a compound, m.p. 23^0, an unsaturated, ketone, m.p.113^0, besides a crystalline mixture of four bitter substances isolated from leaves, leaves also contain caffeic, chlorogenic and dicaffeoquinic acids. Pigments andrographin, panicolin, diterpene glucoside neoandreographolide and a new flavone hydroxyl-7, 8, 2'3'-tetramethoxyflvone, besides apigenin 4, 7-dimethyl ether and mono-o-methyl occur in roots, stereos tructure of neoandrographolide eluciadated and deoxy-11-oxoandrographolide, 14-deoxy-11, 12 didehydroandro grapholide and 14-deoxyandrographolide isolated and characterized. From a reinvestigation, compounds A and B were obtained.

Biological Activity :- Apigenin-7,4'-di-o-methyl ether produced significant does dependent anti-ulcer activity in shayrats, histamine-induced ulcer in guineapigs and in aspirin induced ulcers in rats (Rastogi & Mehrotra, 1993 p.41)

31. Anethum graveolens Linn.

Syn: *Peucedanum graveolens* Bth & Hk.

Family: Apiaceae. **Vern**: Suva.

Sanskrit Name: Ahichhatra, Ghosha, Shalina. **English Name**: Dill.

Regional Names:-

Ben.: Shulupa, Sowa;**Hin.**: Sowa, Soya, Satopsha;**Mar.**: Balantashopa, Sheyu, Suva;**Pb.**: Soya;**Tam**.: Sattakkuppi;**Tel.** : Sompa.

Distribution : Europe, Madagascar, India, SriLanka, W.Indies, Central America & Mexico, Brazil.

Description: A small, glabrous perennial herb. Leaves 2-3 pinnate, ultimate segments linear. Flowers in compound umbels, yellow. Fruit a cremocarp, much compresed dorsally, ellipsoid, carpels with winged margins.

Flowering: Oct.-Dec. **Fruiting**: Nov.-Jan.

Habitat Ecology: Cultivated.

Material Examined: NKO-151

Parts Used: Fruits.

Folk Uses:-

- 2 spoon fulls extract of fruits is given orally twice a day to children for flatulence.
- Fruits are used as mouth freshner.

Chemical Constituents :- The major constituents of the oil are carvone, d-limonene, carvone, d-phellandrene, a-terpenine, carvelol, iseugenol and dill-apiol. Fruits also contain three flavonoids. Quercetin, kaempferol and isorhamnetin.

Biological Activity:- Fruits are carminative, stomatic, stimulant diuretic, resolvent, galactagogue and emmenogogue.

32.Anogeissus latifolia (Roxb. ex. Dc.) Wall. ex Guill & Perr.

Syn: *A. latifolia* var. *glabra* Cl., *Andersonia altissima* Herb. Madr.,

Conocarpus latifolia Roxb. ex Dc. Prodr.

Family: Combretaceae. **Vern. :** Bhut Ghavado.

Sanskrit Name: Dahavah. **English Name:** The Axle Wood.

Regional Names:-

Hin.: Dhava;**Kan.:** Dinduge;**Mal. :**Vellanava;**Tam.:**Vellanagai;**Tel.:** erimanu.

Distribution: India, SriLanka.

Description: A small tree. Leaves alternate or subopposite, midrib prominent pink. Flowers in small dense heads, pendulous branched, axillary, 1-2 together. Fruit small, packed in small heads. Seed solitary.

Flowering: May-June. **Fruiting:** June-July.

Habitat Ecology: Common in forest area of Barda Hills.

Material Examined: NKO-121

Parts Used: Gum, Wood.

Folk Uses:-

- Gum is an ingredient of *'Laddous'* (which commonly form the nourishing diet of ladies during pregnancy) collected and stored in summers.
- The wood is used for making axel of bullock cart and plough.

Chemical Constituents:- The gum contains polysaccharide acid, ghattic acid, containing mainly L-arabinose, D-galactose, D-mannose, D-xylose and D-galacturonic acid. Leaves contain tannins. The bark also contains tannins.

Biological Activity:- Astringent, acrid, thermogenic and stomachic, antiphlogistic, haemostatic, depurative and constipating.

33. Anona squamosa Linn.

Family: Annonaceae. **Vern. :** Sitaphal.

Sanskrit Name: Sitaphalam. **English Name:** Custared Apple, Sugar Apple.

Regional Names:-

Hin.: Sitaphal;**Kan. :** Sitaphala;**Mal.:** Sitappalam, Attaccakka;**Tam. :** Sitappalam;**Tel.:** Sitapandu.

Distribution: India, Sri Lanka, China, Philippines.

Description: A small tree. Leaves oblong-lanceolate, simple alternate, dark green. Flowers on old wood solitary. Fruit a globose berry consisting of many fleshy carpels.

Flowering: Apr.-Aug. **Fruiting:** June-Sept.

Habitat Ecology: Cultivated as crop and wildly occurs in Barda Hills.

Material Examined: NKO-1

Parts Used: Fruits, Seeds.

Folk Uses:-

- Ripe fruits are eaten.
- Paste of seeds is prepared in water and it is administrated twice a day for killing maggot's wounds of cattle.

Chemical Constituents:- Higenamin, anonaine, roemerine, morcorydience, corydine, norisocorydine, isocorydine, glaucine, oxoushinsunine, norushinsunine, reticuline, anin acids, epicatechin, catechin, caphor, borneol and squamolone. Leaves and seeds contain saponin. Fruit contains starch, sugar, pectin.

Biological Activity:- Roots are puragative. Leaves are suppurative and insecticidal. Fruits are haematinic, sedative, stimulant, expectorant maturant and tonic. Seeds are abortifacient and insecticidal.

34. Apluda mutica Linn.

Syn: *A. aristata* Linn. *A. varia* Hack.

Family: Poaceae. **Vern. :** Bhangoru.

Regional Names:-

Hin. Bhanguri; **Mar.** :Gavat.

Distribution: Tropical Africa, India, SriLanka, Java Sumatra & Sunda, Polynesia, Australia.

Description: A slender, perennial, lefy-grass. Stems densely tufted, geniculately ascending. Internodes very long polished. Leaves linear-lanceolate, petiolate. Panicles long, terminal of numerous, simple racemes or false spikes, each subtended by spathe. Spikelets polished, greenish-yellow.

Flowering: Sept.-Dec. **Fruiting:** Sept.-Dec.

Habitat Ecology: A frequent grass usually amongt hedges and bushes. Purely a monsoon species.

Material Examined: NKO-317

Parts Used: whole plant.

Folk Uses:-

- It is a good fodder for buffaloes when it is young.

Chemical Constituents:-Crude fibre 32.7, crude protein 6.7, total ash 16.0, Ca 0.82, P 0.26 and silica 16.0 (Percent on dry matter).

35. Arachis hypogaea Linn.

Family: Fabaceae **Vern**: Mandvi

Sanskrit Name: Buchanaka. **English Name**: Ground Nut

Regional Names:-

Hin. : Mugfali; **Tel. :** Vaerushanagalu.

Distribution: India, Brazil.

Description: A hairy annual herb, trailing along the ground. Leaves paripinnate with 2 pairs of leaflets, stipules adnate. Flower yellow, in axillary spikes. Pod moniliform, indehiscent, 1-3 seeded.

Flowering: Aug.-Oct. **Fruiting**: Sept.-Nov.

Habitat Ecology: Cultivated throughout the area.

Material Examined: NKO-74

Parts Used: Seeds.

Folk Uses:-

- Seeds are eaten raw or roasted.
- Furnish a very valuable oil used as cooking medium..
- Oil cake is commonly use as fodder.
- During traveling in tractor trolly the husk is spread on trolly as a sock absorber. ?

Chemical Constituents:- Seed contain oil, fatty acid, oleic acid. Root nodules contain nitrogen and proteins.

Biological Activity:- Seeds are sweet, astringent, nutritive. Seed oil has anticancer property.

36. Areca catechu Linn.

Family: Arecaceae. **Vern. :** Sopari.

Sanskrit Name: Gubak, Puga-phalam.

English Name: The Areca, Betel-Nut Palm.

Regional Names:-

Ass.: Tambul; **Beng.:** Gua, Supari; **Hin.:** Supari, Supyari;**Kan.:** Adike

Mal. : Adaka, Atakka, Kavugu; **Mar.:** Supari; **Tam.:** Kamugu, Kottai, Pakku, Pakku;**Tel.:** Poka-vakka, vakka.

Distribution: North America, India, Malaysia, Brazil.

Description: A slender, tall palm. Leaves pinnate, numerous, liner-oblong, the upper confluent. Flowers in large spadix, spathe boat-shaped, male flowers many, small on the upper part, female flowers below, solitary or 2-3 together. Drupe small, ellipsoid, fibrous, orange coloured, crowned with persistent perianth. Seed one with ruminated endosperm.

Flowering: Dec.-Apr. **Fruiting:** Mar.-May.

Habitat Ecology: Cultivated.

Material Examined: NKO-309

Parts Used: Nut.

Folk Uses:-

- Nuts offered to lord Vishnu in "*Satyanarayana Katha'* and other religious ceremonies.
- Nut is used as a substituet of Lord Ganesha in religious ceremonies.
- Crushed nut soaked in water and filtered water is given orally to cure vomiting. ?
- Chewing of the leaves of *piper bettle* smeared with lime and catechu(product of *Acacia catechu* wood) with nut of the plant is very popular in Maher men.
- Nut is used to freshen mouth.

Chemical Constituents:- Betel nut contains carbohydrates 47.2%, tannin 15%, protein 4.9%, fat 4.4%, mineral 1% and Catchin, alaric acid, brigading, aricadin, gulalolin and guvakin(alkalies).

Biological Activity:- Fruits-nuts are cooling, astringent, diuretic, digestive, anthelmintic, aphrodisiac, nervine tonic and emmenagogue.

37. Argemone mexicana Linn.

Family: Papaveraceae. **Vern. :** Darudi.

Sanskrit Name: Brahmadandi, Hemashikha, Kshirini, Srigalakanta.

English Name: Mexican Poppy, Prickly Poppy.

Regional Names:-

Beng.: Baroshial-kanta, Sialkanta;**Hin.:** Bharbhand, Satiyanashi;**Kan.:** Datturi;**Mal.:** Brahmadanti;**Mar.:** Daruri, Kontedhotra;**Pb.:** Bhatkateya, Bherband;**Tam.:** Bramadandu, Kurukkum;**Tel.:** Brahmadandi, Chettu;**Urdu:** Baramdandi.

Distribution: India, Brazil.

Description: An erect prickly glabrous annual with stem clasping and thistle-like leaves. Latex yellow. Flowers bright yellow, terminal on short, leafy branches. Capsule oblong-ovoid, short, prickly dehiscent.

Flowering: All months. **Fruiting :** All months.

Habitat Ecology: very common in waste lands, river beds and fields throughout the area.

Material Examined: NKO-10

Parts Used: Seed.

Folk Uses:-

- Made equal mixture of seed and seed of *piper nigrum* and take twice a day for 2 days. with 10-15 ml curd and sugar cube to cure fever.

Chemical Constituents:- Berberine (0.74%) Protopine (0.36%) and free amino acids from latex; isorhamentin 3-glucoside and 3, 7-diglucoside from flowers; protopine, berberine, resin and a toxic principle from roots and stems; protopine and allocryptopine from aerial parts of flowering plant; norsanguinarine, norchelerythrine, cryptopine, berberine, benzophenan thridine, coptisine, sanguinarine and chelerythrine from plant, and sanguinarine and allocryptonine from seed oil have been reported. (Chopra *et al.*, 1969; Asolkar *et al.*, 1992).

Biological Activity:- Antifungal, anthelmintic, antileprotic, antidiarrhoeal, antiviral and diuretic activities confirmed. Berberine exhibits significant myocardial depressant activity and total alkloidal fraction reported to cause fall in blood pressure.

38. Argyreia nervosa (Burm.f.) Boj.

Syn: *A. speciosa* Sweet. *Convolvulus nervosa* Burm.f.

Family: Convolvulaceae. **Vern**: Samudrasosh.

Sanskrit Name: Samudrapalaka. **English Name**: Elephant Creeper.

Regional Names:-

Hin. : Samudrashokh;**Mar.** : Samudrashokh;**Tel.** : Chandrapada.

Distribution: India, SriLanka, Malaysia, Java Sumatra & Sunda.

Description: A large climber, stem stout, white tomentose. Leaves ovate, acute, and glabrous above persistently white-tomentose beneath, and cordate at base. Flowers in subspicate cymes, rose purple in colour. Fruit globose, apiculate.

Flowering: Aug.-Oct. **Fruiting**: Aug.-Oct.

Habitat Ecology: A large climber on hedges and bushes.

Material Examined: NKO-210

Parts Used: Leaves.

Folk Uses:

- Dorsal side of leaf is tied on abscess to heal it and ventral sides of leaf are tied on abscess to rupture it. ?

Chemical Constituents:- Leaves contain tannin and acid resins. Seeds contain isoeragine and penniclavine.

Biology Activity:- Root is alternative, tonic, aphrodisiac and diuretic. Leaves are antiphlogistic, maturant, rubefacient and vesicant.

39. Aristolochia bracteolata Lam.

Syn: *A. bracteata* Retz.

Family: Aristolochiaceae. **Vern**: Kidamari.

Sanskrit Name: Kitmari, Dhumrapata. **English Name**: Bracteated Birthwort.

Regional Names:-

Hin.: Kitmari;**Kan.**: Sanajalihali;**Mal.**: Attukottappala;**Tam.** : Atutinnappalai; **Tel.**: Gadidagadapaku.

Distribution: Arabia, Pakistan, Tropical Africa, India, SriLanka.

Description: Prostrate, perennial slender herbs, stem 30-40 cm long, weak. Inflorescence axillary, solitary up to 5 cm long, flower ark purple, incomplete, actinomorphic. Fruit capsule oblong-ellipsoid, glabrous, 12-ribbed. Seed deltoid with slightly connate base.

Flowering: Aug.-Nov. **Fruiting**: Aug.-Nov.

Habitat Ecology: Common in waste land and agriculture fields.

Material Examined: NKO-267

Parts Used: Root.

Folk Uses:

- Roots are crushed with water to extract the juice ¼ cup of juice is administered orally in dysmenorrhoea.

Chemical Constituents:- Plant contains aristolochic acid, potassium chloride, potassium nitrate and foul smelly volatile oil.

Biology Activity:- Roots & leaves are bitter, acrid, thermogenic, anthelmintic, cathartic, anti-inflammatory, emmenagogue, and vulnerary, appetizer, sudorific and antiperiodic.

40. Arundinella pumila (Hochst.) Steud.

Syn: *A. tenella* Nees & Wt., *Acratherum pumilum* Hochst. ex. A. Rich.

Family: Poaceae. **Vern**: Bajariyu.

Regional Names:-

Mar. : Chirali.

Distribution: Abyssinia & Soctra, India.

Description: An annual herb, nearly glabrous. Stem solitary or tufted, erect. Leaves ovate to linear lanceolate, acuminate, membranous, many-nerved with soft hairs, base narrowed, and sheaths usually glabrous with ciliate margins. Spikelets the smallest of the genus. Grain small, ellipsoid.

Flowering: Aug.-Nov. **Fruiting**: Aug.-Nov.

Habitat Ecology: It is an ornamental grass found in rocky areas.

Material Examined: NKO-318

Parts Used: Aerial parts.

Folk Uses:-

- It is used as lean fodder

41. Artocarpus heterophyllus Lamk.

Syn: *A. integrifolia* Auct.

Family: Moraceae. **Vern. :** Fanas.

Sanskrit Name: Kshudraphanasa. **English Name:** The Jack Fruit.

Regional Names:-

Hin.: Bilattikathal;**Tam.:**Simaippala;**Mal.:**Katappilavu,Simaplavu, Kataccakka; **Tel.:** Simapavara.

Distribution: India.

Description: A large evergreen tree with a short thick trunk and a dence round crown. Leaves dark green thick, leathery, shining, elliptic or oblong, stipules large falling off early. Flower heads in bud enveloped in large stipular deciduous sheaths. Flowers numerous, yellowish green, male on stout cylindrical 5-15 cm long receptacles, female flowers on ovoid oblong receptacles. Fruit large yellowish green hanging on short stalks from the trunk, the rind of the fruit is covered with conical protuberances. Seeds smooth, ovoid, kidney shaped.

Flowering: Dec.-Mar. **Fruiting:** Dec.-Mar.

Habitat Ecology: Cultivated for its fruit.

Material Examined: NKO-281

Parts Used: Fruits.

Folk Uses:-

- Ripe fruits are eaten.

Chemical Constituents:- The fruit latex contains an ester of eorotic acid, probably the ceryl ester and amyrin acetate. Dry edible matter of the fruit contains: iodine and fluorine.

Biological Activity:- Fruits are bitter, sweet acrid, cooling diuretic, approdisial, stomachic, cardiotonic, appetiser and galactagogue. It's a tasty nutritious vegetable.

42. Asparagus racemosus Willd. Med.

Syn : *A. acerosus* Wall., *A. decaisnei* Kunth, *A. dubius* Decne., *A. fasciculatus* Br., *A. floribunda* Kunth, *A. sarmentosus* Heyne, *A. volubilis* Ham.

Family: Liliaceae. **Vern**: Satavari.

Sanskrit Name: Satamuli. **English Name**: Wild Asparagus.

Regional Names:-

Hin.: Satawar, Shakakul;**Kan.:** Majigegadde;**Mar.:** Satavari-mul;**Pb.:** Bozandan, Bozidan, Satawar;**Tam.:** Skimai-shadavari, Tannir-muttan-kizhangu;**Tel.:** Challa, Challa-gaddu, Pilli-pichara.

Distribution: India.

Description: Deciduous spinous climber; stem straggling or climbing. Leaves linear with a stout conical spinous spur. Flowers white, fragrant in simple racemes. Berry globose red.

Flowering: Oct.-Jan. **Fruiting**: Oct.-Jan.

Habitat Ecology: Common everywhere and planted in the gardens.

Material Examined: NKO-303

Parts Used: Roots.

Folk Uses:-

- Roots are eaten raw.
- Root is ground in water and half cup of the extract is mixed with one cup of cow milk and given to increase lactation in nursing mother once a day for one month.

Chemical Constituents:- The plant contains four saponins. viz. shatavarin I and IV. Shatavarin IV is a glycoside of sarsasapogenin having two molecules of rhamnose and one molecule of glucose. It also contains mucilage and starch.

Biological Activity:- Tuberous roots are bitter emollient, astringent, cooling, nervine, tonic, constipating, galactagogue, ophtalmic, anodyne, aphrodisiac,

diuretic, rejuvenating, carminative, appetiser, stomachic, anti spasmodic and tonic.

43. Asphodelus tenuifolius Cav.

Family: Liliaceae. **Vern**: Dungaro.

Regional Names:-

Hin. : Pyzi.

Distribution: Tropical Africa, India

Description: A small, annual herb with fibrous roots. Leaves radical cylindric, fistulous, acute, sheathing at base. Flowers on many scapes, white with red tinge, on a many flowered raceme, solitary in a bract. Capsule globose.

Flowering: Jan.-Mar. **Fruiting**: Jan.-Mar.

Habitat Ecology: As weeds of fields and gardens during winter.

Material Examined: NKO-304

Parts Used: Leaves.

Folk Uses:

- ½ cup leaves juice given for 2 days to cure ulcer(stomach).

Chemical Constituents:- Plant contains sulphur compounds and essential oil.

Biology Activity:- Plant is antiseptic, diuretic, blood purifier.

44. Avicennia officinalis Linn.

Family: Verbenaceae. **Vern**: Tavariya.

Sanskrit Name: Tuvari, Sagarodhut.

Regional Names:-

Hin.: Bina; **Tel.:** Mada.

Distribution: India, SriLanka, Malaysia.

Description: A small, evergreen tree, stem square, silvery hairy. Leaves opposite, ovate or elliptic oblong, obtuse, acute at base, coriaceous, white, hairy below. Flowers yellow, sessile, in bracteate heads. Capsule oblique-ovate, flattened beaked, wrinkled, opening into two valves. Seed one, cotyledon large, filling the fruit, often viviparous, condupplicate.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Common mangrove, growing along the sea and salt-marhes in the creeks near Porbandar & Miyani.

Material Examined: NKO-243

Parts Used: Leaves, Branches.

Folk Uses:

- Leaves are used as fodder in famine.
- Dried branches are used as fuel.

Chemical Constituents:- Leaf-stem bark contains Betulin. Leaf-shoot-stem bark contains Betulinicacid.

45. Azadirachta indica A. Juss.

Sin: *Melia azadiracta* Linn., *M. Indica* Brandis, *M. parviflora* Moon

Family: Meliaceae. **Vern. :** Limbado.

Sanskrit Name: Arishta, Nimba, Nimba-vrikshaha.

English Name: The Neem, Margosa Tree.

Regional Names:-

Beng. : Nim, Nimgachh; **Bom.:** Baka-yan, Bal-nimb;**Hin.:** Neem, Nimb, Ninb, **Kan.:** Bevina-marakadbevina-mara, Heb-bavu;**Mal.:** Vepa;**Mar.:** Dadakhajur, Limbacha-jhada, Limba;**Oriya:** Nim;**Pb. :** Bukhain, Drekh, Mahanim, Nim; **Tam.:** Vembu, Veppam, Veppa-maran; **Tel.:** Nim-bamu, Taruka, Vepa, Yapa.

Distribution: India.

Description : A large tree. Leaves pinnate, leaflets 9-12, sub opposite. Flowers white fragrant, in branched panicles. Drupe ovoid oblong, one-seeded.

Flowering: Mar.-Apr. **Fruiting:** Apr.-June.

Habitat Ecology: one of the commonest evergreen tree along road sides, in parks, schools and other public places.

Material Examined: NKO-56

Parts Used: Leaves, Rachies, Stem, Fruits.

Folk Uses:-

- The twigs are used as chew sticks or indigenous tooth brushes.
- Dry rachies collected by girls and tied with thread to prepare toy broom during play.

- If more fruit appears in tree and it remains healthy and ripen than it is sign of good season for agriculture.
- Stem used in preparation of leveler, *'Dhusari'*
- Dried stem is used as fuel
- Ripe fruits are eaten
- To confirm whether the snake that had bitten the person was poisonous or not this plant is used. Leaves are chewed the person and if it is test less than the snake if declared to be poisonous. ?
- Leaves are used as a mosquito replant.

Chemical Constituents:- The stem bark contains tannin, non tannin and red dye. The bark exudes a clear, bright amber coloured gum known as the EAST-INDIAN GUM. The leaves contain nimbin, nimbenene, nimbandiol, nimbolide and quercetin. The mature leaves contain protein, fat, fibers, carbohydrates and minerals, calcium, phosphorus, iron, thiamine, niacin, vitamin, carotene and calcium. The amino acids presents are: glutamic acid, tyrosine, aspartic acid, alanine, praline and glutamine. The fruits contain gedunin, azadiradione, azadirone and nimbiol

Biological Activity:- Aqueous extract of if hypoglycemic, acetone extract of if CNS depressant, has blood pressure lowering activates, same was anthelmintic in humans. Nimbidin from px showed antigastric ulcer activity in guineapigs and rats; it also suppressed rat paw oedema and formalin induced arthritis in rats (Rastogi & Mehrotra, 1993). Lf antibacterial, anticancer, antifungal, antifertility, anti infective.

46. Bacopa monnieri (Linn.) Pennell

Syn: *Moniera cuneifoliamichx* (Indraji).

Family: Scrophulariaceae. **Vern**: Jalnevri.

Sanskrit Name: Nira brahmi. **English Name**: Thyme Leaved Greatidla.

Regional Names:-

Ben.: Jalnavali;**Hin. :** Brahmi;**Kan.:** Niru brahmi;**Mal. :** Neer brahmi;**Mar. :** Neer brahmi;**Tam. :** Neer brahmi;**Tel.:** Sambranichatt.

Distribution: Mediterranean, Arabia, Persia, Mesopot, Afghanistan, Pakistan, India, SriLanka.

Description: A small, succulent creeping herb, rooting at the nodes. Leaves opposite, decussate, sessile, ovate-oblong or spathulate, fleshy, black-dotted, obtuse, entire. Flowers pale blue or almost white, axillary, solitary, bracteoles linear. Capsule ovoid, many seeded.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Moist places in throughout the study area.

Material Examined: NKO-232

Parts Used: Leaves.

Folk Uses:-

- 25-50 g. leaves boiled in water and '*Mishri*' added to it and strained, taken orally for 15 days to 1 month for in loss of memory.

Chemical Constituents:- Plant contains resins, an organic acid, tannin and an alkaloid.

Biological Activity:- Whole plant is cardiac, nervintonic, febrifuge, aperient, diuretic, astringent, sedative, aphrodisiac and expectorant.

47. Balanities aegyptiaca (Linn.) Del.

Syn: *B. roxburghii* Planch., *Ximenia aegyptiaca* Roxb., *Xinenia aegyptica* Roxb.

Family: Balanitaceae. **Vern. :** Engorio.

Sanskrit Name: Ingudam, Ingudi, Ingudi - vrikshaka.

Regional Names:-

Beng.: Hingon;**Bom.:** Hinganbet;**Hin.:** Hingan, Hingen, Hingol, Hingot, Hingota, Hingu;**Mal.:** Nanjunta;**Mar.:** Hingan, Hingana;**Tam.:** Nanjuda;**Tel.:** Garachettu, Gara-pandu, Gari, Ringri.

Distribution: Tropical Africa, India.

Description: A small, not very spreading tree or shrub, stem woody cylindrical. Leaves alternate. 2-foliolate compound. Flowers palegreeneish-yellow, fragrant, in axillary few flowered cymes or fascicles. Drupe ovoid yellowish green when ripe. Seed solitary pendulous.

Flowering: Mar.-Apr. **Fruiting:** Apr.-Feb.

Habitat Ecology: Very common in open plains. It propagates by root-suckers and is often found gregarious.

Material Examined: NKO-54

Parts Used: Stem, Fruits.

Folk Uses:-

- It is grown on outskirts of field as a live fence and wind breaker.
- Stem is used for making handle of *'Pavada',' Kodadi',' Trikam'*
- Dried branches are used as fuel
- The empty drupes filled with gun-powder are used in fire-works. ?
- 5-10 g powder of fruit pericarp mixed with sugar cube is given orally twice a day for 3-4 days to cure cough.

Chemical Constituents:- Leaves and fruit pulp contain saponin. Seeds contain fatty oil, diosgenin, balanitine.

Biological Activity:- Bark is anthelmintic. Leaves & fruit pulp is emetic, antiseptic deobstruent. Seeds are expectorant, anthelmintic, and hypotensive.

48. Bambusa arundinaceae (Retz.) Roxb.

Syn : *B. orientalis* Nees; *Arundo bambos* Linn; *Bambos arundinaceae* Pers.

Family : Poaceae. **Vern. :** Wans.

Sankrit Name : Kichaka, Vansa. **English Name :** The spiny Bamboo.

Regional Names :-

Ass.: Bnah; **Beng.:** Bans, Behur-bans; **Bom.:**Manday; **Hin.:**Bans, Kaltang, Magar-bans, Nalbans; **Kan.:** Bidungulu; **Pb.:** Magar, Nal; **Tam.:** Mangal;

Tel.: Bonga, Bonga-veduru, Kanka-mulkas, Pente-veduru, Veduru.

Distribution : India, Sri Lanka.

Description : A giant bamboo with shout root-stalks, the dense clumps stem golden yellow often stribed with green or red, the graceful curving branches bearing 2-3, stout, recurved spines at nodes. Leaves linear-lanceolate, tip stiff, margins sharp, base rounded. Glumes ovate lanceolate. Grain grooved on one side beaked by the style base.

Flowering : Jan.- Mar. **Fruiting :** Jan.- Mar.

Habitat Ecology : Grows small patches in Barda Hills and cultivated.

Material Examined : NKO-319

Parts Used : Whole plants, Stem.

Folk Uses :-

- It is grown on outskirt of field to prevent the entry of both human beings and animals.
- It is also used as a soil binder.
- Bambu is cut down obliquely to prepare *'Nari'* to fed buttermilk or milk to young one of cow and Buffalo. ?
- Stem used in preparation of *'Dandva'*(Agri. Implement) and toys.
- Stem used as house bulding materials.
- The flag is hoisted top of the pole on the temple.
- Long bamboo stick is taken, on both the end 2 ft long rope is tied and its upper end is tied wwith roof . Now stick is used to hang clothes of family members. ?

Chemical Constituents :- Analysis of tender shoots gave protein, carbohydrates, calcium, phophorus, iron, magnesium, sodium, copper, chlorine, thiamine, vitamin-C.

Biological Activity :- Roots are astringent, laxative, depurative diuretic and tonic. Leaves are astringent, emmenagoglu, ophthalmic, vulnerary, constipating and febrifuge.

49. Barleria prionitis Linn.

Family : Acanthaceae. **Vern. :** Pilo kantasheliyo.

Sanskrit Name : Vajradanti.

Regional Names :-

Ass.: Jhinli; **Beng.:**Sadajati jhanti; **Hin.**: Taderelu; **Oriya:** Koileka;

Pb.: Tadrelu; **Tam.:** Nilachemmulli, Udamulli; **Tel.:** Ettapulapeddagoranta.

Distribution : India.

Description : Erect hairy herb up to 120 cm tall with lilac. Flowers crowded in short, nearly sessile axillary spikes and conspicuous bracteoles. Seeds compressed, silky hairy.

Flowering : Sept.-Jan. **Fruiting :** Sept.-Jan.

Habitat Ecology : Very common in rocky places throughout study areas.

Material Examined : NKO-241

Parts Used : Whole plant.

Folk Uses :-

- Paste of plant mixed with tal oil (*Sesamum indicum*) and heatd then applied for bone fracture in cattle. ?

Chemical Constituents :- Pharmacologically, the plant contains 2 anthraquinones, barlacristone and cristabarlone (roots); apigenin, its glucuronide, naringenin malvindin 3-5 diglucoside (flowers).

Biological Activity :- CNS depressant activity in mice +ve. EtOH (50%) ext. of plant found to exhibit spasmogenic and hypoglycaemic activities.

50. Bauhina racemosa Lam.

Family : Caesalpiniceae. **Vern. :** Asundro.

Sanskrit Name : Swetakanchanara. **English Name :-** Mouhtain Ebone.

Regional Names :-

Beng. : Kanchan;**Bom . :** Kanarai, Kanchan, Kovidar;**Hin.:** Barial, Gurial, Gwiar, Kachnar, Kaniar, Khwajral, Padrian;**Mal.:** Mandaram, Vuvannamadaram, Malayakatti, Konnu;**Mar. :** Kanchan, Ragtakanchan, Thaur;**Oriya :** Borara;**Tam.:** Mandurai, Vellaippuvatti;**Urdu :** Kachnal.

Distribution : India, Sri Lanka, Java Sumatra & Sunda.

Description : A deciduous tree with deeply cordate leaves and large, fragrant flowers. Pods hard, flat, 12-15 seeded.

Flowering : Nov.-Jan. **Fruiting :**Dec.-Feb.

Habitat Ecology : Commonly grown as an agro forestry spp. in border areas of agricultural fields.

Material Examined : NKO-96

Parts UIsed : Stem, Flowers.

Folk Uses :-

- Stem is used for making *'Ada', 'Dhosari'*.

- A pinch of dried powdered flowers with honey recommended for diarrhoea and vomiting.

Chemical Constituents:- 5,7-Dihydroxy flavanone- 4'-o-α-L rhamnopyranosyl-B-D-glucopyranoside (Stems); kaempferol glycoside (Flowers); fatty oil, myricetol glycoside (seeds:; quercitroside, isoquecitroside, rutoside, gum, tannins (tree) have been isolated.

Biological Activity :- Seed ext. exhibits marked agglutinating activity for human blood. Anti bacterial and CNS depressant activity $^{+}$ve (Annon, 1985; Asolkar *et al.*, 1992).

51. Biophytum sensitivum (Linn.) Dc.

Syn. : *Oxalis sensitiva* Linn.

Family : Oxalidaceae. **Vern.** : Zarer.

Sanskrit Name : Jalapushpa.

Regional Names :-

Tel. : Jalapushpa.

Distribution: Arabia, Abyssinia & Soctra, Tropical Africa, Madagascar, India, SriLanka, Burma, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, W.Indies, Central America & Mexico, Brazil.

Description: An annual, glabrous herbs. Stem cylindrical. Leaves opposite to alternate, abruptly pinnately compound. Flowers yellow, often tinged red. Fruit capsule glabrous, minutely, apiculate. Seed ovoid, light brown.

Flowering : Aug.-Sept. **Fruiting** : Sept.-Oct.

Habitat Ecology : Rare in waste land in Barda region.

Material Examined : NKO-47

Parts Used : Whole plant.

Folk Uses :-

- 2 to 3 cup plant decoction is given orally to the cattle to start urination. ?

52. Boerhavia diffusa Linn.

Syn : *B.repens* Linn.

Family : Nyctaginaceae. **Vern.** : Satodi.

Sanskrit Name : Punarnava. **English Name** : Hogweed, Pigweed.

Regional Names :-

Ben. : Punarnava.**Hin.:** Sant, Gadahpurna, Punarnava;**Kan.:**Sanadika;

Mal.: Tavilama, Talutama;**Mar. :**Tamdadivasu.**Tam.:** Mukkurattai, Mukkaraltai-Kirai;**Tel.:** Punarnava.

Distribution : North Amrerica, Tropical Africa, India, Brazil.

Description : A small, decumbent or climbing among bushes. Leaves thick, brodly. Ovate, obtuse, mucronate, cordate. Flowers in long-peduncles, receme, few-flowered pale-pink or white. Fruit clavate furnished with large semi-globose glands round the crown.

Flowering : Aug.-Feb. **Fruiting** : Sept.-Mar.

Habitat Ecology :Especially abundant during the rain.

Material Examined :NKO -255

Parts Used :Whole plant, Leaves.

Folk Uses :-

- Plant Used as a fodder.
- Leaves are boiled in water and applied on boils.

Chemical Constituents :- It contains alkaloids (Punarnavine) tricontanol, hentria contane, β-sitosterol, ursolic acid, 5,7-dihydroxy-3, 4-dimethoxy-6, 8-dimethyl flavone, glucose, fructose, hypoxanthine-9-L arabinoside, moulding hormone, β-ecdysone, potassium nitrate and other potassium salts.

Biological Activity :-Plant is bitter astringent, cooling, anthelmintic, diuretic, aphrodisiac, cardiac stimulants, diaphoretic, emetic, expectorant, anti-inflammatory, febrifuge, laxative and tonic.

53. Bombax ceiba Linn.

Syn : *B. heptaphylla* Cav., *B. hetaphyllum* Roxb., *B. maalabarica* DC., *Salmalia malabarica* (DC.) Schott & Endl., *Gossampinus rubra* Ham.

Family : Bombacaceae. **Vern. :** Rato Shemalo, Shimlo.

Sanskrit Name : Apurari, Kantakadruma, Mocha, Raktapushpa, Salmali.

English Name : Semel Tree, Silk Cotton Tree.

Regional Names :-

Beng.: Roktosimul, Simul; **Bom.:**Saer, Somr; **Hin.:**Kantisembal, Pagun, Semal, Somr;**Mal.:**Ilavu,Mocha,Pula-maram;**Mar.:**Kanterisamur, Savara, Savar, Shevari, Simlo,Tamari;**Tam.:**Agigi, Muli-ilava-marum, Pula;**Tel.:**Mundla-buraga-chettu.

Distribution : India.

Description : A large deciduous tree with prickly stem and wide spreading branches. Flowers red, appearing before the leaves. Capusule 5-valved. Seeds enveloped in dense silky hairs.

Flowering : Feb.-Mar. **Fruiting :** Mar.-May.

Habitat Ecology : Common in Barada hills.

Material Examined : NKO-33

Parts Used : Flowers, Seeds.

Folk Uses :-

- Young flowers are used as vegetable.
- Silk cotton used for stuffing cushions, pillows and mattresses.
- Crushed seeds mixed with wheat flour given to livestock for stomach disorders.

Chemical Constituents :- Active principles due to β-D-glucoside of β-sitosterol, hentriacontane, hentriacontanol, traces of essential oil, kaempferol and quercetin (flowers); lupeol and β-sitosterol (stem); tricontanol, β-sitosterol and a new glycoside (root); hexaacosanol, tocopherol, terpenes (seeds); various naphthalene derivaties (root-bark) (Harish & Gupta, 1972; Mukherji & Roy, 1947; Seshadri *et al.,* 1971, 1973)

Biological Activity :- Hot aq. Ext. of seeds exhibits moderate oxytocic activity. Flowers antiviral and hypoglycaemic (Misra & Misra, 1968).

54. Bothrichloa Intermedia (R.Br.) A. Camus

Syn : *Amphilophis glabra* Blatt r. Mcc. *Andropogon Intermedius* R. Br.

Family : Poaceae. **Vern. :** Dhrafo.

Distribution : Tropical Africa, India, SriLanka, China, Malaysia, Polynesia.

Description : The plant is perennial, stem stout, erect, slightly flattened on one side, simple or sparingly branched, leaf upwards, nodes usually hairy. Leaves

narrowly linear, glaucous, finely acuminate with capillary tip, glabrous or ciliate towards the base, sheaths terete, glabrous. Recemes slender, fragile, pale green or purplish with a capillary rachis, sessile spikelets.

Flowering : Aug.-Feb. **Fruiting :** Aug.-Feb.

Habitat Ecology : Common in moist areas, streams and at the field boundary.

Material Examined : NKO-320

Parts Used : Whole plant.

Folk Uses :-

- It is good fodder for cattle.

Chemical Constituents :- (Percent on dry matter-first cut) Crude fibre 33.88, crude protein 3.88, total ash 9.53, Ca 0.51, P 0.47 mg 0.53, Na 0.50 and K 1.18

55. Bothrichloa pertusa (Linn.) A. Camus.

Syn : *Andropogon pertusus* (Linn.) Willd, *Amphilophis pertusa* Nash ex stapf. *Holcus pertusus* Linn.

Family : Poaceae. **Vern. :** Jinjvo.

Distribution : Arabia, Afghanistan, Tropical Africa, India, Srilanka.

Description : A short rhizomed perennial, with extra or intravaginal innovations. Clums slender, terete many nodes bearded with spreading hairs. Leaves linear, tapering to a fine point, glabrous or pubescent. Spikes pale or dull, puplish-white, silky villous, joints and pedicels ciliate, sessile spikelets, sessile one female, pediaellate one male or neuter.

Flowering : All months. **Fruiting :** All months.

Habitat Ecology : Throughout, common at the field boundary.

Material Examined : NKO-321

Parts Used : Whole plant.

Folk Uses :-

- It is highly esteemed as a fodder grass and it can also be made in to hay.
- It is a good fodder for bullocks and given during illness.
- It is considered to increase the lactation in milching-cattle.

Chemical Constituents :- (Percent on dry matter-first cut) : Crude fibre 36.49, crude protein 5.44, total ash 12.31, Ca 0.53, P 0.52, mg 0.50, Na 0.93 and K 0.85

56. Brassica juncea (Linn.) Czernajew

Syn : *Sinapis juncea* Linn.

Family : Brassicaceae. **Vern. :** Rai.

Sankrit Name : Rajika. **English Name :** Mustard.

Regional Names :-

Ben.: Rai sarislia;**Hin.:** Rai;**Mal.:** Kaduka;**Mar.:** Pivali sieas;**Tam. :** Kadugu.

Distribution: Pakistan, India, SriLanka, Burma, Malaysia, Java, Sumatra & Sunda, Philippines.

Description: A small erect herb bearing different types of leaves. Lower leaves lyrate but the upper leaves are sessile, oblong-lanceolate, entire and alternate. Flowers yellow, with long terminal raceme. Bracts absent. Fruit long, thin, siliqua with many black seeds.

Flowering : Nov.-Jan. **Fruiting :** Dec.-Feb.

Habitat Ecology : Cultivated during winter season.

Material Examined : NKO-11

Parts Used : Seeds.

Folk Uses :-

- Crushed seeds are applied on forehead to cure headache.
- Toward of evil eyes and spirits on children and cattle, its seeds along with red chillies are waved around their bodies and put on burning coal to keep away the evil eyes effects.

Chemical Constituents :- Seeds : oil 20-25% on essential oils is also produced by the action of water.

Biological Activity :- Seeds are appetizer, pungent emmenagogue, expectorant, rube facient and stimulant.

57. Breynia retusa (Dennst.) Alst.

Syn : *B. Patens* (Roxb.) Rolfe., *Melanthesa retusa* (Dennst.) Kostel, *Phyllanthus retusus* Dennst.

Family : Euphorbiaceae. **Vern** : Keda kamboi.

Sanskrit Name :-Kamboji.

Regional Names :-

Hin. : Kalamohmad;**Mar. :** Kalichikli;**Tel.** : Errapurugudu.

Distribution : India, SriLanka.

Description : An erect, glabrous, bushy, handsome shrub. Leaves alternate, numerous, distichous, membranous. Flower pale-yellow, monoecious, in complete, actino morphic. Drupe orange red. Seed orange-yellow aril.

Flowering : All months. **Fruiting** : All months.

Habitat Ecology : Grow in moist localities and also in hedge.

Material Examined : NKO-268

Parts Used :Stem, Fruits.

Folk Uses :-

- It is grown on outskirt of filed as a live fence and wind breaker.
- Ripe fruits are edible.
- Fruits are crushed by the children for colouring materials and they make different marks on their faces with this dye.
- Rims of *'Dholak'*is made by stem of this plant. ?

58. Bridelia retusa (Linn.) Spr.

Syn : *B. squamosa* Gerhen., *Clutia retusa* Linn.

Family : Euphorbiaceae. **Vern** : Akal kanto.

Sanskrit Name : Asana, Ekadevi.

Regional Names :-

Hin.: Ekdania Gondui;**Mal.:** Mukkayini;**Mar.:** Katakauchi, Kutki;

Tam.: Mullu-vengai;**Tel.:** Bonthayepi.

Distribution : India, SriLanka.

Description : A small, deciduous tree. Leaves elliptic oblong, obtuse, slightly pinkish-brown before falling, entire or crenulate, stipules ovate-lanceolate. Flowers dioecious, in axillary clusters or terminal paniculate spikes. Drupe fleshy, seated on the persistent, enlarged calyx.

Flowering : Aug.-Oct. **Fruiting** : Aug.-Feb.

Habitat Ecology : Found in Barda Hills.

Material Examined : NKO-269

Parts Used :Leaves.

Folk Uses :-

- Leaves are Used for cleaning the sores on the scalp of children.

Chemical Constituents :- Bark contains 16-40% tannins.

Biological Activity :- Stembark antiviral, hypotensive, anticancer.

59. Butea monosperma (Lam.) Kuntze

Syn : *Erythrina monosperma* Lam., *B. frondosa* ex Roxb.

Family : Fabaceae. **Vern. :** Khakhro, Keshudo.

Sanskrit Name : Kinsuka, Palasa, Palasham.

English Name : Bastard Teak, Butea Gum, Flame of Forest.

Regional Names :-

Beng.: Palas;**Bom.:**Khakara,Palasa;**Hin.:**Dhak,Kakria;**Kan.:**Muttuga, Muttagamaru, Thoras;**Mal. :** Plach-cha;**Oriya:** Porasu, Polaso;**Tam. :** Murukkam, Parasa, Porasan;**Tel. :** Moduga, Modugachettu, Mohtu, Palas, Tella Modugu.

Distribution : Pakistan, Madgascar**,** India, Sri Lanka, China, Malysia.

Description : An erect deciduous tree, young parts silky pubescent. Leaves pinnately 3-folite. Flowers bright orange red, in terminal racemes and appearing before the leaves. Pods 1-seeded, grey-downy.

Flowering : Feb.-Mar. **Fruiting :** Mar.-Apr.

Habitat Ecology : Drier area, prominent along the border of agriculture fields.

Material Examined : NKO-75

Parts Used : Stem, Flowers.

Folk Uses :-

- Stem used in preparation of seed drill.
- Dried branches are used as fuel.
- Wood considered sacred and used performing *'Havana'* and also for making sacred utensils.
- Flower buds are used as vegetable.
- The color obtain by boiling flowers. It is used in *'Holi'*.
- When fracture occurs in limbs at that time wooden limbs Prepared and offered to 'God Lakkadnath' temple near 'Pasvari' village. ?

Chemical Constituents :- The rapeutic properties attributed to butrin coreopsin, monospermoside and there is oderivatives, sulphurein, chakones (flowers), Leucocyanidin, procyanidin, riboflavin, thiamine (gum from bark); glycine, a glycoside and an aromatic hydroxy compound (roots); butin, butrin, isobutrin, palasonin, palastrin (plant); δ-lactone of η-heneicosanoic acid, monospermine, new phytolectin (seeds).

Biological Activity :- Antifungal, antibacterial antimplantation, antiovulatory and spasmolytic activites $^{+}$ve (Asolkar *et al.*, 1992).

60. Cadaba fruticosa (Linn.) Druce

Syn : *C. farinosa* Forsk., *C. indica* Lam., *Cleome fruticosa* Forsk.

Family : Capparidaceae. **Vern.** : Kalo katkiyo.

English Name : Indian Cadaba.

Regional Names :-

Tam.: Velivi;**Tel.:** Ada morinika.

Distribution : India.

Description : A straggling much branched shrub. Leaves simple, entire, elliptic-oblong, obtuse, mucronate, base rounded. Flowers greenish white, in few flowered terminal, one-sided racemes or corymbs. Fruit dehiscent, cylindric, slightly moniliform. Seeds kidney-shaped, immersed in orange-red arillate pulp.

Flowering : Oct.-Apr. **Fruiting** : Nov.-May.

Habitat Ecology : Grows in bushes and hedges.

Material Examined : NKO-14

Parts Used :Whole plant.

Folk Uses :-

- It is grown on field boundaries to prevent the entry of both human beings and animals. It is also used as a wind breaker.

Chemical Constituents :- Stem juice contain carotene, ascorbic acid, fibre and calcium oxalate. Root contain cissampeline/pelosine, segrerine, beeterine and cissampeline

Biological Activity :- Leaves & Roots are purgative, anthelmintic, antisyphilitic, stimulant, aperient, emmenagogue, antiphlogisitic.

61. Caesalpinia bonduc (Linn.) Roxb.

Syn : *C. crista* Linn., *C. bonducella* Fleming, *Guillandina bonducella* Linn.

Family : Caesalpiniaceae. **Vern.** : Kakchiyo.

Sankrit Name : Latakaranjah, Kuberaksh, Kantakikaranjah.

English Name : Fever Nut, Bonduc Nut.

Regional Names :-

Hin.: Kantkarej, Kantikaranja, Sagar Gota;**Kan.:** Gajikekayi;**Mal.:** Kalanci, Kajanchikkur;**Tam. :** Kaliccikkai, Gachhakay;**Tel.:** Gaccakaya.

Distribution: Afghanistan, Tropical Africa, Madagascar, India, SriLanka, Malaysia, Philippines, New Guinea.

Description: An extensive climber armed with hooked prickles. Leaves paripinnate, petioles prickly, stipules a pair of reduced pinnae at the base, leaflets 6-9 pairs, elliptic-oblong, obtuse, macronate. Flowers in terminal and supra-axillary racemes, bracts linear, hairy. Pods oblong, covered with wiry prickles. Seeds 1-2 oblong, lead covered.

Flowering : Aug.-Oct. **Fruiting** : Sept.-Nov.

Habitat Ecology : Usually found in hedges.

Material Examined : NKO-97

Parts Used :Seeds, Whole plant.

Folk Uses :-

- 5 to10g crushed seeds are given internally to children to remove worms in digestive canal.
- Seed coat is edible.
- It is grown on outskirt of filed as a live fence.
- Children plays a game by rubbing seed on rough surface and a brand to each other . ?

Chemical Constituents :- The defated kernels contain α-β-γ-δ and ε-caesalpins, caesalpin F and a homoisoflavone and a glycoside bonducin, fixed oil 20%, minerals 4%, protein 20% and starch 36%

Biological Activity :- Root bark is emmenagogue, febrifuge, expectorant, anthelmntic and stomachic. Leaves are anthelmintic, emmenagogue and febrifuge. Seeds are bitter, astringent, acrid, thermogenic, anodye, anti-inflammatory, anthelmintic, digestive, stomach liver tonic, depurative, expectorant, contraceptive, antipyretic, aphrodisiac and tonic.

62. Caesalpinia pulcherrima (Linn.) Swartz.

Syn : *Poinciana pulcherrima* Linn.

Family : Caesalpiniaceae. **Vern** : Galtoro.

Sanskrit Name:Krishnachura, Ratnagandhi. **English Name** : Peacock-Flower.

Regional Names :-

Beng.: Krishnachura;**Kan.:**Kenjige;**Mal.:**Settimandaram;**Oriya:**Krishnochuda;

Tam.: Mayirkonrai;**Tel.:** Pamiditangedu.

Distribution : Arabia, Afghanistan, Pakistan, Tropical Africa, India, SriLanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, Brazil.

Description : A small unarmed shrub. Leaves bipinnate, stipulate, leaflets 8-12 pairs. Flowers big, erect racemes, yellow or red. Pod oblong flat.

Flowering : All months. **Fruiting** : All months.

Habitat Ecology : Cultivated in gardens as an ornamental plant, also on road sides.

Material Examined : NKO-98

Parts Used :Whole plant.

Folk Uses :-

- Planted as a ornamental purposes.

Chemical Constituents :- Leaves contains hydrocyanic acid.

Biological Activity :- Leaves are laxative, abortifacient and antipyretic.

63. Cajanus cajan (Linn.) Millsp.

Syn : *C. indicus* Spr.;*Cytisus cajan* Linn.

Family : Fabaceae. **Vern.** : Tuver.

Sanskrit Name : Adhaki, Kakshi. **English Name** : The Pigeon Pea.

Regional Names :-

Ben.: Arshar;**Hin.:**Tur;**Kon.:**Tori;**Mal.:**Tuvara;**Oriya:**Horodo;**Tam.:** Ettakandulu; **Tel.:** Kandulu.

Distribution : India, SriLanka.

Description : A small, erect shrub. Leaves imparipinnate, petioles channeled, stipules awl-shaped, leaflets 3, elliptic, oblong, resinous-dotted on the lowerside. Flowers yellow marked with maroon, in axillary corymbose racemes. Pods few seeded, constricted between seeds, hairy, green marked with maroon. Seeds biconvex.

Flowering : Oct.-Dec. **Fruiting** : Nov.-Jan.

Habitat Ecology : Cultivated.

Material Examined : NKO-76

Parts Used :Leaves, Pods.

Folk Uses :-

- Leaf is chewed and blow into eye for curing iritis in eyes.
- Ripe but green pod is used as vegetable.
- Leaves and broken pods are used as fodder for cattle.

Chemical Constituents :- Seeds contain proteins, oil, starch, nutritive minerals. Plant contains also cajanin and cancajanin.

Biological Activity :- Seeds are nutritive, blood purifier, lactifuge, astringent and antipyretic.

64. Calotropis gigantea (Linn.) R. Br.

Syn : *Asclepias gigantea* Willd.

Family : Asclepiadaceae. **Vern.** : Moto Ankado.

Sankrit Name : Alarka, Arka, Mandara, Pratapasa, Svaytaurkum.

English Name : Gigantic Swallow Wart, Mador.

Regional Names :-

Beng.: Akand, Gurtakand, Swet-akond;**Bom.:** Akanda, Akra, Mandara, Rui; **Hin.:** Ag, Ak, Akan, Akond, Ark, Madar, Safed-ak; **Kan.:** Arkagida, Ekkemale, Yekka, Vekkada-gida, Yekkada-beru-Yokada;**Mal.:** Belerica, Erica, Erukku, Verica;**Mar.:** Akanda, Akda-cha-jhada, Rui;**Tam.:** Jilledu, Jille-duchettu, Jillery, Mandoramu, Nella jilledu, Yekka.

Distribution : India, SriLanka, Singapore, China.

Description : A small shrub, much branched, gregarious, young branches covered with white, cottony hairs. Leaves decussate, obovate or elliptic-oblong, shortly acute, subsessile, cordate or often amplexical at the base. Flowers large white not scented, in umbellate cymes, peduncles arising, between the petioles, flower-buds ovoid, angled. Fruit a pair of follicies. Seeds comose.

Flowering : All months. **Fruiting** : All months.

Habitat Ecology : Common in waste lands.

Material Examined : NKO-193

Parts Used : Flowers.

Folk Uses :-

- A garland of the flowers is offered to worship monkey god ‘Hanumanji’

Chemical Constituents :- The plant contains bitter resins akuandarin, calotropin, taraxasterol, β-and α-amyrin, ψ-taraxasterol and β-sitosterol, uscharin, calotoxin, calactin, α-calotropeol, β-calotropeol, β-amyrin calcium oxalate, a nitrogen and sulphur containing gigantin, glutathione and a proteoclastic enzyme similar to papin occur in latex, and stem bark, flowers yield esters of α- and β-calotropeol, β-amyrin and root bark β-amyrin, and two isomeric alcohols giganteol and isogiganteol.

Biological Activity :- Root anticancer, spasmolytic, effect on guineapig heart, it anticancer.

65. Calotropis procera, (Ait.) Ait. f. subsp.*hamiltonii* (w)Ali.

Syn : *C. hamiltoni* Wall., *C. wallichii* Wight., *C. heterophylla* Wall.

Family : Asclepiadaceae. **Vern.** : Ankado.

Sankrit Name : Alkara. **English Name** : Akund.

Regional Names :-

Hin.: Ag, Ak, Akada, Madar, Safed-ak;**Mar.:** Mandara;**Tam.:**Vellerku, Pelleruku;**Pb.:** Ak, Shakar-al-tighal, Shakar-ul-ushar;**Tel.:** Mandaram.

Distribution : Persia, Mesopot, Pakistan, Tropical Africa, India.

Description : A small shrub. Leaves decussate, smaller, ovate-oblong, elliptic or obovate, abruptly acuminate, cottony-hairy when young only. Flowers pale purplis smaller, buds hemispherical not angled, in umbellate eymes. Strongly scented. Fruit a pair of follicies. Seeds eomose.

Flowering : All months. **Fruiting** : All months.

Habitat Ecology : Common in waste lands.

Material Examined : NKO-194

Parts Used :Branches, Leaves, Flowers, Latex, Wholeplant.

Folk Uses :-

- In the storage of dry fodder a twig of it kept to protect fodder from the harm caused by mouse. ?
- It is grown on field boundaries as a field fence and soil binder.
- Hit is given to the oily leaf and put on chest to remove old cough.
- Rosted corona is given orally twice a day for a week to cure cough.
- Latex applied to removed thrown from legs. ?

Chemical Constituents :- Contains calotropin, calotoxin, calactin, uscharin and uscharidin, latex yields α- and β-amyrin, β-sitosterol and five cardiac steroid glucosides with the same aglycone, calotropagenin, uzarigenin, syriogenin and proceraside also occur. Flowers yield cynidin-3

rhamnoglucoside. Conversion of calactin to calactinic acid reported. Root-bark from African plants affords benzoyllineolone and benzoylisolineolone, and a new compound voruscharin m.p. 165^0 (dec.)

Biological Activity :- Plant is antiseptic, expectorant, emetic, diaphoretic, antiphlogistic.

66. Canna indica Linn.

Syn : *C. indica* Linn Var. *orientalis* Rosc.

Family : Cannaceae. **Vern.** : Kena.

Sanskrit Name : Sarvajaya, Silarumba. **English Name** : Indian Shot.

Regional Names :-

Beng.: Lal-sarbo-jaya;**Hin.:**Sabba-jaya;**Kan.:**Gida,Kelahuhudingana, Seogundaraju;**Mar.:** Keva-keli;**Tam.:**Kullvalei-mani, Kundamani-cheddi;

Tel.: Guri-genza-chettu, Krishna-tamarah.

Distribution: Arabia, Persia, Mesopot, Afghanistan, Pakistan, Abyssinia & Soctra, Tropical Africa, Madagascar, India , Sri Lanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea.

Description : A large tall herb with big fleshy rhizome, stem leafy. Leaves alternate, elliptic lanceolate, acuminate base sheathing. Flowers mostly red or yellow very showy in terminal raceme. Diplotegia 3 lobed, warty, Seeds many, very hard rounded black.

Flowering: All months. **Fruiting:** All months.

Habitat Ecology: Cultivatsed commonly in all gardens.

Material Examined: NKO-293

Parts Used: Whole plant.

Folk Uses:-

- Planted in the kitchen garden for its attractive flowers.

Chemical Constituents:- Rhizome contains fat, traces of an alkaloid gum and starch.

Biological Activity:- Rhizome is diuretic, demulcent and diaphoretic.

67. Cannabis sativa Linn.

Syn : *C. indica* ssp. *indica* Var. *indica* (Lamk.) Wehmer.

Family : Canabinaceae. **Vern.** : Bhang.

Sanskrit Name: Bhanga, Chapola, Ganja, Ganjika, Hursini, Indrasana, Jaya, Ujaya, Vijaya, Vrijpatta. **English Name**: Hemp, Indian Hemp.

Regional Names:-

Beng.: Bhang, Ganja, Sidhi; **Hin.:**Bhang, Charas, Ganja, Gur, **Kan.:**Bhangi-gida;**Mal.:**Ginjilachilachi,Kanchavachetto;**Mar.:**Bhangachajhada;

Tam.: Ganja-chedi, Kalpam, Korkkarmuli;**Tel.:** Ganjari-chettu.

Distribution: Mediterranean, Afghanistan, Pakistan, Tropical Africa, Madagascar, India, Sri Lanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines.

Description: Aromatic, pubescent annual with palmately divided leaves and pale yellowish green, unisexual flowers on separate plants. Achenes small, rounded.

Flowering: Nov. -Dec. **Fruiting**: Nov.-Feb.

Habitat Ecology: Cultivated.

Material Examined: NKO-289

Parts Used: Inflorecence, Leaves.

Folk Uses:-

- Hindus in India celebrate both 'Shivratri' and 'Holi' festivals by preparing an intoxicating drink (*'Bhang')* from its leaves to which are added sugar, milk and dry almonds. To please lord 'Shiva' this drink is first offered to him and then consume themselves to enjoy its intoxicating effects.
- Unfertilized infloresences of female plants *('Ganja'*) is smoked with tobacco.

Chemical Constituents:- Active constituents are glucocapparins (Seed); phthalic acid and 1-statchydrine (flowers and fruit husk); η-triacontane(husk); capparine, cappariline and capparinine (root); η-pentacosane, η-tricontalnol, β-sitosterol and 1-stachydrine (root-bark).

Biological Activity:- Antibacterial, hypotensive and spasmolytic activity and effect on CNS found $^{+}$ve

68. Capparis deciduas (Forsk.) Edgew.

Syn : *C. aphylla* Roth., *Sodada decidua* Forsk.

Family: Capparidaceae. **Vern.** : Kerda.

Sanskrit Name: Karira, Apatra, Granthil. **English Name**: Caper Plant.

Regional Names:-

Hin.: Karil, Kurel, Vraja, Teti;**Kan.:**Nispatige, Chippuri. **Mal.:** Karimulli, Karimulla;**Tam.:** Senkam Sirakkali;**Tel.:** Enugadanta, Kariramu.

Distribution: Arabia, Tropical Africa, India.

Description: A straggling, glabrous shrub. Branches zigzag and green (phylloclades) with a pair of straight spines. Leaves found on young shoots only, small, linear. Flowers reddish-brown in many flowered corymbs. Fruit a globose, red, berry.

Flowering: Nov.-Dec. & May-June. **Fruiting**: Dec.-Feb. & June-Aug.

Habitat Ecology: It grows in dry open waste lands throughout area.

Material Examined: NKO-15

Parts Used: Stem, Fruits, Wholeplant.

Folk Uses:-

- It is grown on outskirt of field to prevent the entry of both human beings and animals.
- Unripe fruits are used to prepare pickles and ripe fruits are eaten.
- Stem is used for making the lower part of the churning rod. This portion called *'phool'*. ?

Chemical Constituents:- It contains capparin, capparilin, capric acid, capparinin, capparidisine, capparisine, capparisinine. η–pentoacosane and β–sitosterol.

Biological Activity:- Roots are acrid, bitter, thermogenic, anodyne, sudorific, expectorant, digestive, carminative, anthelmintic, purgative, antibacterial, vulnerary, alexeteric, stimulant, emmenagogue, aphrodisiac. Fruits are bitter, sweet, astringent, thermogenic and constipating.

69. Capparis sepiaria Linn.

Family: Capparidaceae. **Vern.** : Kanther.

Sanskrit Name: Kanthari, Grudhnakhi. **English Name**: India Caper.

Regional Names:-

Beng.: Kaliakara; **Hin.:** Kanthari; **Mar.:** Kanthar; **Tam.:** Karindu;

Tel.: Nallapuyyi.

Distribution: Abyssinia & Soctra, India.

Description: A much branched, woody, shrubs. Leaves ovate, emarginated, hairy when young, with a pair of hooked stipules. Flowers white in many flowered, sessile or thorny peduncled umbels. Fruit a small, globose, black berry, one seeded.

Flowering: Oct.-Apr. **Fruiting**: Nov.-May.

Habitat Ecology: Common in hedges and bushes and on tress throughout the area.

Material Examined: NKO-16

Parts Used: Whole plant.

Folk Uses:-

- It is grown on field boundaries as a live fence.

Chemical Constituents:- In a preliminary investigation, root-bark, stem, leaves and flowers showed presence of alkaloid, glycoside, carbohydrate, anthocyanins, flavonoid, sterols, terpenes and amino acids. Leaves contain α- and β-amyrin, β-sterol, taraxasterol, eythrodiol, betalin and two terpenoid alcohols. One melting at 164^0.

Biological Activity:- Antiseptic, febrifuge, alternative tonic, rubefacient, blood purifier, expectorant, pungent bitter.

70. Capsicum annuum Linn.

Syn: *C. frutescens* sensu CI.

Family: Solanaceae. **Vern.** : Marchi.

Sanskrit Name: Marichi-Phalam. **English Name** : Red Pepper, Red Chilly.

Regional Names:-

Ben.: Gach-marich,Lal-marich, Lankamarich;**Hin.:**Gachmirch, Lal-mirch, Marcha, Mattisa, Mirch, Wangru;**Kan.:** Menasina-kayi;**Mal.:** Mulaku, Kappalmulaku, Paccamulaku.**Mar.:**Mirsinga;**Pb.:**Gachmirch, Lal-mirch, Mattisa, Mirch, Wangru;**Tam.:** Milagay, Mollaghai, Mollagu, Mulagay;**Tel.:** Merapu-kai, Mirapakaya.

Distribution: India.

Description: A small herb with swollen nodes and purple stems. Leaves ovate, acute. Flowers white, axillary, and solitary of 2-3 together. Berry very large, angular, many seeded.

Flowering: Aug.-Dec. **Fruiting**: Aug.-Feb.

Habitat Ecology: Cultivated.

Material Examined: NKO-221

Parts Used: Fruits.

Folk Uses:-

- Dried ripe fruit powder is pressed on dog bite
- When snake entered in house at that time smoke of dried fruit created to keep away. ?
- Unripe fruit is directly eaten with *'Rotala'*

Chemical Constituents:- The fruits yield and oleoresin. The major constituent of oleoresin is capsaicin. It also contains mixture, protein, fat carbohydrates, minerals, mucilage, calcium, phosphorus, iron, kerotin, vitamin c, ascorbic acid, caffeic acid, caproic acid, cinnamic acid, ferulic acid, mevalonica acid, capsidiol, kaempferol, derivative, colatile and fatty oils, pentosans, pectins, acetic, butyric and isobutyric acid.

Biological Activity:- Capsaicin imparaired hypothalamic neuron from regulating against overheating in hot environment in rats (Rastogi & Mehrota, 1993, P.133).

71. Cardiospermum halicacabum Linn.

Family: Sapindaceae. **Vern.** : Kagdoliyo.

Sanskrit Name:Sakralata,Indravalli.**English Name**:Balloon Vine, Heart's Pea.

Regional Names:-

Hin.: Kanphuti, Kapalphoti;**Kan.:** Kanakayya;**Mal.:** Ulinna;**Tam.:** Mudukkottan, Modikkottan; **Tel.:** Vekkudutiga.

Distribution : Arabia, Abyssinia & Soctra, Tropical Africa Madagascar, India, SriLanka, Burma, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, W. Indies, C. America & Mexico, Brazil.

Description: Annual and perennial, slender and beautifully delicate climber with flower-peduncle tendrils. Leaves twice ternate, segments lanceolate sernate, acute. Flowers white in few-flowered, umbellate cyme with 2 opposite circinate tendrils. Capsule membranous trigonous. 3-celled stalked, truncate at top, winged at angles, bladdery, veined. Seeds rounded, smooth, black with small white, heart-shaped arill.

Flowering: Sept.-Oct. **Fruiting:** Oct.-Nov.

Habitat Ecology: Throughout, common on the hedges during monsoon.

Material Examined: NKO-67

Parts Used: Seeds.

Folk Uses:-

- A ganland made of fresh seeds, and then hung around the neck to cure pityriasis.

Chemical Constituents:- It contains essential oil, bitter principle and saponin.

Biological Activity:- Roots are diuretic, diaphoretic emetic, mucilaginous, laxative and emmenagogue. Leaves are rubefacient, diuretic, laxative and emetic. Seeds are tonic, diaphoretic, astriugent, deobstruent.

72. Carica papaya Linn.

Family: Caricaceae. **Vern.** : Papaya.

Sanskrit Name: Brahmairanda, Erandakarkati.

English Name: The Papaw , Papaya Tree.

Regional Names:-

Ben.: Papaya, Pepiya, Pepeya;**Bom.:** Papai.**Hin.:** Papaya, Papaya-amba, Pepiya, Popaiya, Pobaiyah;**Kan.:** Perangi, Perinji;**Mal.:** Pappaya;**Mar.:** Papaya;**Pb.:** Arandkharbuza, Kharbuza;**Tam.:** Pappali, Pappayi;**Tel.:** Boppayi, Madana-anapakaya, Pappayia.

Distribution: North America, India, Brazil.

Description: Soft wooded dioecious or monoecious tree, barck corky. Leaves alternate & crowded near the apex of stem. Flowers greenish white or white.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Commonly cultivated.

Material Examined: NKO-133

Parts Used: Stem, Fruits.

Folk Uses:-

- Stem is cuts into small or pieces and given to cattle in famine condition (In 'Nagka' village)**.** ?
- Ripe fruits are eaten raw; the unripe ones are eaten as a Salad.

Chemical Constituents:- Cryptoxanthin 48.16%, β-carotene 29.56%, cryptoflavin 12.85% and violaxanthin 3.42%, phytoene, phytofluene, cis-β-carotene, γ-carotene, mutatochorme, aurochrome, cis-violaxanthin, antheraxanthin, chrysanthemaxanthin & neoxanthin. Latex of unripe fruit contains papain.

Biological Activity:- Fruits are bitter, acrid, sour, thermogenic, anodyne, aphrodisiac, stomachic, appetise, carminative, digestive, anthelmintic, styptic, anti-inflammatory, antifungal, demulcent and diuretic, latex is anthelmintic, anodyne, laxative, digestive emmenagogue, galactagogue, depurative, sudorfic febrifuge and tonic. Seeds are anthelmintic abortifacient and emmenagogue.

73. Carissa congesta Wight

Syn: *C. carandas* Linn.

Family: Apocynaceae. **Vern.** : Karmda.

Sanskrit Name: Karamarda, Avighna.

English Name : Karaunda, Jasmine Flowered, Carissa.

Regional Names:-

Hin.: Karaunta, Karonti;**Kan.:** Karikayi**Mal.:** Klavu, Perumklavau, Karanta;

Tam.: Kalakkai, Perumkla;**Tel.:** Peddakalavi, Vaka.

Distribution: Madagascar, India, Sri Lanka.

Description: A thorny, much-branched shrub. Leaves opposite, coriaceous, elliptic or obovate obtuse. Flowers white, odorous, in terminal corymbose cymes. Berry ovoid or ellipsoid, purplish-black when ripe 4 or more seeded.

Flowering: Jan.-Mar. **Fruiting**: Feb.-Apr.

Habitat Ecology: Open slopes in Barda Hills, sometimes climbing up the trees.

Material Examined: NKO-186

Parts Used: Fruits.

Folk Uses:-

- Ripe fruits eaten raw, the unripe ones are eaten in pickled form.

Chemical Constituents:- Fruits contains carissone, carindone, carinol and four crystalline substances viz A, B, a cardioactive and β-sitosterol, milky latex.

Biological Activity:- Roots are anthemintic, stomachic and antiscorbutic. Unripe fruit is sour, astringent, bitter, thermogenic, constipating, anaphrodisiac, appetiser and antipyretic. Ripe fruit is sweet cooling appetizer and antiscorbutic.

74. Cassia absus Linn.

Family: Caesalpinaceae. **Vern.** : Chamed.

Sanskrit Name: Kulatthika, Chakshushya.

English Name: Chakshu, Bankultthi.

Regional Names:-

Hin.: Chaksu,Bankulthi;**Kan.:**Kuti;**Mal.:**Karinkolla;**Tam.:**Mulaippalvirai, Kattukkol, Karum;**Tel.:** Cambpalavittulu.

Distribution : Afghanistan, Pakistan, Tropical Africa, India, SriLanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, Australia

Description: A small hairy reddish plant. Leaves paripinnate, leaflets 2 pairs oval, unequal sided, few flowered, yellow racemes, with one bract at the base and 2 halfway up the pedicel. Pods thin, flat.

Flowering: Aug.-Sept. **Fruiting**: Sept.-Oct.

Habitat Ecology: Common weeds in Waste land & agriculture fields.

Material Examined: NKO-99

Parts Used: Seeds.

Folk Uses:-

- Powdered seeds are put in to the eyes for conjunctivitis.

Chemical Constituents:- Plant contains aloe-emodin, chrysophanol, isochrysophanol, rhein, physicion-l-glucoside and β-sitosterol.

Biological Activity:- Leaves are bitter, astringent, acrid, themogenic, haematinic, constipating and expectorant. Seeds are bitter, astringent, acrid, cooling ophthalmic, haemostatic, diuretic, aphrodisiac, constipating, alexeteric and vulnerary.

75. Cassia auriculata Linn.

Syn: *Senna auriculata* Roxb.

Family: Caesalpiniaceae. **Vern.** : Aval.

Sanskrit Name: Avartaki, Charmaranga, Pitapushpa.

English Name: The Tanner's Cassia, Avaram.

Regional Names:-

Hin.: Tarvar, Tarwar;**Kan.:** Avara-gida, Avareke, Tangadi Gida, Taravaggida, Tengedu;**Mal.:** Aviram, Avara.**Mar.:**Taravada;**Tam.:** Ammera, Avari, Verai-avirai;**Tel.:** Tangedu, Thagedu-tangar.

Distribution: India, Sri Lanka.

Description: A much branched shrub. Leaves paripinnate, leaflets 8-12 pairs elliptic, oblong, obtuse, and minutely apiculate, with subulate glands in between. Flowers large, showy, yellow in axillary corymbose racemes. Pod flat, thin papery, oblong, obtuse, depressed between the seeds.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Common along roads and in waste lands.

Material Examined: NKO-100

Parts Used: Leaves, Stem bark, Branches, Flowers.

Folk Uses:-

- Bark is tuned into coiled structure and used as 'Pipudi' by children. ?
- Dried branches are used are fuel.
- Flower bud is rubbed on face to remove dark spots on the face.
- Crushed leaves of it and put the urine than boild and prepare a paste, it is applied on muscular pain. ?

Chemical Constituents:- The plant contains tannins, β-Sitosterol, leucoanthocyaningoratesidine (4', 5, 7-trihydroxy flavone-3, 4-diol), (-) auriculacacidin (5, 2', 4'-trihydoxy flavon-3, 4-diol), β-sitosterol and kaempferol occur in flower and three new saturated higher fatty ketoalcohols and emodin in leaves.

Biological Activity:- Possesses hypoglycaemic, spasmolytic and antiviral activity.

76. Cassia fistula Linn.

Syn: *C. rhombifolia* Roxb.

Family: Caesalpiniaceae. **Vern.** : Garmalo.

Sanskrit Name: Aragbadha, Rajataru, Suvarnaka.

English Name: Indian Laburnum, Purgingfistula.

Regional Names:-

Ass.: Sunaru;**Ben.:** Amultas, Bandarlati, Sonali, Sundali;**Hin. :**Amaltas, Girmalah;**Kan.:** Kakee;**Mal. :** Konna, Kannikkonna;**Mar.:** Bahava, Bawa, Bhawabaya;**Oriya :** Sandari, Sunari;**Pb.:** Alas, All, Kaniar, Karanagal, Kiar;**Tam.:** Konarih Kay, Kone, Skarak-Konraikkay;**Tel.:** Rela-kayalu, Rela-rala, Reylu, Suvarnam.

Distribution: India, Sri Lanka, China, Malaysia.

Description: A small to medium-sized tree. Leaves paripinnete, stipules small, leaflets 4-8 pairs, large ovate, acute, base wedge-shaped-flowers in drooping racemes, yellow, fragrant. Pods long, cylindric, pendulous indehiscent. Seeds ovate, many, imbedded horizontally in sweet, dark-coloured pulp.

Flowering: Apr.-May. **Fruiting**: May-June.

Habitat Ecology: Common every where and planted on roadside.

Material Examined: NKO-101

Parts Used: Flowers, Fruits.

Folk Uses:-

- After flowering within 45 days monsoon rain begins.
- Pulp of fruit is given orally to cure stomach ache(children).

Chemical Constituents:- Pod contains tannin, sennosides A and B rhein and its glucoside, barbaloin, aloin, foric acid, butyric acid, their ethylesters and oxalic acid, gultin pectin, calcium oxalate, saponin, acetyl acid, iodine, thiocyanogen and unsponifying matter, tannins, phlobaphenes, reducing sugars and oxyanthratuinones. Leaves and bark also contain. Tannin.

Biological Activity:- Seeds and pod antiviral anticancer and hypoglycemic.

77. Cassia occidentalis Linn.

Syn: *C. foetida* Pears, *C. sophera* Wall, *Senna occidentalis* Roxb.

Family: Caesalpiniaceae. **Vern.** : Kasundro.

Sanskrit Name : Arimarda, Kasari, Kasamara.

English Name: Fetid Cassia, Negrocoffee, Rubbish Cassia, Stinking Weed.

Regional Names:-

Ben.: Kalkashundra;**Bom.:** Hikal;**Hin.:** Barikasondi, Chakundra, Kasundra;

Kan.: Doddaagace; **Mal.:** Karintakara;**Oriya:** Kasundri;**Tam.:** Nattandagarai, Peyavirai;**Tel.:** Kasindha;**Urdu:** Kasonji.

Distribution: Arabia, Abyssinia & Soctra, Tropical Africa, India, Sri Lanka, Malaysia, Java Sumatra & Sunda, Philippines.

Description: Under shrubs, 60-150 cm tall. Branches purplish. Flowers in short peduncled racemes, pale-lilac. Pods recurved, tortulose, 15-30 seeded.

Flowering: Aug.-Nov. **Fruiting**: Sept.-Dec.

Habitat Ecology: Wastelands, hedges of cultivated areas.

Material Examined: NKO-102

Parts Used: Leaves.

Folk Uses:-

- Leaves are used for scouring teeth.
- 1/2 tea spoon leaves juice mix with honey taken orally to cure throat infection

- Fruit pulp along with jiggery is given to children suffering from abnormally excessive saliva secretion.

Chemical Constituents:- Posseses 1, 8-dihydroxy- and oxymethylanthaquinones, emodol, luteolin, dimethyletherrhamnoside, quercetin and polysaccharides(plant); chrysophenol, emodin, physcin, 1, 7-dihydroxy-5-methoxy carboxy-1-3-methylxanthone and β-sitosterol (roots); c-flavonosides of apigenin (pericarp); emodin, phyocion and its β-glucopyranoside (flowers); aloe-emodin, a bianthraquinone, chrysophenol, dianthronic heterosides, jaceidin-7-rhamnoside, matteucino 1-7-rhamnoside rhein and potassium chelidonate (leaves); and chrysolein, linoleic, linolenic and oleic acids, campesteril, 8-carbomethoxy-1, 7-dihydroxy-3-methylxanthone, 1, 8-dihydroxy-2-methylanthraquinone, 1,4,5-trithydroxy anthroquinone derivatives, tannic acid and toxablbumin (seeds) (Chatterjee & Pakrashi, 1997)

Biological Activity:- Leaves roots and seeds are laxative. Seeds are febrifuge, nutritive, diuretic and expectorant. Leaves are anthemintic.

78. Cassia tora Linn.

Syn: *C. foetida* Salisb., *C. gallinaria* Colad., *C. humilis* Collad., *C. obtusifolia* Linn., *C. toroides* Roxb.

Family: Caesalpiniaceae. **Vern.** : Kuvadio.

Sanskrit Name: Dadamardan, Dadamari, Prabunatha.

English Name: The Foetidcassia.

Regional Names:-

Ben.: Chakundu, Panwar;**Bom.:** Kovariya, Kowaria, Tankala;**Hin.:** Chakunda, Panevar;**Kan.:**Tagace, Taragasi;**Mal.:**Takara, Taghar;**Mar.:**Takala, Takla, Tanku, Tarota;**Pb.:**Chakunda, Pawar, Pawas, Panwar,**Tam.:** Toratah, Usnit-tagarai;**Tel.:** Tagarisha-chettu.

Distribution: India, Sri Lanka, Brazil.

Description: A small fetid herb. Leaves pari pinnate, leaflets 3-pairs, obvoate, oblong, base rounded or oblique, the lowest pair the smallest with a conical

gland between them. Flowers yellow in axillary pairs or the upper ones crowded. Pod long and slender, 4-sided, sharp-pointed.

Flowering: Aug.-Sept **Fruiting**: Sept.-Nov.

Habitat Ecology: Gregarious in wasteland.

Material Examined: NKO-103

Parts Used: Leaves, Seeds.

Folk Uses:-

- Fresh juvenile leaves cooked as vegetable.
- 2g seed powder is taken orally in the morning for a week in skin disease.
- Extract or paste of leaves is applied in Eczema on effected part of the skin.

Chemical Constituents:- The whole plant contains anthraglucosides that on hydrolysis yield emodin and glucose, chrysophanol and rhein. The seeds yield a fatty oil consisting of oleic, linoleic, palmitic and lignoceric acid and sitosterol.

Biological Activity:- Seed spasmolytic, whole plant diuretic, antiviral CNS depressant and spasmolytic.

79. Casuarina equisetifolia Linn.

Family: Casuarinaceae. **Vern.** : Saru, Zuri.

English Name: Ironwood, Beefwood Tree, She-Oak.

Regional Names:-

Ben.: Belatijan;**Hin.:** Jangli saru;**Kan.:** Sarve;**Mal.:** Chavukku;**Mar.:** Saru;

Tam.: Savukku;**Tel.:** Sarugudu.

Distribution: India, Malaysia, Australia.

Description : A large and handsome tree with drooping branches, internodes short and furrowed. Leaves in whorls 6-8, scales-like. Flowers monoecious, male flowers in terminal spikes usually numerous at the ends of the same branches on which the females are borne lower down, they are in whorls. Fruit woody aggregate. Enclosing many small winged nuts.

Flowering: Aug.-Nov. **Fruiting**: Oct.-June.

Habitat Ecology: Planted extensively especially along the coast.

Material Examined: NKO-290

Parts Used: Stem, Whole plant.

Folk Uses:-

- Stem is used to prepare cattle shed.
- Wildly planted on coastline farms of this district to protect crops from salty winds.
- Stem is used for making poles of leveler (*Sambida*) & *'Ada'*
- Dried stem is used as fuel.

Chemical Constituents :- Plant contains tannin (ellagic acid), β-sitosterol, glycosides, quercetin, several common triterpenoids trifolin, catechin, rutin.

Biological Activity:- Plant is antiseptic, astringent, aperient, expectorant, haemostatic.

80. Catharanthus roseus (Linn.) G. Don,

Syn: *Vinca rosea* Linn., *Lochnera rosea* (Linn.) Reichb.

Family: Apocynaceae. **Vern**: Barmasi.

Sanskrit Name: Nityakalyani, Sadabahar, Sadampushpa.

English Name: Madagascar Peri Winkle.

Regional Names:-

Beng.: Nityakalyani;**Hin.:** Sadabahar;**Kan.:** Kempukesi, Kanigalu;

Mal.: Usamalari, Bityakalyani, Savanari, Banappuvu;**Tam.:**Sudukattu-mallikai

Tel.: Billa ganneru.

Distribution: Madagascar, India, Sri Lanka.

Description: A small shrub. Leaves opposite, oblong or oblanceolate, obtuse, mucronate, entrie. Flowers in axillary clusters or solitary pink or white fragrant. Fruit a pair of follicles, cylindric, seeds many.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Cultivated in the gardens everywhere.

Material Examined: NKO-187

Parts Used: Leaves, Whole plant.

Folk Uses:-

- 2 teaspoonfuls leaves juice is given orally twice a day for a week for diabetes.
- Planted in kitchen garden for ornamental purposes.

Chemical Constituents:- The leaves contain alkaloids :- serpentine, ajmaline ajmalinine, cathuranthine, cutharnanthinole, vindoline, vindilinine, vincaleucoblastine, leurosidine and vincristine. The roots contain phenolic resin, oleoresin, volatile oil, several alkaloids.

Biological Activity:- The whole plant perticuslarly the root bark contains alkaloids which have hypotensive, sedative and tranqulising properties. The root is toxic, bitter, acrid, stomachic and tonic.

81. Cayratia trifolia (Linn.) Domin.

Syn: *C. carnosa* (Lam.) Gagnep., *Vitis carnosa* Wall.

Family: Ampelideae. **Vern.** : Khat khatumbo.

Sanskrit Name: Aranyavasini. **English Name**: Fleshy Wild Vine.

Regional Names:-

Hin.: Amalbel; **Kan.:** Heggoli;**Mal.:** Sorivalli;**Pb.:** Amalbel;**Tam.:** Tumans;

Tel.: Kadepa tige.

Distribution: India.

Description: An extensive climber. Stem fleshy, hairy when young, tendrils branched. Leaves 3-foliate leaflets ovate, serrated, hairy on both sides, stipules small ovate. Flowers branched, long-peducled cyme green. Berry black 1-4-seeded.

Flowering: Aug.-Sept. **Fruiting**: Sept.-Oct.

Habitat Ecology: Through on the hedges, old walls and low shrubs or trees – common in study area.

Material Examined: NKO-65

Parts Used: Tubers.

Folk Uses:-

- Fresh or dry tubers are rubbed on stone with water and the paste obtained is applied on the snake bite externally.

Chemical Constituents:- The stems, leaves and roots contain hydrocyanic acid, presence of delphinidin and cyaniding is reparted in the leaves.

Biological Activity:- Dried fruits are demulcent laxative, sweet, cooling and aperient. Fresh fruits are digestive stomachic and expectorant. Root is astringent.

82. Celastrus paniculatus Willd.

Syn : *C. alnifolia* Don., *C. dependens* Wall., *C. multiflora* Roxb., *C. metziana* Turcz., *C. nutans* Roxb., *C. rothiana* Roem., *Ceanothus paniculatus* Roth., *Scutia paniculata* Don. Gen.

Family: Celastraceae. **Vern.** : Malkankna.

Sanskrit Name: Jiotishmati, Pitataila. **English Name**: Climbing Staff Plant.

Regional Names:-

Beng.: Mal-kangni; **Bom.:** Kanguni, Mal-kangni;**Hin.:** Mal-kangni, Mal-kungi;**Kan.:** Kariganne;**Mal.:** Ceruppunna, Valulavam, Palulavam;**Mar.:** Kavngani,Mal-kanganitela,Malkarigoni,Pigavi;**Pb.:**Sankhil,Sankhu;

Tam.: Valulval, Atriparichcham; **Tel.:** Bavungie, Gundumedia, Malkanguni, Maneru, Moierikata, Vittulu.

Distribution: India, SriLanka.

Description : Scrambling or climbing shrub with lenticellate branches. Leaves obovate serrulate. Flowers green and yellow in terminal panicled cymes. Capsule yellow 3-lobed with red arilled seeds.

Flowering: Dec.-Apr. **Fruiting**: Jan.-May.

Habitat Ecology: Common in bushes and hedges in moist localities.

Material Examined: NKO-69

Parts Used: Roots.

Folk Uses:-

- The root paste mixed with curd is applied on boils as a very effective medicine.

Chemical Constituents:- Bark and leaves contain sesquiterpene alkaloids, celapagine, celapanigine and celapanine hydrolysis gave polylcohol A, C & D. Seeds contain oils.

Biological Activity:- Unspecified parts adaptogenic, tannin present.

83. Celosia argentea Linn.

Family: Amaranthaceae. **Vern.** : Lapadi.

SanskritName:Bhurandi,Shitivar.**EnglishName**:QuilGrass,FeatherCockscomb

Regional Names:-

Ben.: Sweet murga; **Hin.:** sufed murgha, Shiriyari, Silvari; **Kan.:** Kurdu, Karkatira; **Mar.:** Kurdu, Kurada;**Tam.:** Pannai;**Tel.:** Gulugkura, Kurduretu.

Distribution : Arabia, Abyssinia & Soctra, Tropical Africa Madagascar, India, SriLanka, Burma, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, W. Indies, C. America & Mexico, Brazil.

Description: A small, annual branched, erect herb with grooved stem. Leaves alternate, linear. Laceolate acute, entire, base tapering into the petiole. Flowers in large, terminal spikes, pinkish at first gradually becoming white when old. Capsule dehise transversely. Seeds 4-8 flats.

Flowering: Aug.-Dec. **Fruiting**: Aug.-Dec.

Habitat Ecology: Common in grassland after rains.

Material Examined: NKO-262

Parts Used: Seeds.

Folk Uses:-

- Powder of seeds is given with sugar cube twice a day for 10 days to treat haematuria.

Chemical Constituents:- Seeds contain carbohydrate, vitamins and minerals.

Biological Activity:- Seed are diuretic, demulcent, aphrodisiac, blood purifier, astringent.

84. Centella asiatica (Linn.) Urban.

Syn: *Hydrocotyle asiatica* Linn.

Family: Apiaceae. **Vern.** : Brahmi.

Sanskrit Name: Bhekaparni, Divya, Maduki.

English Name : Indian Pennywort.

Regional Names:-

Ass.: Manimuni;**Beng.:** Brahma manduki;**Bom. :** Karinga, Karivana;

Hin.: Brahmamanduki, Khulakhudi;**Kan.:** Von-de-laga;**Mal. :**Kodagam, Muthal;**Mar. :** Brahmi;**Tam.:** Babassa, Vallari;**Tel.:** Bokkudu.

Distribution : Arabia, Persia, Mesopota, Afghanistan, Pakistan, Tropical Africa, India, Sri Lanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea.

Description: Small, trailing herb with kidney-shaped leaves and purplish flowers in simple, axillary umbels, which are few flowered. Fruit orbicular, reticulated.

Flowering: Oct.-Nov. **Fruiting**: Oct.-Nov.

Habitat Ecology: Rarely found along water channels, in Barda Hills.

Material Examined: NKO-152

Parts Used: Whole plant.

Folk Uses:-

- 50g of whole plant prepared into paste and mixed with *ghee* is taken internally twice a day as a memory tonic.

Chemical Constituents: - Therapeutic properties attributed to centoic, centellic, centic acids, brahmoside, brahminoside, two triterpenic acids-brahmic acid and iso-brahmic acid, betulic acid and stigmasterol (Rastogi *et. al*., 1960; Rastogi & Dhar, 1963).

Biological Activity:- Et OH (50%) ext. of the plant antiprotozoal and spasmolytic (Chaudhari *et. al.*, 1978).

85. Centratherum anthelminticum (Linn.) Kuntze.

Syn: *Conyza anthelmintica* Linn., *Serratula anthelmintica* Roxb., *Vernonia anthelmintica* (Linn.) Willd.

Family :Asteraceae. **Vern.** : Kalijiri.

Sanskrit Name:Agnibija,Tiktajiraka,Vanajiraka.

English Name : Purple Fleabane.

Regional Names:-

Beng.: Babchi, Kaliziri, Somraj;**Bom.:** Kalenjiri;**Hin.:** Kalijhiri, Vapchi;

Kan.: Kadu-jirage;**Mal.:** Kalajirakam;**Mar.:** Kalajira;**Oriya:** Somraj;

Pb.: Bukoki, Kalazira;**Tam.:** Katlu-chiragam;**Tel.:** Adavijilakatta;

Urdu : Janglijiri.

Distribution: India, Sri Lanka.

Description: Stout, leafy, aromatic herb. Flower heads small, purple. Achnes 10-ribeed, pappus reddish.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Wastelands, agricultural fields.

Material Examined: NKO-167

Parts Used: Seeds.

Folk Uses:-

- Roasted seeds (5-6g) powdered and mixed with jaggery given orally for digestive disorders.
- Paste of powdered seed applied on mumps.

Chemical Constituents:- Seeds posses a bitter principle as elemanolide lactone. Seed oil contains vernosterol and leaves and stem yield centratherin and germacranolide, besides, abscisc acid occurs in leaves.

Biological Activity:- Seeds antiviral and spermicidal. Various plant parts smooth muscle-relaxant and hypotensive.

86. Ceropegia bulbousa Roxb.

Family : Asclepiadaceae. **Vern.** : Kundher.

Regional Names:-

Hin.: Khapparkadi;**Kan.:** Hallike;**Mar.:** Khapparkadu;**Pb.:** Galot;**Tam.:** Bach-chalimanda;**Tel.:** Manchi-manda.

Distribution: India.

Description: A tuberous rooted twiner. Leaves fleshy, almost rounded to elliptic-oblong or obovate, cordate. Flowers green outside, violet-purple inside, in umbellate cymes. Follicles tapering to a point. Seeds comose.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Sept.

Habitat Ecology: It is found in monsoon (Barda Hills).

Material Examined: NKO-195

Parts Used: Tuber and Leaves.

Folk Uses:-

- Tuber and leaves are used as vegetable.

Chemical Constituents:- Starch, sugar, germ, albunoids, fat, crude fibre and ash. Bitter principle of tuber is an alkaloid 'cerapeyine' soluble in ether, alcohol and water.

Biological Activity:- Aphrodisiac and tonic.

87. *Cestrum nocturnum* Linn.

Family: Solanaceae. **Vern.** : Ratrani.

English Name: Lady of Night, Night Jasmine.

Distribution: Throughout India.

Description: A small, scandent shrub, branches yellowish with lanticles. Leaves ovate-oblong, acute glabrous. Flowers yellowish-green in axillary or terminal cymes, individual flowers supported by a bract, very sweet-smelling at night. Berry white, ovoid, many seeded.

Flowering: July-Jan. **Fruiting**: Aug.-Feb.

Habitat Ecology: Cultivated in the gardens and occasionally cultivated in border areas of agricultural fields.

Material Examined: NKO-222

Parts Used :Whole plant.

Folk Uses:-

- Cultivated in kitchen garden and gardens for sweet-scented flowers.

Chemical Constituents:- Leaves yield tigogenin, yuccagenin, nornicotine, cotinine and myosmine.

Biological Activity:- Aerial parts spasmolytic, diuretic and hypotensive.

88. *Chenopodium album* Linn.

Syn: *C. giganteum* Don, *C. nepalense* Hort., *C. viride* Linn., *C. laciniatium* Linn., *C. purpurascens* Ham.

Family: Chenopodiaceae. **Vern.** : Chil.

Sanskrit Name: Agralohila, Chillika, Kankella, Mridapatri, Shakarata, Vastuki.

English Name: Bacon Weed, Dirty Dick, White Goosefoot, Wild Spinach.

Regional Names:-

Beng.: Bathu sag, Chandan betu; **Bom.:** Chakurit;**Hin.:** Bathua, Khartua sag; **Kan.:** Hancike;**Mal.:** Vastuccira;**Pb.:** Bathu;**Tam.:** Parupukire;**Tel. :** Pappukura.

Distribution: Europe, North America, Afghanistan., Pakistan. Tropical Africa, India, Sri Lanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, Polynesia, Brazil, Australia.

Description: Glabrous herb, 0.3-3 m tall with striped stems and flowers and underside of the leaves mealy white. Utricles included in the perianth.

Flowering: Nov.-Mar. **Fruiting**: Nov.-Mar.

Habitat Ecology: Cultivated fields, waste places, frequent.

Material Examined: NKO-264

Parts Used: Leaves.

Folk Uses:-

- Leaves are eaten as vegetable in cooked form.

Chemical Constituents:- Ecdysteroids, β-ecdysone and polypodine β isolated from roots. Ascorbic acid, β-carotene, catechins, gallocatechin, caffeic acid, ρ-coumaric acid, ferulic acid, β-sitosterol, campesterol, xanthotoxin, stigmasterol, η-tri-acontanol, scopoletin, imperatorin, spinasterol and 7-stigmasterol occur in the plant (Asolkar *et al.*, 1992; Chatterjee & Pakrashi, 1997).

Biological Activity:- Plant Et OH (50%) ext. CNS depressant.

89. *Chenopodium murale* Linn.

Family: Chenopodiaceae. **Vern**: Balelo.

Distribution : Europe, North America, Afghanistan, Pakistan, Tropical Africa, India, SriLanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, Polynesia, Brazil, Australia.

Description: An erect or ascending annual herb. Stem angular, often deeply sulcate when dry, clothed with white, powdery vesicles. Leaves ovate-rhomboid or elliptic from a cuneate base, acute, irregularly and coarsely dentate serrate. Flowers in axillary at terminal. Fruit a utricle, partially enclosed by perianth, depressed globose. Seed dull black very finely papillate.

Flowering: Dec.-Mar. **Fruiting**: Dec.-Mar.

Habitat Ecology: A winter weed of fields.

Material Examined: NKO-265

Parts Used: Leaves.

Folk Uses:-

- Leaves are used as vegetable. It is not very common. It is a diuretic and is consumed as a good laxative.

Chemical Constituents:- Leaves contain potash salts.

Biological Activity:- Plant is diuretic, anthelmintic, expectorant and antispasmodic.

90. *Chlorophytum tuberosum* (Roxb.) Bak.

Family: Liliaceae. **Vern.** : Karli ni Bhaji.

Sanskrit Name :Kulika,Pralambika.

Regional Names:-

Hin. : Kurli.**Mar. :** Kuli chi Bhaji.

Distribution: Abyssinia & Soctra, India.

Description: A small herb with tuberous root. Leaves radical, sessile, falcate, recurved, and wavy. Flowers on a scape, white in racemes. Capsule obovoid.

Flowering: July-Aug. **Fruiting**: July-Aug.

Habitat Ecology: Common in Barda Hills.

Material Examined: NKO-305

Parts Used: Scape.

Folk Uses:-

- Scape is eaten as vegetable.

Chemical Constituents:- The roots contain a bibenzyl xyloside, the steroidal sapogenins, besides stigmasterol and its glucoside, and triacontaoic acids. The fruits yield a polysaccharide, galactoglucan.

Biological Activity:- Nutritive.

91. *Cicca acida* (Linn.) Merrill.

Syn : *Phyllanthus acidus* Skeels.

Family: Euphorbiacese. **Vern.**: Khata amla.

Sanskrit Name: Ghana, Komalavalkala, Lavali.

English Name: The Country Gooseberry.

Regional Names:

Hin.: Chalmeri; **Ben.** : Hariphul; **Tel.** : Rachayusirika; **Tam.**: Arunelli; **Mal** : Arinelli; **Kan**.: Aranelli.

Distribution: India.

Description: 5-8 m, glabrous, robust, deciduous tree. Leaves alternate, pinnately compound; inflorescence densely clustered on pendulous branches on old wood in elongate; flower reddish.

Flowering: Apr.-July. **Fruiting**: Apr.-July.

Habitat Ecology: Commonly cultivated in study area.

Material Examined: NKO-270

Part used: Fruits.

Folk uses:

- Fruits are edible.
- Fruits also used as a mouth freshener.

Chemical Constituents: Root bark; Tannin, Saponin, Gallic acid, crystalline substance, vitamin-C.

92. *Cicer arietinum* Linn.

Family: Fabaceae. ` **Vern.** : Chana.

Sanskrit Name: Chanaka. **English Name**: Chick-Pea, Bengalgram.

Regional Names:-

Ben.: Chat abut; **Hin.:** Chana; **Kan.:** Chano; **Pb.:** Nakhaud; **Tam.:** Kadalai; **Tel.:** Senagalu.

Distribution: Afghanistan, Pakistan, India.

Description: A small annual herb. Leaves imparipinnate, leaflets. Small rounded, toothed. Flowers white or violet. Pods small, oblong, turgid. Seeds 1-2, obliquely pointed, brown.

Flowering: Jan.-Feb. **Fruiting**: Feb.-Mar.

Habitat Ecology: Cultivated as a winter food crop in Ghed region.

Material Examined: NKO-77

Parts Used: Leaves, Seeds, Whole plant.

Folk Uses:-

- The due drops collected from the leaves are used in dyspnoea.
- The bruised chaff obtained after threshing of gram, forms a good mixture in cattle food.
- Green seeds are eaten as Vegetables.

Chemical Constituents:- Oxalic acid, malic acid, nitrogen, fats, albuminoids, fibre and ash.

Biological Activity:- Plant refrigerant, astringent and antibilious. Seeds cooling, appetizer, anthelmintic.

93. *Cieba pentandra* (Linn.) Gaertn.

Syn: *Bombax pentandrum* Linn., *Eriodendron anfractuosum* DC.

Family : Bombacaceae. **Vern.** : Dholo Shimlo.

Sanskrit Name: Kutashalmali, Svetashalmali.

English Name: White Silk Cotton Tree, True Kopok Tree.

Regional Names:-

Hin.: Saphed Simal;**Kan.:** Burga, Biliburuga;**Mal.:** Pannimaram;**Tam.:** Pancu; **Tel.:** Tellaburuga, Buruga Sauna.

Distribution: Tropical Africa, India, Sri Lanka, W. Indies.

Description: A tall tree with far reaching branches horizontal in whorls of 3, verticellate. Leaves deciduous, compound, long-petiole, leaflets 5-8, lanceolate, entire or serrate, stipules small, and caduceus. Flowers tufted at the ends of branches or axillary, white or rose-coloured. Capsules ovoid, oblong many seeded. Seeds enclosed in separate woolly balls.

Flowering: Feb.-Mar. **Fruiting** : Mar.-May.

Habitat Ecology: Rare tree, planted in garden.

Material Examined: NKO-34

Parts Used: Fruit.

Folk Uses:-

- Fibres extracted from ripen fruit is used as filling fibre to prepare pillow or cushion.
- Planted near house for ornamental plant.

Chemical Constituents:- It contains cellulose, hemicellulose, pectin, lignin, ash, sesquiterpene lactones and carbolactone.

Biological Activity:- Root is diuretic, aphrodisiac, antipyretic and tonic. Bark is acrid, bitter, thermogenic diuretic, febrifuge, emetic, astringent and tonic.

94. *Cissampelos pareira* Linn.

Syn : *C. hirsuta* Dc., *C. caapeba* Linn., *C. convolvulacea* Willd., *C. orbiculata* Buch., *C. discolor* Buch., *C. obtecta* Wall., *C. diversa* Miers, *C. elata* Miers, *C. grallatorial* Miers, *C. eriantha* Miers, *C. delicatula* Miers, *C. subpeltata* Thwaites, *Cocculus orbiculatus* Dc.

Family: Manispermaceae. **Vern.** : Venivel.

Sanskrit Name: Ambashtha, Brihattika, Shishira.

English Name: False Pareira Brava, Ice Vine.

Regional Names:-

Beng.: Akanadi,Tejomalla;**Bom.:**Pahadmul;**Goa:**Parayel;**Hin.:**Akauadi, Dakhnirbisi, Pari;**Kan.:** Padvali;**Mal.:** Kattuvalli;**Oriya:** Okanobindhi;

Pb.: Batbel, Batindupath, Haiyat, Pataki, Pilajur, Sakhmi, Sucum-yeat;

Tam.: Pomusktie, Punmushtie, Vata-tirupie;**Tel.:** Pata.

Distribution: India.

Description: Climbing shrub. Leaves orbicular to reniform. Male cymes long-peduncled, femel recemes. Drupe ovoid, scarlet-red.

Flowering: Sept.-Oct. **Fruiting**: Sept.-Oct.

Habitat Ecology: Common in open areas on bushes.

Material Examined: NKO-3

Parts Used: Rhizome, Stem.

Folk Uses:-

- 1 teaspoonful juice of a rhizome is taken twice a day for 15 days or more to cure malarial fever.
- Stem used as string to tie bundle of grass or fire wood and prepare *'Suthiu'*.?

Chemical Constituents:- Hayatine, 1-curine, thymol (roots); 11 quaternary alkaloids including menismine, cis-samine, pareirine, d-isochodrodendrine, 1-bebeerine, hayatine and hayatinine (root-bark); cycleanine, 1-bebeerine, hayatidine, hayatinine, hayatine and d-quercitol (leaves); cissampareine, d1-curine dimethiodide (plant) have been isolated.

Biological Activity :- Root ext. hypoglycaemis and CNS depressant, whole plant anticancer and muscle relaxant.

95. *Cissus quadrangulare* Linn.

Syn : *Vitis quadrangularis* Wall.

Family. : Ampeliedeae. **Vern.** : Hadsankar.

Sanskrit Name: Asthishrinkhala, Vajravalli. **English Name**: Bone-Setter.

Regional Names:-

Han.: Hadjod, Hadjora;**Kan.:** Mangarahalli;**Mal.:** Cannalanpaaranta, Peranta;

Tam.: Pirantai, Vajjravalli;**Tel.:** Nalleru, Mulleratiga.

Distribution: India.

Description: Succulent tendril climbers. Leaves alternate, ovate or reniform, sometimes 3-7 lobed, denticulate, base rounded stipules ovate. Flowers greenish white in umbrellate cymes.Berry red, globose. Seed solitary.

Flowering : Aug.-Sept. **Fruiting**: Sept.-Oct.

Habitat Ecology: Hedge plant throughout the area.

Material Examined: NKO-66

Parts Used: Stem.

Folk Uses:-

- Crushed stem is applied on knee pain.

Chemical Constituents:- The stems and leaves contain two unsymmetric tetrycyclic triterpenoids, β-sitosterol, protein, fat, carbohydrate, mucilage, pectin, calcium oxalate, vitamin A, vitamin C, potassium, magnesium, phosphate.

Biological Activity:-The plant is bitter, sweet, sour, thermogenic, irritant, alterative, laxative, anthelmintic, carminative, digestive, stomachic, depurative, haemostatic, aphrodisiac, anodyne, ophthalmic and union promoting.

96. *Citrullus colocynthis* (Linn.) Schrad.

Syn: *Colocynthis vulgaris* Schr., *Cucumis colocynthis* Linn., *Cucumis colocynthis* Linn.

Family: Cucurbitaceae. **Vern.** : Indravarna.

Sanskrit Name: Atmaraksha, Brihadvaruni. **English Name**: Bitter Apple.

Regional Names:-

Hin.: Ghorumba;**Kan.:** Pavamekkekayi;**Mal.:** Peykommutti;**Mar.:** Indraphal;

Pb.: Tumbi;**Tam.:** Peykkumutti;

Distribution : Arabia, Tropical Africa, India, SriLanka.

Description: A perennial, monoecious, creeping on ground with simple or 2-fid tendrils. Leaves variable, trilobed or 5-7 lobed. Flowers yellow. Pepo globular, variegated green and white bitter.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Common on waste land throughout the area.

Material Examined: NKO-135

Parts Used: Fruits.

Folk Uses:-

- A small hole is made in the fruit and the infected finger is inserted into it and kept for 4-5 hours. It is very effective treatment for paronychia.

Chemical Constituents:- Seeds contain a fixed oil. Fruit pulp contains colocynthein pcetin and gum.

Biological Activity:- Fruit is bitter, hydrogogue, abortifacient, emmenagogue, catheric and emetic. Root is carminative, antipyretic, bitter, pungent and cathartic.

97. *Citrus limon* (Linn.) Burm.

Family: Rutaceae. **Vern.** : Limbu.

Sanskrit Name: Nimbuk. **English Name**: The Lemon.

Regional Names:-

Ben.: Baranebu, Goranebu;**Hin.:** Baranibu, Jambira, Paharinimbu;

Kan.: Bijapura, Bijori;**Mar.:** Idalimbu;**Tam.:** Periya, Yelumichai;

Tel.: Bijapuram.

Distribution: Afghanistan, Pakistan, Tropical Africa, India, SriLanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea.

Description: A small tree. Leaves small, with narrowly winged petioles. Flowers white, small. Fruit ovoid, oblong, usually with a nipple-shaped extremity, bright yellow, rind thick, pulp acid.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Cultivated throughout the study area.

Material Examined: NKO-49

Parts Used: Fruits.

Folk Uses:-

- It is common custom to hang green chillies with lemon with black thread on the gates of shops and houses for prosperity and to keep away the evil spirits.
- Lemon is kept in pocket of Maher bridegroom to keep away evil eyes.
- Extract of fruits is applied on hairs to remove dandruff.

- Juice used for washing and cleaning metal utensil.

Chemical Constituents:- Fruit juice contains citric acid and ascorbic acid. Rind of fruit contains pale yellow volatile oil.

Biological Activity:- Juice of fruit is cooling, sour, carminative antiscorbutic, stomatchic, digestive and appetiser. Bark is febrifuge and seeds are vermifuge, rind is stomachic and carminative.

98. *Citrus medica* Linn.

Family: Rutaceae. **Vern.** : Bijoru.

Sanskrit Name: Begapura, Phalapura, Matulunga, Vijapura.

English Name: Adam's Apple, The Citron.

Regional Names:-

Beng. : Bara-nimbu, Beg-pura, Bijaura, Lebu, Nebu, Turang;**Bom.:** Bara-nimbu, Bijaura, Kutta, Limbu, Limu, Turanj.**Kan.:** Limbu, Mada-lada-hammu;

Mal.: Gabapatinarakam.**Mar.:** Limbu, Mavalung;**Pb.:** Bajauri-Nimbu;

Tam.: Elumich-cham-pazham, Nartam-pazham;**Tel.:** Bijapura, Dabba, Lungamu, Madhipala-pandu, Naradabba, Nimmapandu.

Distribution: India.

Description: A small tree, young shoots purple. Leaves unifoliate, petioles naked or winged, ovate, serrate. Flowers white, unisexual. Berry globose or oblong, yellow when ripe, rind, rough thick and irregularly shaped.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Cultivated everywhere.

Material Examined: NKO-50

Parts Used: Stem bark.

Folk Uses:-

- Stem bark is crushed with water and applied on a hair which makes them strong and healthy.

Chemical Constituents:- Fruit contains, volatile oil 2.5%, 4% citral, an ablenyde and terpenes mainly limonene 90%, citromellal and aldehyde, geranly acetate and other terpene derivatives in small quantities. It also contains citric

acid, hespiridin, calcium oxalate, pectin, citron, citrne, cymene, sugars, vitamin C.

Biological Activity:- Roots are laxative, anthelmintic and diuretic. Fruits are emollient, astringent, stimulant, expectorant, diuretic, antilithic, antioxidant, carminative, cardiac stimulant. Seeds are stimulant, anti-inflammatory.

99. *Cleome gynandra* Linn.

Syn: *Gynandropsis pentaphylla* DC. *G. gynandra* (Linn.) Briquet.

Family: Capparidaceae. **Vern.** : Gandhatur.

Sanskrit Name: Bastgandha, Swettilparni.**English Name**: Caravalla Seed.

Regional Names:-

Hindi : Safedhulhul; **Mar :** Tilvan.

Distribution : Arabia, Abyssinia & Soctra, Tropical Africa, Madagascar, India, Srilanka, Burma, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, W.Indies, Central America & Mexico, Brazil.

Description: An annual, erect, branched, hairy herb. Leaves 3-5 foliate, petioles long, leaflets sub-sessile, elliptic, obovate, acute, and hairy on both sides. Flowers white or pale pink, at first corymbose, elongating into a raceme with bracts which are trifoliate. Fruit a long siliqua. Seeds rough.

Flowering: Aug.-Oct. **Fruiting**: Sept.-Nov.

Habitat Ecology: Grows near villages and in cultivated fields during monsoon.

Material Examined: NKO-17

Parts Used: Seeds.

Folk Uses:-

- Vapour of boiling seeds is inhaled thrice a day to cure cough.

Biological Activity:- Leaves are rubefacient, anthelmintic and vesicant. Seeds are antispasmodic, sudorific and carminative.

100. *Cleome viscosa* Linn.

Syn: *C. icosandra* Linn., *Polanisia viscose* (Linn.) Dc., *P. icosandra* Wt. & Arn.

Family: Caparidaceae. **Vern**: Pili Talvani.

Sanskrit Name: Karnaspota.**English Name**: Dog Mastard, Sticky Cleome.

Regional Names:-

Hin. : Kanfatiya;**Mar. :** Kanfodi;**Tel. :** Kukka vavinta.

Distribution : India, SriLanka.

Description: An erect, glandular-pubescent, annual herb. Stem angular, grooved, hairy. Leaves large but upper leaves small, leaflets elliptic-oblong, acute, the terminal largest. Flowers yellow, axillary growing into loose raceme. Fruit a long siliqua, hairy, ending in a style. Seeds many, black, and subglobose.

Flowering: Aug.-Sept. **Fruiting**: Sept.-Oct.

Habitat Ecology: Very common weed of waste land in rains.

Material Examined: NKO-18

Parts Used: Leaves.

Folk Uses:-

- Leaves paste is applied externally to cure wounds in cattle.
- Leaves used as a vegetable. It is good in taste and is used as a diuretic. Also used to check oozing of blood in urine.

Chemical Constituents:- The aerial parts contain a macrocyclic diterpene, cleomaldeic acid, and bicyclic diterpene, cleomeolide. The seeds contain coumarinolignans, cleomiscosin A, B, C & D.

Biological Activity:- Seeds are carminative, anthelmintic and antiseptic. Leaves are sudorific, rubefacient and vesicant.

101. Clerodendrum multiflorum (Burm.f.) O. Ktze**.**

Syn: *C. phlomidis* Linn.

Family: Verbenaceae. **Vern.** : Arani.

Sanskrit Name: Agnimantha.

Regional Names:-

Hin.: Urni;**Mal.:** Tankli;**Tam.:** Thalanji;**Tel.:** Neleechetta.

Distribution: India, Sri Lanka.

Description: A small shrub. Leaves opposite, deltoid-ovate, obtuse or acute, crenate-dentate, hairy below, wavy. Flowers white or pinkish, small, dichotomous axillary cymes forming. arounded terminal penicle, fragrant, brackts small leafy, lanceolate. Drupe obovoid, 4-lobed with 1 pyren in each lobe.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Grows in hedges or bushes.

Material Examined: NKO-244

Parts Used: Stem, Whole plant.

Folk Uses:-

- It is gown on outskirt of field as a live fence.
- If smoking pipe is broken than farmer use hollow stem of it in place of pipe and smoke. ?
- A necklace of stem pieces is warned to cure conjunctivitis.

Chemical Constituents:- (24g) Ethylcholesta 5, 22, 25 trien-3-β-ol detected in leaves and scutellarien and pectolinarigenin (4', 6-demethylscutellarien) isolated along with a monoglucoside, m.p.213^0, β and γ-sitosterol, an unidentified sterol, m.p. 155^0, ceryl alcohol, and palmitic and cerotic acids. D-manitol, β-sitosterol, β-sitosterol β-D-glucoside and ceryl alcohol occur in stem.

Biological Activity:- Aqueous and alcoholic extracts reduced oedema of formalin induced arthritis in rats.

102. Clitoria ternatea Linn.

Family: Fabaceae. **Vern.** : Garni.

Sanskrit Name: Aparajita, Asphota, Gokarnamul, Nilaghira, Nilaghirie-kurni, Vishnu-kranta. **English Name**: The Indian Mezorian.

Regional Names:-

Beng.: Aprajita, Nil-aparajita, Swet-aparajita, Uparajta; **Bom.:**Gokarnamul, Gokaran, Kajali; **Hin.:** Aparajit, Aprajit, Kalizer, Khagin, Kowa, Kowa-theti, Shokanjan, Visnukranti;**Kan.:** Gokarnamul, Kirgunna, Vishnu-kantisoppu; **Mal.:**Samkhupuspam, Aral, Malayamukki;**Mar.:**Gokarni, Gokurna-bija, Gokurna-mula, Sholanga-kuspi;**Tam.:**Kakkanan-kodi, Kara-kartan, Karka-Kartum;**Tel.:** Dintana, Mella, Nila-dintana, Nila-ghentana, Tella.

Distribution : Arabia, Persia, Mesopot, Pakistan, Abyssinia & Soctra, Tropical Africa, India, SriLanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philipines, New Guinea, Polynesia.

Description: A twining herb. Leaves imparipinnate, stipules linear, leaflets 5-7, elliptic, oblong, obtuse. Flowers blue or white axillary, bracts and bracteoles present. Pods flattened, sharply beaked, 6-10 seeded.

Flowering: Aug.-Nov. **Fruiting**: Aug.-Jan.

Habitat Ecology: Common in hedges everywhere.

Material Examined: NKO-78

Parts Used: Flowers.

Folk Uses:-

- Flowers offered to appease 'Lord Krishna' and 'Shiva'.

Chemical Constituents:- Whole plant contains taraxerol, teraxerone, tannin, rsins, starch plenty of glucosides, aparajitin, b-sitosterol, kaempherol, cyaninchloride, p-hydroxy cinnamic acid and oligo saccharides.

Biological Activity:- Roots are bitter, refrigerant, ophthalmic, purgative, carminative, demulcent, abortifacient, intellect promoting, alexeteric, diuretic, anthelmintic, depurative, aphrodisiac and tonic. Seeds are laxative.

103. Coccinia grandis (Linn.) J. O. Voigt

Syn: *C. cordifolia* (Linn.) Cogn., *C. indica* Wt. & Arn., *Cephalandra indica* Naud., *Bryonia cordifolia* Linn.

Family: Cucurbitaceae. **Vern.** : Kadavi gholi.

Sanskrit Name: Bimbi, Bimbika. **English Name**: Ivy-Gourd.

Regional Names:-

Hin.: Bimb, Kanturi; **Kan.:** Tondikay; **Mal.:** Kova, Koval; **Tam.:** Kovai; **Tel.:** Dondakaya.

Distribution : North America, Pakistan, Tropical Africa, India, SriLanka, Burma, China, C. America & Mexico, Brazil.

Description: A perennial, dioecious tuberous rooted, climber with simple tendrils. Leaves palmately 5-lobbed, base cordate. Male flowers solitary white, female flowers solitary white. Pepo ovoid elongate, scarlet when ripe.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Wild on hedges everywhere.

Material Examined: NKO-136

Parts Used: Leaves.

Folk Uses:-

- Juice of leaves is applied on body after painted with tattoo to prevent inflammation and batter expression of tattoo. ?
- Juice of leaves and small stem piece of any grass spp. is kept in a bowl near the cardle, on the sixth day of child's birth, with a strong belief that the godess of fate (Vidhata) visits the child and writes a complete future of the child on its fore-head. ?

Chemical Constituents:- Reported to contain enzyme, hormone and traces of an alkaloid and an amylase besides lupeol, β-amyrin, β-sitosterol and stigmast-7-en-3-one in root and cephalandrine A and β, cephalandrol, tritriacontane, in addition to β-sitosterol in aerial parts, β-sitosterol, taraxerol, β-carotene, lycopene, cry ptoxanthin and lycopenol obtained from fruits, whereas β-amyrin, lupeol and bitter glycoside containing cucurbitacin-β occur in the young fruits of bitter variety.

Biological Activity:- Hypoglycaemic principles in aqueous and ethanolic extracts, orrly active and comparable with tolbutamide, a quaternary base isolated from the plant was also found to have hypoglycaemic activity of short duration and it showed definite activity on glucose tolerance test in normal guineapig. Screening of this plant at CDRI Lucknow, however, did not reveal

any hypoglcaemic activity of the root extrat. Instead it was reported to prosses antiprotozoal properties against *Entamoeba histolytica*.

104.Cocculus hirsutus (Linn.) Diels.

Syn: *C. villosus* Dc., *Menispermum hirsutum* Linn.

Family : Menispermaceae. **Vern**: Vaghi.

Sanskrit Name: Patalgaruda, Patalgarudi. **English Name**: Broom creeper.

Regional Names:-

Hin.: Jaljamani, Patalgarudi;**Kan. :** Sogadiballi;**Mal.:** Patalagurudakkoti;

Tam.: Kattukkoti;**Tel.:** Dusuratiga.

Distribution: India.

Description: A straggling scandent twiner, young parts full of long weak hairs branches marked with grooves or ridges. Leaves ovate-oblong, hastate, obtuse or subacute with a sharp short point, subcordate at base. Male flowers appear first in small axillary cymose panicles. Female flowers appearlate, in axillary clusters. Fruit a drupe. Seeds horse-shoe-shaped.

Flowering: Feb.-Mar. **Fruiting**: Mar.-Apr.

Habitat Ecology: Common in hedges everywhere.

Material Examined: NKO-4

Parts Used: Leaves.

Folk Uses:-

- The leaves are crushed in cold water and the water is allowed to remain still for some time. Then it becomes like curd. The green curd like extract is applied on scalp for cooling the brain and softening the hair.
- Leaves used as vegetable for the treatment of night blindness.

Chemical Constituents:- Root contains resing, bitter principles, sitosterol, and ginnol. Leaves contain mucilage, hirsutin.

Biological Activity:- Roots are bitter, acrid, thermogenic, emmenagogue, laxative, alternative, emollient, alexeteric, depurative, demulcent, digestive, carminative, diuretic, aphrodisiac, expectorant, anodyne, antipyretic and tonic. Leaves are mucilaginous, aphrodisiac, demulcent, anodyne and expectorant.

105. Cocculus pendulus (Forst.) Diels.

Syn: *C. loeba* Dc., *Epibaterium pendulum* Forst.

Family: Menispermaceae. **Vern.** : Orap.

Distribution: Afghanistan, India.

Description: Twinner stem and branches clothed with grey pubescens. Leaves alternate. Very variable. Fruit drupe ovoid ridged. Compressed.

Flowering: Feb.-Mar. **Fruiting**: Mar.-Apr.

Habitat Ecology: Common in hedges everywhere.

Material Examined: NKO-5

Parts Used: Root.

Folk Uses:-

- Decoction of root given twice a day for one month to get rid from addiction of oppium.

Chemical Constituents:- Stem and leaves contain bisbonzyliso quinoline alkaloids (including pendulin and cocsulin) presence of quercitol is reparted.

106. Cocos nucifera Linn.

Family: Arecaceae. **Vern.** : Naliyer.

Sanskrit Name: Langalin, Nari-kela, Nari-keli, Nari-kera.

English Name: The Cocoa-Nut Palm, The Coir.

Regional Names:-

Beng. : Dab, Narakel, Narikel, Nariyal;**Bomb.:** Maar, Mahad, Mar, Naral-cha-jhada, Narel, Naril, Naural;**Kan.:** Kinghenna, Tengina, Tenginachippu-tengina-gida, Tengina-kayi, Tenginararu, Tenginayamme, Thenpinna;**Mal.:** Kalambir-kalapa, Nur, Nyor, Tenga, Tenna, Tinn-maram;**Mar.:** Mad, Mada, Mahad, Mar, Naral, Narali-cha-jhuda, Naralmad, Narel, Narela, Narula, Tenginmar, Varala;**Tam.:** Tenga, Tenna, Tenna-chedi, Tenna-maram, Tinging;**Tel.:** Ankaya, Erra-bondala, Goburri-koya, Gujjunarekadam, Kobbari, Kobbari- chetu, Kobrichullu, Nari-kadam, Tenkaia, Tenkaya-chettu.

Distribution: North America, India, Malaysia, Brazil.

Description: A handsome, tall palm. Leaves forming a crown on the top, very large, pinnate, leaflets many, linear, lanceolate. Flowers in large spadix which is androgynous with numerous small male flowers, above and a few, globular larger femel flowers below, spathe boat-shaped. Drupe fibrous large, obovoid. Seed with white endosperm, brown testa and full of liquid endosperm the coconut milk.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Cultivated for its fruits.

Material Examined: NKO-310

Parts Used: Seedling, Inflorecens, Leaves.

Folk Uses:-

- It is belived that if pregrent women eat a seedling of it then it gives birth to a boy child.
- Inflorecens and rachis both are used as a broom.
- Leaves are used as a thaching material in hut.

Chemical Constituents:- Endosperm contains sachharose, myonostol, sorbitol, diphenylurea, alipahatic, alcohols, ketones, leuco anthocyanins, glycerol, sucrose, glucose, stachyose, bongrek acid, xylan, glucosan, aliphatic fatty acids, polyphenols, cocositol, campesterol and ligustrazine alkaloids.

107. Colocasia esculenta (Linn.) Schott

Syn: *Arum colocasia* Linn.

Family: Araceae. **Vern.** : Alvi.

Sanskrit Name: Alupam, Alukam. **English Name**: Taro.

Regional Names:-

Hin.: Kachchalu,Khuyya;**Kan.:** Kaci, Samagoddi;**Mal.:** Cempu;**Tam.:** Cempu; **Tel.:** Cema dumpa, Cemagadda.

Distribution: India, SriLanka.

Description: A small herb with a tuberous corm. Leaves dark-green or pale-greenish yellow, radical, larger, peltate, ovate-sagittate, with a large basal stem, petioles stout, and sheathing. Flowers on a spadix, male above, neuters in middle, femels below. Berries small, red, globose, few seeded.

Flowering: July-Sept. **Fruiting**: July-Oct.

Habitat Ecology: Extensively cultivated everywhere.

Material Examined: NKO-314

Parts Used: Leaves.

Folk Uses:-

- Leaves are used as vegetable.

Chemical Constituents:- Corm contains starch, mucilage, dihydraxysterols, fat, calcium oxalate, calcium phosphorus, vitamin B, iron, etc. leaves contains calcium oxalate, fibres, minerals starch, vitamin A, B and C, etc.

Biological Activity:- Rhizome hypotensive.

108. Commelina benghalensis Linn.

Family: Commelinaceae. **Vern.** : Motu sismuliya.

Sanskrit Name: Marishajalaja. **English Name**: Day Flower.

Regional Names:-

Beng.: Kachradam;**Kan.:** Hittagani;**Hin. :** Kanchara;**Mar.:** Kena;**Pb.:** Chura;

Tam. : Kanangakarai;**Tel. :** Nirukassuva.

Distribution: Afghanistan, Pakistan, Tropical Africa, India, SriLanka, Burma, China, Malaysia, Philippines.

Description: A small herb with dichotomously branched, slender stem, creeping and rooting below. Leaves broad, ovate or oblong, obtuse. Hairy on both sides. Cymes in axillary solitary elliptic oblong turbinate spathe. Flower bright blue, hermaphrodite. Capsule pyriform 5-seeded. Seed oblong truncate or rounded ends, pitted oblong.

Flowering: Aug.-Oct. **Fruiting**: Sept.-Nov.

Habitat Ecology: Very common weed everywhere throughout the study area.

Material Examined: NKO-308

Parts Used: Leaves.

Folk Uses:-

- Fresh leaves rubbed to give relief from irritation caused by stinging hairs of *Tragaia cannabian*. ?
- Extract of leaves is applied over eye two or three times a day to cure stye. ?

Chemical Constituents:- Contains alkaloid, caffeine, trogoneline, adenine, xanthine, hypoxanthine, guanine, volatile oilcaffed, wax.

Biological Activity:- Seeds are stimulant, diuretic.

109. Commiphora wightii (Arn.) Bhandari

Syn: *Balsamodendron mukul* Hook. ex. Stocks., *B.roxburghii* Stocks., *B. wightii* A. *Commiphora mukul* (Hook ex stocks) Engl.

Family: Burseraceae. **Vern.** : Gugal.

Sanskrit Name : Guggulu, Mahisaksha. **English Name**: Indian Bdellium Tree.

Regional Names:-

Hin.: Gugal, Guggul;**Kan. :** Guggulu;**Mal.:** Gulgulu, Mahisaksagulgulu;

Tam.: Gukkulu, Mahisaksi;**Tel.:** Guggulu.

Distribution: India, Pakistan.

Description: 1to 2.5m deciduous, bushy, balsamiferous, trees, leaves alternate, trifoliante compound, and inflorescence fascieled cymes. Flowers brownish red, polygamous. Fruit drupes 0.4-0.8 cm across ovoid shortly beaked.

Flowering: Jan.-Apr. **Fruiting**: Feb.-May.

Habitat Ecology: Common on open dry hills throughout the area. The young leaves appear in May-June. Also found in sandy and stony areas.

Material Examined: NKO-55

Parts Used: Branches, Fruits.

Folk Uses:-

- Young branches are used as tooth brushe to cure pyorrhea.
- 10 to 12 fruits are taken orally to cure urticaria.

Chemical Constituents:- Gum contains volatile oil 7 to 17%, resin 25 to 40 %, gum 57 to 61% and 3 to 4% impurities, volatile oil contains cuminic aldehyde, eugenol, metacresol, pinene, limonene, dipentene and two sesquiterpenes. Resin contains three free resin acids α, β and γ commiphoric acids, esters of another resin acid and two phenolic resins.

Biological Activity:- Astringent , antiseptic, denulcent, bitter, acrid, expectorant.

110. Convolvulus arvensis Linn.

Syn: *C. malcolmii* Roxb., *C. divaricatus* Wall., *C. chinensis* Ker.

Family: Convolvulaceae. **Vern.**: Veladi, Khetrau-fudardi.

Sanskrit Name : Bhadrabla, Rajbali. **English Name**: Deer's Foot, Bind Weed.

Regional Names:-

Beng.: Gandhbhadali, Gondhal;**Hin.:** Harin padi;**Mar. :** Chandvel, Haranpag;

Pb.: Hiran paddi.

Distribution: Afghanistan, Pakistan, Tropical Africa, Madagascar, India, Sri Lanka, Burma, China, Malaysia, Java Sumtra & Sunda, Philippines.

Description: Twining herb. Leaves sagittate, corolla funnel shaped. Capsule globose, glabrous.

Flowering: Aug.-Oct. **Fruiting** :Aug.-Oct.

Habitat Ecology: Frequent on waste lands, agricultural fields.

Material Examined: NKO-211

Parts Used: Whole plant.

Folk Uses:-

- One teaspoonful of decoction of acrial parts is given twice a day to cure fever.
- It is used as a fodder.

Chemical Constituents :- Chief principles are cuscohygrine, coumarins (roots), n-alkanes, n-akanols, α-amyrin and sterols (aerial parts) and β-me-esculetin (all parts of plant).

Biological Activity :- Plant ext. hypotensive, anti-convulsant, imascarinic and nicotinic.

111. Corallocarpus epigaeus (Rottl. & Willd.) Clarke

Syn: *Brynonia epigeus* (Rottl. et Willd.) Clarke.

Family : Cucurbitaceae. **Vern.** : Kadawi-nai.

Sanskrit Name : Patal garuda.

Regional Names :-

Hin.: Akasgaddah;**Tam.:** Akash garundan;**Mal.:** Killanhova-kizhauna;

Tel.: Nagadonda;**Kan.:** Akashagarudagadde.

Distribution : Pakistan, Tropical Africa, India

Description : Prostrate perennial herbs, root tuberous, stem glabrous, leaves sub-orbicular, entire to 3-5-lobed, roughly hairy on both surfaces. Staminate flowers 5-15 on each peduncle, pistillate flowers solitary, pedicel stout. Fruit ellipsoid, glabrous, longbeak scarlet in middle, base and beak green, opening by an operculum. Seeds 5-8 embeded in orange pulp, pyriform, turgid, brown, with a light corded margin, pubescent.

Flowering : Aug.-Sept. **Fruiting** : Sept.-Oct.

Habitat Ecology : A common plant throughout the area, growing in hedge.

Material Examined : NKO-137

Parts Used :Roots.

Folk Uses :-

- Roots paste applied externally on affected parts in rheumatism.

Chemical Constituents :- Root contains a bitter principle like bryonin.

Biological Activity :- Tuberous root is purgative, alexiteric anthelmintic, antidote, antiphlogistic, emetic, blood purifier.

112 .Corchorus capsularis Linn.

Family : Tiliaceae. **Vern**.: Motichhunch.

Sanskrit Name : Chanchu.

Regional Names :-

Ben. : Banpat;**Hin. :**Banposta;**Mar. :**Hirankuri.

Distribution : India.

Description : Annual herb. Leaves lanceolate, acute, serrate base rounded or acute, base prolonged into a filiform appendage on each side, stipules filiform, petioles long. Flowers small yellow in short cymes. Capsules globose, not beaked depressed 5-valved, seeds few.

Flowering : Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Found in grass land.

Material Examined: NKO-38

Parts Used: Roots.

Folk Uses:-

- Roots are collected on a Sunday in early morning. It is tied to the waist of the baby, to stop the crying.

Chemical Constituents:- Plant contains mucilage and corchorin.

Biological Activity:- The leaves are nutritive, antipyretic, astringent, anthelmintic, diuretic, demulcent, stomatic and carminative.

113. Corchorus depressus (Linn.) Stocks.

Syn: *C. antichorus* Raeusch., *Antichorus depressus* Linn.

Family: Tiliaceae. **Vern.** : Bahufali.

Sanskrit Name: Mahacanchu.

Regional Names:-

Ban. : Chechko;**Hindi:** Bahufali;**Mar. :** Bahufali.

Distribution: Afghanistan**,** Pakistan, India.

Description: A woody perennial prostrate plant from a more or less thick root, branches twisted. Leaves small roundish, no appendages. Flowers yellow, on leaf opposed, 2-4 flowered cymes. Fruit a capsule, often curved upwards from the under side of the branches, cylindric, beaked 4-valved, septate between the seeds. Seeds minute.

Flowering: May-Dec. **Fruiting**: Sept-Apr.

Habitat Ecology: Occurring mostly in open gravelly places.

Material Examined: NKO-39

Parts Used: Whole plant.

Folk Uses:-

- 10-15g plant paste with curd is given orally to cure diarrhoea.

Chemical Constituents:- Plant contains mucilage and minerals.

Biological Activity:- Plant is diuretic, astringent, cooling, aphrodisiac, emollient, and demulcent.

114. Cordia dichotoma Forst.

Syn: *C. obliqua* Willd.

Family: Ehretiaceae. **Vern.** : Gunda.

Sanskrit Name: Sleshmantaka, Bahuvara. **English Name**: Sebesten Plum.

Regional Names:-

Hin.: Lasura, Lasora;**Kan.:** Cikacalli, Doducallu;**Mal. :** Naruvari, Naruviri;

Tam.: Naruvili;**Tel. :** Cinnanakkeru, Botuka.

Distribution: Tropical Africa, India, SriLanka, Chine, Australia.

Description: A big deciduous tree. Leaves alternate, ovate obtuse, entire, cordate. Flowers white, small, polygamous, male and hermaphrodite, in cymose panicles. Drupe ovoid pale yellow.

Flowering: Mar.-Apr. **Fruiting**: May-June.

Habitat Ecology: Common in hedges, wastelands.

Material Examined: NKO-204

Parts Used: Stem, Fruits, Gum.

Folk Uses:-

- Stem is used for making '*Dhosari*' and '*Ravai'(*churning rod). ?
- Dried stem is used as fuel.
- Unripe fruits pickled, ripe eaten raw.
- Sticky material obtained from fruits is used as glue. ?

Chemical Constituents:- Unripe fruits contain mucilage, starch, minerals. Ripe fruits contain sugars, starch, and mucilage. Bark and leaves contain mucilage, tannin.

Biological Activity:- Bark is bitter, astringent, digestive, constipating, and blood purifier, anthelmintic and depurative. Leaves are aphrodisiac. Fruits are emollient, anthelmintic, vulnerary, diuretic, and expectorant, aphrodisiac. Depurative, febrifuge trichogenic, demulcent, astringent.

115. Cordia gharaf (Forsk.) Ehrenb ex Asch.

Syn: *C. rothii* R. & S., *Cornus gharaf* Forsk.

Family: Ehretiaceae. **Vern.** : Gundi.

Sanskrit Name: Laghushleshmataka.

Regional Names:-

Hin.: Gondi;**Kan.:** Kirichalle;**Tam.:** Naruvili;**Tel.:** Chinabotuku.

Distribution: India.

Description: A small deciduous tree. Leaves opposite or sub opposite, entire, oblanceolate, apex rounded, mucronate, base tapering in to petiole. Flowers small white, in cymes. Drupe ovoid, small, orange or reddish-brown when ripe.

Flowering: Mar.-Apr. **Fruiting**: May-June.

Habitat Ecology: Common in hedges and bushes.

Material Examined: NKO-205

Parts Used: Stem, Fruit, Stem bark.

Folk Uses:-

- Stem is used for making *'Kadhamnu'* seed drill (*Orni), Khapari*, Handle of Kodari and handle of mill.
- Dried branches used as fuel.
- Ripe fruits consumed raw, vegetable cooked of unripe ones.
- Strips of dry inner bark are tied on fractured bone of cattle leg and water is sprayed over it.

Chemical Constituents:- Ripe fruit contains sugars, mucilage. Bark contains tannin. Leaves contain tannin mucilage.

Biological Activity:- Leaves and fruits are stomachic, expectorant, diuretic, nutritive and sialagogue.

116. Cordia sebestena Linn.

Family: Ehretiaceae.

English Name: The Scarlet Cordia, Aloe Wood.

Distribution: India.

Description: A small evergreen tree. Leaves alternate large, oval or elliptic, blunt at apex, rough much wrinkled or wavy. Flowers large, scarlet or orange-red in terminal cluster. Drupe pure white enclosed in persistent calyx.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Cultivated as avenue trees.

Material Examined: NKO-206

Parts Used: Whole plant.

Folk Uses:-

- Planted near house for ornamental plants.

117. Coriandrum sativum Linn.

Family: Apiaceae. **Vern.** : Dhana.

Sanskrit Name: Dhanyaka. **English Name**: Coriander.

Regional Names:-

Ass.: Dhane; **Ben.:**Dhane; **Hin.:**Dhaniya; **Kan.:**Lepcha; **Mal.:**Ketumbeh; **Mar.:** Dhaniya; **Oriya:**Visayan; **Pb.:**Pushtu; **Tam.:**kotamalli; **Tel:**Kotimiri; **Urdu:** Dhaniya.

Distribution: Europe, Mediterranean.

Description: A small, strong smelling, annual herb. Leaves of two kinds. The lower ones petioled, imparipinnatisect into 2-3 pairs of ovate-cuneiform, obtuse, incised-dentate, segments, decompounds, the upper ones short petioled or sub sessile, 2-3 pinnatisect in to linear, filiform lobes. Flowers small white or slightly bluish, in compound umbels of 5-10 rays. Fruit a cremocarp, subglobose, mericarps concavconvax, not ribbed.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Cultivated as a winter crops.

Material Examined: NKO-153

Parts Used: Leaves, Fruits, Whole plant.

Folk Uses:-

- Extract of whole plant is mixed with water and applied on hair to remove dandruff.
- Leaves and Fruits are important flavoring material for vegetables.

Chemical Constituents:- Fruits contain volatile essential oil, malic acid. Leaves contain carbohydrates, coriandrol, albuminoids, oxalic acid and vitamins.

Biological Activity:- Fruit is stomachic, diuretic, aphrodisiac, antibilious, antispasmodic, refrigerant, carminative, aromatic and stimulant.

118. Crataeva tapia Linn.

Syn: *C. religiosa* Forst. *C. nurvala* Ham., *C. trifoliata* Roxb. *Capparis roxbughi* Ham.

Family: Capparaceae. **Vern.** : Vyvarno.

Sanskrit Name: Asmarighna. **English Name**: Garlic Tree, Sacred Barna.

Regional Names:-

Beng.: Barun,Tikto-shak;**Bom.:**Bhatavarna, Karvan, Kumlanadavarna, Vayavarna, Waruna;**Kan. :** Nirvala, Bilapatri, Narumbele;**Mal.:** Nirmatalum, Nirval;**Mar.:** Karwan, Kumla;**Pb. :** Barna, Barnahi;**Tam.:** Maralingam, Marvilinga, Narvala;**Tel.:** Tella-ulimidi, Tella-vule, Ulimidi, Urimidi, Usiki, Uskia.

Distribution: North America, Arabia, Afghanistan, Tropical Africa, India, Brazil.

Description: A small deciduous tree. Leaves trifoliate often clustered at the ends of branches, leaflets ovate, acuminate glabrous, shining above, pale below. Flowers white, many in terminal corymbs. Fruit a rounded, woody berry, seeds reniform buried in yellow pulp.

Flowering: Feb.-Mar. **Fruiting**: Mar.-Apr.

Habitat Ecology: Common in Barada Hills.

Material Examined: NKO-19

Parts Used: Wood, Stem bark.

Folk Uses:-

- Hollowed wooden cylinder is used in construction of ‘Dholak’.
- 1 cup decoction of bark is given orally twice a day for a week in calculi.

Chemical Constituents:- Lupeol, β-sitosterol, excess of sugars and low melting alcohols obtained along with traces of tertiary bases, choline and two other quaternary bases. A new triterpene, alcohol-Lupa-21, 20(29) dien-3 β-ol in addition to lauric, stearic, undecyclic, oleic and linolenic acids present in root bark; ceryl alcohol, friedelin, betulinic acid and diosgenin isolated from stem bark, triacontane, tricontanol, β-sitosterol and glucocapparin from fruits

along with cetyl alcohol and ceryl alcohol, seasonal variation occurs in diosgenin content.

Biological Activity:- Bark and leaves are astringent, bitter, acrid, themogenic, carminative, anthelmintic, digestive, stomachic, laxative, diuretic, lithontriptic, stimulant, detergent, expectorant, demulcent, depurative anti-periodic and tonic.

119. Cressa cretica Linn.

Family: Convolvulaceae. **Vern**.: Pariyo.

Sanskrit Nam: Rudanti.

Regional Names:-

Mar. : Khardi;

Distribution: Afghanistan, Pakistan, Tropical Africa, India, SriLanka, Malaysia.

Description: A small, hairy erect herb. Leaves ovate, acute, hairy. Flowers white or pink in axillary clusters, capsules ovoid.

Flowering : Jan.-Mar. **Fruiting** : Feb.-Apr.

Habitat Ecology: Common in saline waste land area of Ghed region and cultivated fields..

Material Examined: NKO-212

Parts Used: Whole plant.

Folk Uses:-

- Whole plant washed with water and used as fodder during famine condition in Ghed region.
- Whole plant is feed to milching cattles to increase lactation.

120. Ctenolepis cerasiformis (Stocks.) Hk.

Syn: *Blastania fimbristipula* Kotschy & Peyr, *Bryonia fimbristipula* Fenzyl.

Family: Cucurbitaceae. **Vern**.: Ankh Phutamani.

Regional Names:-

Tel. : Gudimuralu.

Distribution: Arabia, Tropical Africa, Ntal ECP, India.

Description: An extensive, climbing annual stem slender, elongate, angular, sulcate, tendril simple. Leaves membranous, palmately 3-5 partite, segments ovate, oblonor obovate to elliptic, narrowed at both ends. Male flowers at the apex of filiform, whitish or yellowish, female flowers solitary, axil on long peduncles. Fruit globose, green with white blotches when young, scarlet when mature. Seeds 2, ovoid.

Flowering: Aug.-Oct. **Fruiting**: Aug.-Oct.

Habitat Ecology: Common in hedges.

Material Examined: NKO-138

Parts Used: Roots.

Folk Uses:-

- Roots paste is smeared on infected parts of bodies in rheumatism.

Biological Activity:- Fruit is laxative and anthelmintic. Root is diaphoretic and anti inflammatory.

121. Cucumis callosus (Rottl.) Cogn. ex Cogn. & Harms.

Syn: *C. trigonus* Roxb. *Brynoica callosa* Rottl.

Family: Cucurbitaceae. **Vern**: Gai-vasukada.

Distribution: Persia, Mesopot, Afghanistan, Pakistan, India, Malaysia, Australia.

Description: A monocious, scabrid climber with simple tendrils. Leaves suborbicular, hairy, palmately 5-7 lobed, narrow at base, rounded at apex. Male flowers in small clusters, yellow, female flowers solitary. Pepo subglobose or ellipsoid, variegated with 10 green stripes, pale yellow when ripe. Seeds white embedded in bitter pulp, no spines.

Flowering: Aug.-Oct. **Fruiting**: Aug.-Oct.

Habitat Ecology: Common in waste land & agriculture field.

Material Examined: NKO-139

Parts Used: Roots, Fruits.

Folk Uses:-

- Root is rubbed on stone with water, and made a paste, which is placed on the sting of scorpion.

- Fruits are used as a Ball which is children play games such as a throw catch, striking one another. ?

Biological Activity:- Pulp of fruit is purgative and abortifacient. Plant is digestive anthelmintic and anti pyretic.

122. Cucumis prophetarum Linn.

Family: Cucurbitaceae. **Vern.** : Katala indrana.

Sanskrit Name: Kakadini.

Regional Names:-

Hin. : Kharindrayan; **Mar.:** Kanteindrayan.

Distribution: Persia, Mesopot, Pakistan, Tropical Africa, India.

Description: A prostrate or climbing (on field hedges), much branched, grey-green, perennial herb. Stem slender, angular, sulcate when dry, white hairs, tendrils short. Leaves much broad some what grey-green rigid, suborbicular, cordate to truncate at base, palmately 3-lobed. Male flowers solitary or 2-3 together, female flowers solitary. Fruit usually brodly ovoid green with longitudinal white stripes ultimately whole fruit yellow, softly, sparsely spinous. Seeds ellipsoid.

Flowering: Aug.-Oct. **Fruiting**: Aug.-Oct.

Habitat Ecology: Plant is usually found throughout the area on waste grounds. More commonly near sheep-sheds.

Material Examined: NKO-140

Parts Used: Fruits.

Folk Uses:-

- A small hole is made in the fruit and the infected finger is inserted into it and kept for 4-5 hours. It is very effective treatment for Paranychia.

Chemical Constituents:-

Fruit contains bitter principle colocynthin.

123. Cucumis sativus Linn.

Syn: *C. hardwickii* Royle., *C. muricatus* Wall.

Family: Cucurbitaceae. **Vern.** : Kakadi.

Sanskrit Name : Sukasa, Trapusa. **English Name**: The Cucumber.

Regional Names:-

Beng.: Khira, Sasa;**Bom.:** Kakri, Kankri;**Hin.:** Khira;**Kan.:** Sante-kayi;

Mal.: Vellari;**Mar.:** Kakdi;**Oriya:** Kaknai;**Pb.:** Khira, Khiyar;**Tam.:** Muhevehri.

Distribution: India.

Description: An annual monoecious climber, hispidly hairy. Leaves large, deply cordate, 3-5 lobed, hairy. Male flowers fascicled, yellow, corolla bell-shaped with long white hairs. Female flowers solitary, pepo cylndric, or elongated, coverered with soft spines.

Flowering: Aug.-Oct. **Fruiting** : Aug.-Oct.

Habitat Ecology: Cultivated.

Material Examined: NKO-141

Parts Used: Fruits.

Folk Uses:-

- Fruit is eaten raw and used as vegetable.

Chemical Constituents:- The aerial parts of the plant contain amyrin, multi florenol, isomultiflorenol, cycloartenol, tirucallol and cytokinin. Fruit contains carbohydrate, mucilage starch, fibers, and minerals.

Biological Activity:- Fruits are sweet, refrigerant haemostatic, appetizer, astringent, stomachic, nutritive, diuretic. Seeds are asterigent, nutritive, antipyretic, diuretic.

124. Cucurbita pepo Dc.

Family: Cucurbitaceae. **Vern**: Patkolu.

Sanskrit Name: Kurkaru. **English Name**: The Pumpkin, Vegetable-Marrow.

Regional Names:-

Bom.: Kaula;**Hin.:** Kadimah, Konda, Kumra, Lanka, Safed-kaddu;**Kan.:** Kagi, Kumbala;**Mar.:** Kohla.

Distribution: India.

Description: A large monoecious climber with tenadrils of 3 unequal arms, stem clothed with stiff hairs. Leaves ovate, oblong, 5-7 lobed, dentate cordate, hairy and coarse. Male flowers axillary and solitary, yellow, female flowers penduncle very stout. Fruit a pepo, very large, globose, pale yellow-orange. Seeds many compressed.

Flowering: Aug.-Nov. **Fruiting**: Aug.-Nov.

Habitat Ecology: Cultivated.

Material Examined: NKO -142

Parts Used: Fruits.

Folk Uses:-

- Fruits are used as vegetable.
- Fruit is used in religious ceremony *'Havan'*.

Chemical Constituents:- The oil consists of glycerides of linoleic 45, oleic 25 palmitic and stearic acids 30% sterois have been isolated.

125. Cuminum cyminum Linn.

Family: Apiaceae. **Vern.**: Jiru.

Sanskrit Name: Ajajika. **English Name**: The Cumin.

Regional Names:-

Ben.: Jira; **Hin.:**Zira; **Kan.:**Jirage; **Mal.:**Jirakam; **Tam.:**Serugan;**Tel.:** Lilakarra;**Urdu :** Jirah.

Distribution: Mediterranean.

Description: An annual, slender, glabrous herb. Leaves twice or thrice 3-parite, ultimate segments filiform. Flowers yellowish-white, rose-colour, in large compound umbels. Fruit a caremocarp, cylindric, tip narrow, carpophore 2-partite or 2-fid.

Flowering: Jan.-Mar. **Fruiting**: Feb.-Apr.

Habitat Ecology: Common cultivated as a winter crop.

Material Examined: NKO-154

Parts Used: Fruits.

Folk Uses:-

- 25 g fruits mixed with 50 seeds of *Brassica juncea* and ground mixed with water and given orally for 7 days in constipation.
- Aromatic fruits are used as spice and condiments.

Chemical Constituents:- Fruit contain fatty oil, essential oil, cymol, thymol, mucilage, cuminol and thymine.

Biological Activity:- Fruits are cooling, stimulant, aromatic, carminative, pungent, stomatic, anthelmintic and astringent.

126. Curculigo orchioides Gaertn.

Family: Hypoxidaceae. **Vern.** : Kali-musali.

Sanskrit Name: Krishna musali. **English Name:** Black Musale.

Regional Names:-

Hin.: Kalimusali,Mujali;**Kan.:**Nelatali,Gaddi,Neladali;

Mal.: Nilappana,Nelppana;**Tam.:** Nilappanaikklanku;**Tel.:** Nelatatigadda.

Distribution: India, Java Summatra & Sunda.

Description: A Perennial herbs. Tubers sub-cylindric. Leaves radical, plicate. Linear-lanceolate, narrowed into short petiole. Inflorescence racemes. Flowers appearing almost at ground level. Few, yellow hairy outside, upper male with tepals, lowest usually female or bisexual with long tepals. Capusule oblong seed glossy.

Flowering: Aug.-Sept. **Fruiting**: Aug.-Oct.

Habitat Ecology: Very common in rocky slopes of Barda Hills.

Material Examined: NKO-297

Parts Used: Roots, Tuber.

Folk Uses:-

- Roots are used in preparation of nutritive food.
- Tuber paste with curd is taken orally for 3-days to regularise menatruation.

Chemical Constituents:- Saponin, tannin, mucilage, starch, sapogenins, curcuigenin, phenolic glycosides, corchioside, curculigoside, curculigines B and C, a triterpene alcohol, curculigol, a pentacylic triterpene, cyclortenol and sucrose.

Biological Activity:- Whole plant anticancer hypoglycemic.

127. Curcuma longa Linn.

Syn: *C. domestica* Valeton.

Family: Zingiberaceae. **Vern**.: Haldar.

Sanskrit Name : Aneshtha Bahula. **English Name**: Indian Saffron French.

Regional Names:-

Ben.: Haldi;**Hin.:** Haldi;**Kan.:** Arishina;**Kon.:** Halad;**Pb.:** Haldar;**Mal.:** Manjal;**Tam.:** Manjal;**Tel.:** Pampi.

Distribution: India.

Description: A tall herb with fleshy rhizomes of yellow-orange colour. Leaves large, oblong-lanceolate, base in curved. Flowers in large spikes, bracts green tinged red, ovate, flowers pale yellow.

Flowering: Aug.-Oct. **Fruiting** :Aug.-Oct.

Habitat Ecology: Rarely cultivated in study area.

Material Examined: NKO-294

Parts Used: Rhizome.

Folk Uses:-

- A small quantity of turmeric is ground, slightly heated and mixed with jaggery. Made into small tablets and 1 tabtel given moring and evening for three days to cure whooping cough.
- Paste of rhizome powder is ritually anointed on both the bride and the groom in presence of a totemic deity before the date of marriage.
- It is used as spice and condiments.

Chemical Constituents:- Essential oil resin, alkaloid, curcumin (yellow colouring matter), aromatic, turmeric oil, turmerol, colouring matter, turpenoids, juvabiane, curcumone.

Biological Activity:- Carminative, cooling, aromatic, bitter, stomachic, astringent, anti-inflammatory, antihistamine, antibacterial, laxative, anthelmintic, vulnerary, tonic, alexiteric, emollient, diuretic, stimulant.

128. Cyamopsis tetragonoloba (Linn.) Taub.

Syn: *C. psoralioides* Dc., *Psoralea tetragonoloba* Linn.

Family: Fabaceae. **Vern.**: Guwar.

Sanskrit Name: Gorani. **English Name** :Cluster Bean.

Regional Names:-

Hin. : Guar;**Mar. :** Matkee.

Distribution: Afghanistan, Pakistan, India.

Description: An erect annual herbs. Stem grooved. Leaves 3-foliate, leaflets elliptic, acute, toothed, and hairy. Flowers small, purple. Pods thick, fleshy. Seeds square, compressed.

Flowering: Sept.-Nov. **Fruiting**: Sept.-Dec.

Habitat Ecology: Cultivated in agriculture field.

Material Examined: NKO-79

Parts Used: Fruits, Whole plant.

Folk Uses:-

- Green pods are used as vegetables.
- Whole plant used as green manuar.

Chemical Constituents:- Guarmeal contains galactomannan, 3-epikatonic acid and a saponin.

Biological Activity:- Pods are cooling, nutritive and expectorant.

129. Cynodon dactylon (Linn.) Pers.

Syn : *C. erectus* Presl., *C. filiformis* Voigt, *C. linearis* Willd., *C. maritimus* H. B., *C. occidentolis* Willd., *C. portoricensis* Willd., *C. radiatus* Roth, *C. sarmentosus* S. F. Gray, *C. stellatus* Willd., *C. virgatus* Nees, *Chloris cynodon* Trin., *Dactylon officinate* Vill., *Fibichia umbellata* Koel.

Family: Poaceae. **Vern.** : Drokhad.

Sanskrit Name: Durva.

English Name : Couch Grass, Creeping Panic Grass, Doorwa.

Regional Names:-

Beng. : Dub, Dubla, Durba;**Mar. :** Durva, Haryeli, Karala;**Pb.:** Daurava, Dub, Dubra, Kabbar, Khakkal, Talla, Tilla;**Tam.:** Arugam-pilla, Hariali;**Tel.:** Ghericha, Haryali.

Distribution: India, SriLanka, Burma.

Description: A small, perennial, prostrate grass, widely creeping, is forming matted turfs. Leaves linear narrow, acute, pungent, soft smooth, distichous, sheth tight ligules a very fine ciliat rim. Spikes 2-6, in terminal umbels, spikelets 1-flowered, sessile, and floret bisexual, grain oblong.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Common weed plant in the cultivated fields and everywhere.

Material Examined: NKO-322

Parts Used: Stem, Whole plant.

Folk Uses:-

- Internodes are chewed.
- Plant is believed auspicious in Hindu religious.
- Whole plant is used as fodder.

Chemical Constituents:- Whole plant contains protein 10.47%, mucilages 28.47%, ash 11.75%, found in its green variety. Calcium 0.77%, phophurus 0.59%, magnesium 0.34%, sodium 0.23% & potassium 2.08% found in ash. β-ionone, 2-propionic, 4-hydroxybenzoic acids, phytol, β-sitosterol-D-glucoside, stigmasterol acetate and a phagostimulant, phytone, glycosides, saponins, tannins, flavonoides and carbohydrates.

Biological Activity:- The plant is astringent, sweet, cooling, conceptive blood purifier, haemostatic, depurative, vulnerary, constipating, diuretic and tonic.

130.Cyperus rotundus Linn.

Family: Cyperaceae. **Vern**.: Chiyo, Moth.

Sanskrit Name: Abda, Armoda, Hadrakshi. **English Name**: Nut Grass.

Regional Names:-

Ben.: Motha;**Hin.:** Motha;**Kan.:** Tungegaddel;**Tam.:** Kora;**Tel.:** Bhadramuste.

Distribution: Arabia, Persia, Mesopot, Afghanistan, Pakistan, Tropical Africa, Madagascar, India, SriLanka, China.

Description: A small herb, stolons elongate, slender, bearing hard, ovoid truncate black, subsolitary, trigonous at the top. Leaves narrowly linear, finely acuminate, and flat. Flowers in simple or compound umbels. Nut obovoid trigonous.

Flowering: Aug.-Oct. **Fruiting**: Aug.-Nov.

Habitat Ecology: A very common weed in Barda Sagar dam and Ghed region of study area.

Material Examined: NKO-315

Parts Used: Tubers, Aerial part.

Folk Uses:-

- 5 to 7 tubers are made into paste, mixed with a few drops of honey and given in dyspepsia (twice daily till cure).
- Plants are stacked in compact bundles and tited to make thatch work of the roof.

Chemical constituents:- Essential oil, mytistic and steartic acid, unstable alkaloid, b-selinne, cyperenone.

Biological Activity:- Tuber: diuretic, emmenagogue, anthelmintic stimulant, tranquilizer, antipyretic.

131.Dalbergia sissoo Roxb.

Syn: *D. Pendula* Tenore.

Family: Fabaceae. **Vern.** : Sissam, Tanach.

Sanskrit Name: Aguru, Dhira, Kapila.

English Name: South Indian Redwood, The Sissoo.

Regional Names:-

Ass.: Sissu;**Beng.:** Shisu;**Bom.:** Sissu;**Hin.:** Shisham, Sisam, Sissai;**Kan.:** Agaru, Biridi;**Mal.:** Irupul sisam, Iruvil;**Oriya:** Sisu;**Pb.:** Nelkar, Shewa, Shia; **Raj.:** Shisham;**Tam.:** Gette, Ttti, Nukku;**Tel.:** Ettasissu;**Urdu:** Shisham.

Distribution: Afghanistan, Pakistan, India.

Description: Tree upto 18m tall with pinnate leaves. zigzag leaf raches, terete petioles, caduceus stipules. Small yellowish white flowers in axillary panicles. Pods strap-shaped.

Flowering: Mar.-Apr. **Fruiting**: Apr.-June.

Habitat Ecology: Planted as an avenue tree and in afforestation areas.

Material Examined: NKO-80

Parts Used: wood.

Folk Uses:-

- Wood used in preparation of cart, plough, *'Data'*, seed drill.
- Smoke treatment is given to cattle in anthrax by preparing smoke of dry stem and jute bag. ?
- Sharply pointed stem piece is use to insert a nose string as a bridle through a bullock nostrils.

Chemical Constituents:- Chief constituents from various plant parts are 7,4'-di-me-tectorigenin (flowers); isoflavone, sissotrin (leaves); meso-inositol, 7-me-techtorigenin and its 4'-rhamnoglucoside (greenpods); isocaviunin, tectorigenin, dalberrgin, biochanin A and 7-OH-4-me-cousmarin (mature pods); dalbergenone, dalbergin, me-dalbergin and a 4-ph-chromene, dalbergichromene (stem-bark); isotectorigenin (fresh bark); dalbergin, ome-dalbergin, dalbergenone; hydroxyl and ome-dal-bergenones; dalbergichromene, nordalbergin, isodalbergin; allylphenol of latifolin, dalbergiphenol; 3,5-di-OH-trans-stelbene; and biochanin A (heart wood) (Asolkar *et al*., 1992).

Biological Activity:- The plant is spasmolytic**.**

132. Datura innoxia Mill

Family: Solanaceae. **Vern.** : Dhatura.

Sanskrit Name : Dhustura. **English Name**: Thorne Apple.

Regional Names:-

Ben.: Datura; **Hin.:**Sadahdhatura; **Kan.:**Unmatta; **Tam.:**Ummattai; **Tel.:** Datturamu.

Distribution: Pakistan, Tropical Africa, India, Malaysia, W. Indies, Brazil, Australia.

Description: An under shrub with broadly ovate leaves and creamish flower. Fruit-capsule, armed with spines.

Flowering: July.-Feb. **Fruiting**: July.-Feb.

Habitat Ecology: Wasteland near habitation.

Material Examined: NKO-223

Parts Used: Flowers, Seeds.

Folk Uses:-

- Flowers are used as offering to appease Lord 'Shiva' by the Maher to fulfil their wish.
- Seeds smoke with leaves of indian hamp for intoxication

Chemical Constituents:- Pharmacologically active constituents in different parts of the plant are : tiglodine, atropine, tropine, psedotropine, hyoscine and meteloidine (roots); hydsine (Scopolamine) and hyoscyamine (in all parts of plant; seeds of the upper part of the plant yield more scopolamine than those from the lower part).

Biological Activity:- Seeds antimicrobial, whole plant spasmolytic.

133. Datura stramonium Linn.

Syn: D. ferex Nees, D. tatula Linn., D. wallichii Dunal, Stramonium vulgatum Gaertn.

Family: Solanaceae. **Vern.** : Dhatura.

Sanskrit Name: Devika, Dhattura, Dhurtakit, Ghantapuspa, Kalama, Kantaphala, Kitava, Madona, Matta, Savisha, Shivapriya, Turi, Ummattaka.

English Name: Jimson Weed, Stink Weed, Stramonium,Thorn Apple.

Regional Names:-

Beng.: Sadadhutura;**Kan.:** Datturigida;**Oriya:** Dhatura, Sukiadhatura;

Pb.: Dattura, Tattur;**Tam.:** Emanamam, Umattai;**Tel.:** Datturamu.

Distribution: Afghanistan, Pakistan, Tropical Africa, India, SriLanka, Burma, China, Malaysia, Philippines.

Description: An erect, coarse annual up to 1m tall with spreading branches and pale green, irregularly toothed leaves. Flowers white, axillary, capsule thickly covered with spines. Seeds reniform.

Flowering: July-Feb. **Fruiting**: July-Feb.

Habitat Ecology: Frequent on wasteland.

Material Examined: NKO-224

Parts Used: Leaves, Seeds.

Folk Uses:-

- 2½ leaves with 'Roti' are given to cattle to stop diarrhoea. ?
- Seeds smoke with leaves of Indian hamp for intoxication

Chemical Constituents:- Active constituents are : hyoscyamine (all parts); atropine, hyoscine (seeds, whole plant); cuscohygrine, scopolamine (flowers, leaves, stem, root); 6-hydroxyhyo-sciamine (flowers, stem, root); hyoscine-N-oxide (leaves, stem, root); aportopine, 3α,6β-ditigloyloxytropane and 3α,6β-ditigloyxytropane-7β-ol (also in stem, root); and hyoscien, metelodine, tigloidine, tropine (leaves, flowering top) (Chatterjee & Pakrashi, 1997).

Biological Activity:- Extraction from seeds agglutinated human red cells. Plant analgesic and insecticidal.

134. Daucus carota Linn. Var. *Stiva* DC.

Family: Apiaceae. **Vern.** : Gajar.

Sanskrit Name: Gajarah. **English Name** : Carrot.

Regional Names:-

Ben.: Gajar;**Hin.:** Gajar;**Kan.:** Gajjari;**Mal.:** Karattu.**Pb.** Gajar;

Tam.: Gajjarakkilangu;**Tel.:** Gajjaragadda;

Distribution : Europe, North America, Afghanistan, Pakistan, Abyssinia & Soctra, Tropical Africa, India, SriLanka, Burma, Chine, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, Central America & Mexico, Brazil.

Description: A biennial hairy herb. Leaves bi or tripinnate, into oblong-lanceolate segments, ultimate segments linear. Flowers in compound umbels, white or pale yellow. Fruit a cremocarp with 1-3 recurved barbs.

Flowering: Jan.-Mar. **Fruiting**: Feb.-Mar.

Habitat Ecology: Cultivated throughout the study area.

Material Examined: NKO-155

Parts Used: Roots, Whole plants.

Folk Uses:-

- Extract of roots is applied on hairs to remove dandruff.
- Roots are eaten raw or cooked as vegetables.
- It is a healthy fodder for bullock.

Chemical Constituents:- The root contains carotene, glucose, starch, pectin, malice acid, lignine, salts, albumin, terpine and a high quantity of iron. The seeds contain yellow coloured and strong odoured oil.

Biological Activity:- The tap roots are sweet, thermogenic, appetizer, carminative, digestive, anthelmintic, stomachic, constipating, and aphrodisiac, cardiotonic, expectorant, stimulant, vulnerary and ophthalmic. The seeds are aromatic, stimulant, aphrodisiac, stimulant, diuretic and abortifacient.

135. Delonix elata (Linn.) Gamble

Syn: *Poinciana elata* Linn.

Family: Caesalpianaceae. **Vern.** : Sidhasaro.

Sanskrit Name: Siddheshwer. **English Name**: Tiger Beam.

Regional Names:-

Hin.: Sankesar;**Kan.:** Kempukejiga;**Mar. :** Sankasura;**Tam.:** Vadanarayana;

Tel.: Vatanarayana.

Distribution: Arabia, Tropical Africa, India.

Description: A large, deciduous, unarmed tree with ash coloured. Leaves bipinnate, pinnae 4-8 pairs, opposite, leaflets 10-20 pairs, linear oblong,

rounded and pointed at apex. Flowers in terminal, few flowered corymbiform raceme, flowers are white at first and then change to yellow. Pods 5-7 inches long, pointed at both ends. Seeds 4-8.

Flowering: Sept.-Nov. **Fruiting**: Oct.-Dec.

Habitat Ecology: very common in Barda Hills also planted along road sides.

Material Examined: NKO-104

Parts Used: Whole plants.

Folk Uses:-

- It is grown as fence surrounding human settlement.

Chemical Constituents:- Flowers contain sugars, tannin and minerals. Leaves contain tannin.

Biological Activity:- Leaves are astringent, carminative, diuretic antispasmodic, rubefacient, antiphlogistic, analgesic.

136. Delonix regia (Boj.) Raf.

Syn: *Poinciana regia* Boj.

Family: Caesalpiniaceae. **Vern.** : Gul-mahor.

English Name: The Royal Gul-mohor Tree, Flamboyant Flame Tree.

Regional Names:-

Distribution: Madagascar, India, Central America & Mexico.

Description: A big tree. Leaves bipinnate compound, pinnae 8-20 pairs, stipulse small, and leaflet 15-20 pairs. Flowers in corymbose racemes, large red, bract small, caduceus. Pod big, many-seeded, seeds oblong, variegated.

Flowering: Apr.-July **Fruiting**: May-Aug.

Habitat Ecology: planted for shade on road-sides and an ornamental tree.

Material Examined: NKO-105

Parts Used: Flowers, Whole plants.

Folk Uses:-

- Fresh flowers (sepals and petals) cherished. ?
- Planted near house for ornamental tree.

Chemical Constituents:- Flowers contain sugar and an acid. Bark contains tannin.

Biological Activity:- Bark is febrifuge, astringent, flowers are nutritive, sweet and appetizer.

137. Dendrocalamus strictus (Roxb.) Nees.

Syn: *Bambos sticta* Roxb., *Bambusa pubescens* Lodd., *B. sticta* Roxb., *B. tanaea* Ham., *B. verticillata* Rottle

Family: Poaceae. **Vern**: Nakor vansh.

Sanskrit Name: Vansha. **English Name**: Male Bamboo.

Regional Names:-

Ben.: Karail;**Bom.:** Bas, Udha;**Hin.:** Bans, Bans-kaban, Bans-khurd, Kopar;

Tel.: Kanka, Sadhanapuvenduru;

Distribution: India, Java Sumatra & Sunda.

Description: 8-10 m tall herbs, with solid, tufted culms. Leaves linear-lanceolate to ovate-lanceolate, glabrous. Flowers in branching panicles of dense globular heads about an inch in diameter, spikelets hairy, spiny, fertile intermixed with sterile. Grain ovoid, brown, hairy above, beaked.

Flowering: Nov.-Dec. **Fruiting**: Nov.-Dec.

Habitat Ecology: Common in Barda Hills and planted on outskirt of the fields.

Material Examined: NKO-323

Parts Used: Stem.

Folk Uses:-

- Stem used as walking stick.
- The flag is hoisted top of the pole on the temple.
- Stem use as a handle of agriculture impliments.(*Kharapiyo,Khaparo*)
- Stem use to prepare game instruments.*(Moi-Dandiya)*

Chemical Constituents:- Aromatic principles.

Biological Activity:- Expectorant and purgative.

138. Derris indica (Lam.) Bennet

Syn: *D. pinnata* Laur., *D. scandens* (Roxb.) Benth. *Pongamia pinnata* (Linn.) Pierre., *P. glabra* vent; *Cytisus pinnatus* Linn.

Family: Fabaceae. **Vern.** : Karanj.

Sanskrit Name :Nakktmal. **English Name**: Pongam Oil Tree.

Regional Names:-

Ben.: Karanj;**Hin.:** Kanja;**Mal. :** Pungu;**Mar.:** Dhanera karanj;**Tam. :** Ponga; **Tel. :** Pungu.

Distribution: Pakistan, India, SriLanka, Burma.

Description: A tree with imparipinnate leaves, leaflets 5-9 opposite, ovate-oblong, acute, stipules oblong. Flowers in axillary, recemes, white or purplish, bracteoles ovate. Pod obliquely-oblong. compressed, woody, 1-seeded.

Flowering: Apr.-May. **Fruiting**: May-June.

Habitat Ecology: Common, along the river banks and nallas. Also planted as an avenue tree.

Material Examined: NKO-81

Parts Used: Branches, Seeds.

Folk Uses:-

- Dired branches are used as fuel.
- Twig is used as a toothbrush.
- Seed is rubbed with stone to make circle than pore is created in centre and thread is passed through it and a toy is prepared for children. ?

Chemical Constituents:- Seeds fixed oil, bark tetre-o-methylfisetin and ponachromene, glabrachromene, flavones, Karanjachromene.

Biological Activity:- Seeds are antiseptic, stimulate, febrifuge and tonic. Bark is astringent leaves are cholagoge.

139. Desmostachya bipinnata (Linn.) Stapf.

Syn: *Eragostis cynosurvides* (Retz.), *Poa. beauv., P. cynosuroides* Retz.

Family: Poaceae. **Vern**.: Dabh.

Sanskrit Name: Darbhah. **English Name**: Sacrificial Grass.

Regional Names:-

Ben.: Darbha;**Hin.:** Dab;**Kan.:** Darbhi;**Mal.:** Darbhi;**Tam.:** Darbhaipul; **Tel.:** Darbhi.

Distribution: Pakistan, Tropical Africa, India

Description: A tall perennial from a stout root stock. Stem creeping, much branched from the base, tufted, and covered with shining sheath. Leaves; basal leaves fascicled rigid, acuminate, the tip filiform, margin hispid. Panicle erect. Spikelets sessile, 2-seriate, crowded, deflexed, pale brown, 20-30 flowered. Grain long, obliquely ovoid.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Found on the waste land and often in the fields throughout the study area.

Material Examined: NKO-324

Parts Used: Whole plant.

Folk Uses:-

- During '*Shradh*' ceremony a ring of this grass is worn.
- It is used for thatching materials.
- It is used for rope making.
- 10 small pieces of fresh root ground and is applied twice a day for 7 days to treat toothache.

Biological Activity:- The roots are bitter, sweet, cooling, diuretic, emollient, and astringent and glactagogue, the clums are sweet, diuretic, stimulant, acrid and aphrodisiac.

140. Dichrostachys cinerea (Linn.) Wt. & Arn.

Syn: *Acacia cinerea* Spreng., *A. dalea* Desv., *Desmanthus cinereus* Willd., *Mimosa cinerea* Linn.

Family: Mimosaceae. **Vern.** : Mor Dhundhiyu.

Sanskrit Name: Viravrksha.

Regional Names:-

Hin.: Vuruli;**Kan.:** Odatare;**Mal.:** Vitattal.**Mar.:** Segum-kati;**Tam.:**Vadatrar;

Tel. : Veturu;

Distribution: Arabia, Tropical Africa, India, SriLanka, Australia

Description: Thorny shrubs. Leaves multijugate, alternate, bipinnately compound. Inflorescence axillary or extra-axillary spike, flower, crowded minute. Fruit compressed, linear-falcate. Seed smooth, glabrous ovoid.

Flowering: Aug.-Sept. & Feb.-Mar. **Fruiting**: Oct.-Nov. & Mar.-Apr.

Habitat Ecology: Abundance in Barda Hills and waste places.

Material Examined: NKO-114

Parts Used: Stem.

Folk Uses:-

- Dry branching is used to prepare fencing surrounding the croplands.
- Stem is used for making the handle of the mill.

Biological Activity:- Bark is anti-inflammatroy, stimulant and stmachic.

141. Digera muricata (Linn.) Mart.

Syn: *D. arvensis* Forsk. *Achyranthes muricata* Linn.

Family: Amaranthaceae. **Vern.** : Kanajaro.

Sanskrit Name: Kurnajar, Manjarik, Arnyavastuka.

Regional Names:-

Ben.: Gungatiya; **Hin.:** Latmhuria; **Pb.:** Tartara; **Tam.:** Thoyyakeerai;

Tel.: Chenchalikura;

Distribution: Arabia, Afghanistan, Pakistan, Abyssinia & Soctra, India, SriLanka, China.

Description: A small, erect, annual herb. Leaves ovate or elliptic, acut with reddish margin. Flowers sessile, in threes in axillary spikes, pink and white. Fruit globose utricles. Seeds small.

Flowering: July-Oct. **Fruiting**: July-Nov.

Habitat Ecology: Common weed plant throughout study area.

Material Examined: NKO -263

Parts Used: Leaves, Whole plants.

Folk Uses:-

- Leaves are used as vegetable.
- Aerial parts are used as fodder.

Chemical Constituents:-Leaves contain vitamins, mineral, salts, fibres.

Biological Activity:-Plant is laxative, astringent stomachic, demulcent, diuretic, nutritive.

142. Dioscorea bulbifera Linn.

Syn: *D. sativa auct* (non Linn.) Hook., *D. pulchella* Roxb., *D. pulchelia* Hoken., *D.tamnifolia* Salisb., *Helmia bulbifera* Kunth.

Family: Dioscoreaceae. **Vern.** : Kanak.

Sanskrit Name: Varahi kand. **English Name:** Bulb Bearing Yam.

Regional Names:-

Ass.: Kathalu, Patnialu;**Bom.:** Karinda;**Hin.:** Zaminkand;**Kan.:** Heggensau;

Mal.: Katu-katsijil;**Pb.:**Zaminkhand(the tuber);**Tam.:**Kodikilangu, Pannukilangu;**Tel.:** Chedu paddu dumpa.

Distribution:

Description: Glabrous climber, stem terete bulbiferous. Leaves acuminate. Seeds winged at the base.

Flowering: July-Oct. **Fruiting**: July-Mar.

Habitat Ecology: Grows in forest and waste lands.

Material Examined: NKO-299

Part Used: Bulbils, Tuber.

Folk Uses:-

- Bulbil of it kept in house and it geminates, than within 15 days rainy season begins. ?
- Bulbils and tubers are cooked as vegetable.

Chemical Constituents:- Chemical analysis of the tubers reveal the occurrence of albuminoids, 7.36-13.3% ash, 3.31-7.08% fat, 0.75-1.28% carbohydrates, 75.11-81.39% fibre, 3.28-9.64 and P_2O_5, 0.45-0.77% (Annon., 1952).

Biological Activity:- Aerial parts exhibit marked diuretic activity.

143. ***Diospyros melanoxylon*** Roxb**.**

Syn: *D. dubia* Wall., *D. wightina* Wall.

Family: Ebenaceae. **Vern.** : Timbru.

Sanskrit Name: Kenduka. **English Name:** Coromandel Ebony.

Regional Names:-

Beng.: Kend, Kyou;**Bom.:** Temru, Timberni, Tumri;**Hin.:** Abnus, Kendu, Temru, Tendu;**Kan.:**Balai;**Mar.:**Temru,Timburni,Tumri;**Oriya:**Kendhu;

Tam.: Karunthumb, Tumbali, Tumbi;**Tel.:** Tumi.

Distribution: India, Sri Lanka.

Description: A medium sized tree. Leaves mostly sub-opposite leathery, elliptic, egg-shaped, hairy beneath. Flowers monoecious, male flowers in drooping velvety cymes, femel flowers solitary, almost stalkless. Fruit globose smooth yellowish when ripe. Seeds brown shining, embedded in sweet, yellow edible pulp.

Flowering: Mar.-May. **Fruiting**: Apr.-Aug.

Habitat Ecology: Common in Barda Hills.

Material Examined : NKO-180

Part Used: Leaves, Fruits.

Folk Uses:-

- Ripe fruits are use as subtitute of food.
- Leaves are used as 'bidi' wrappers.
- Powder of fruit and ghee mixed with honey is given orally to stop hiccough.

Chemical Constituents :- Fruit contains pectin (50%), tannins (15%) hexacosane, hexacosanol, β-sitosterol, monohydroxy, ketone, betulin, lupeol and salic acid. Seeds contain betulinic acid.

Biological Activity:- Ursoleic acid and lupeol acetate from seed decreased incidence of gastric ulceration induced by pyloric ligation (Rastogi & Mehrotra 1993). Unspecified parts acts on nictitating membrane.

144. Echinochola colonum (Linn.) Link**.**

Syn: *Panicum colonum* Linn.

Family : Poaceae. **Vern.** : Samo.

Sanskrit Name: Syamaka. **English Name**: Sama Millet.

Regional Names:-

Hin.: Savan, Kumku, Kutki;**Kan.**: Save, Baragu, Navanikki.**Mal.:** Cama;**Tam.:** Camai;**Tel.:** Camai.

Distribution: Afghanistan, Pakistan, India, SriLanka, Burma, Malaysia.

Description: A slender branched annual, stem erect, smooth dull-green or partly purplish, nodes softly hairy. Leave narrowly laceolate acuminate, flat, glabrous with scabridulous margins. Spikes suberect, spikelets globosely ovoid acute or sucuspidate, glumes 4, upper floral glume 3-5 straked. Fruit cayopsis, glabours, striated brown.

Flowering: Aug.-Jan. **Fruiting**: Aug.-Jan.

Habitat Ecology: It is usually found in damp rich soils where its growth is very rapid and a large amount of lush foliage is produced. The plant is found as a weed in fields.

Material Examined: NKO-325

Part Used: Whole plant.

Folk Uses:-

- Seeds are used as food during fasts.
- Plant used as fodder.
- Plant used as green manure.

Chemical Constituents:- Grains contain proteins amino acids (arginine, lysine, methionine, phenylalanine, threonine, tryptophan and valine) starch, minerals.

Biological Activity:- The grains are nutritive astringent, sweet, emollient, desiccating, constipating alexteric and digestive.

145. Echinops echinatus Roxb.

Family: Asteraceae. **Vern.** : Utakanto.

Sanskrit Name: Utkantaka.**English Name** : Globe Thistle, Camels Thistle.

Regional Names:-

Hin.: Utkantaka**;Mar. :** Utanti.

Distribution : Afghanistan, Pakistan, India.

Description: A much branched, rigid, spiny, herb, with spreading branches full of white cottony hairs. Leaves sessile, oblong, deeply pinnatifid, lobes triangular, with big spines. Flowers in big white balls, spiny, solitary, flowers bisexual, all fertile, involucres surrounded by strong white bristles or sharp spines. Papus short, yellow, bruth like over the cypselas.

Flowering: Jan.-June. **Fruiting**: Jan.-June.

Habitat Ecology: The plant is very common throughout the area.

Material Examined: NKO-168

Part Used: Whole plant.

Folk Uses:-

- Entire plants in crushed with *'Modari'* and fed to live stock.(in Bhavpara village)
- In flowring appears in the plant in monsoon, it is a sign of havy drought. ?

Chemical Constituents:- Yields hentriacontane, hentriacontanol, β-amyrin, and lupeol.

Biological Activity:- Anticancer and hypoglycaemic activity confirmed. Diuretic and spasmolytic activity observed.

146. Eclipta alba (Linn.) Hassk.

Syn: *E. erecta* Linn., *E. prostrata* (Linn.) L. Mant, *Verbesina alba* Linn., *V. Prostrata* Linn.

Family: Asteraceae. **Vern.** : Bhangra.

Sanskrit Name : Ajagara, Bhekaraja, Bhringa, Kesaraja.

English Name: Trailing Eclipta.

Regional Names:-

Ben.: Keshori, Keysuria;**Hin.:** Bhangra, Mochkand;**Kan.:** Garagada-sappu;

Mal.: Kannunni, Kayyonni, Kayyunni.**Mar.:** Bangra, Bhringuraja;

Oriya : Kesarda;**Tam.:** Kaikeshi;**Tel.:** Galagara;**Urdu:** Bhangra.

Distribution : Pakistan, India, SriLanka, China, Malaysia, Java Sumatra & Sunda, Philippines, Polynesia, W.Indies, Central America & Mexico, Brazil.

Description: A small, coarsely hairy annual with sessile leaves, and radiate heads borne on terminal or erect stalks. Flowers white. Achenes ribbed.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Common on moist places and irrigated channels.

Material Examined: NKO-169

Part Used: Whole plant.

Folk Uses:-

- Leaves extract is applied between fingers of legs to cure readning.
- Extract of leaves is mixed with 'coconut oil' and applied on hairs to remove dandruff.

Chemical Constituents:- Various constituents are β-amyrin, wedelolactone, luteolin-7-glucoside, phytosterol A, its glucoside and glucoside of a triterpenoid acid (aerial parts); and stigmasterol and α-terthienylmethanol; small amount of 2-formy-terthienyl; wedelolactone, de-me-wedelolactone and its 7-O-glucoside (leaves).

Biological Activity:- Plant antiviral, spasmogenic, nematicidal and haemostatic. Ext. of gum resin from herb anticancerous against Ehrlich ascites carcinoma (Asolkar *et al.*, 1992).

147. Ehretia laevis Roxb.

Syn: *E. floribunda* Benth. ex Royle

Family: Ehretiaceae. **Vern.** : Vadhvardi.

Sanskrit Name : Kaleshkarika.

Regional Names:-

Beng.: Tambolli;**Bom.:** Tamboli;**Hin.:** Chamrar, Chamrur, Darur, Datrang; Koda;**Kan.:** Kappura **M.P.:** Bhoiumbar, Chinor, Tamoiya; **Mar.:** Datrang;

Oriya : Mosonea;**Pb.:**Saker;**Tam.:**Addula;**Tel.:** Addabukkudu.

Distribution : Persia, Mesopot, Pakistan, India, China, Australia.

Description: A tree. Young leaves densely tomentose, mature glabrescent. Flowers in terminal axillary corymbs. Style 2-branched. Drupe red globose. Pyrenes 4, each 1-seeded.

Flowering: Feb.-Apr. **Fruiting**: Mar.-May.

Habitat Ecology: Drier areas, stony slopes in Barda Hills.

Material Examined: NKO-207

Part Used: Leaves, Branches, Wood.

Folk Uses:-

- Dried branches are used as fuel.
- A piece of wood is placed in house of enemies for creating infighting in families.
- Leaves are used as fodder.

Chemical Constituents:- Allantoin (Stem) and bauerenol (leaves and roots have been isolated).

148. Emblica officinalis Gaertn.

Syn: *Phyllanthus emblica* Linn., *Cicca emblica* Kurz., *Dichelastina nodicaulis* Hance.

Family: Euphorbiaceae. **Vern.** : Amala.

Sanskrit Name: Adiphala, Akara, Amilka.

English Name: Emblic Myrobalan Tree, Indian Gooseberry.

Regional Names:-

Ass.: Amlaki, Sohmyralain;**Beng.:** Ambolati, Amla;**Bom.:** Avala, Avla;

Hin.:A malaki, Amla, Anola, Aungra Bhoza, Daula; **Kan.:**Nelli, Nilika;

Mal.: Amalakam;**Mar.:**Anvala;**Oriya:**Gondhona,Amlaki,Ohalu;

Tam.: Amalagam;**Tel.:** Amalaki, Usiriki;**Urdu:** Anwala.

Distribution: India, Sri Lanka, China, Malaysia.

Description : A moderate-sized deciduous tree with small leaves, distichously arranged. Flowers yellow-green, densely fascicled along the branchlets. Fruits succulent, obscured, 6 lobed.

Flowering: Mar.-May. **Fruiting**: Mar.-May.

Habitat Ecology: Common along borders of agricultural fields.

Material Examined: NKO-271

Part Used: Fruits.

Folk Uses:-

- Fruits are eaten as such, pickles are prepared.

Chemical Constituents:- Principal constituents are ellagic acid (roots); lupeol, β-sitosterol (leaves and stems); tannins; polyphenolic compounds 1, 3, 6-trigalloylglucose, terchebin, corialgin, ellagic acid, phyllantidine and phyllantine (fruits and also leaves).

Biological Activity:- Leaf ext. antibacterial; fruits (EtOH 50% ext.) anticancerous, antiviral, carminative and stomachic.

149. Enicostemma hyssopifolium (Willd.) I. C. Verd.

Syn: *E. littorale* Blume., *Exacum hyssopifolium* Willd.

Family: Gentianaceae. **Vern.** : Mamejavo.

Sanskrit Name: Nahi.

Regional Names:-

Hin.: Chota chirayata;**Mar.:**Kadavinayi;**Mal.:**Vellaragu,Vallari;**Tam.:**Vellaragu, Vallari; **Tel.:** Chevvu-kurti.

Distribution: Tropical Africa, Natal ECP, India, SriLanka, W. Indies.

Description: A perennial, glabrous herb, stem erect or procumbent, subquandrangular with 4, in distinct ridges. Leaves sessile, opposite, decussate, linear, lanceolate or narrowly oblong, acute or obtuse at apex. Flowers sessile in opposing, axillary clusters at each node. Cluster of 3 white flower. Capsule ellipsoid apiculate. Seeds many, subglobose, foveolate.

Flowering: July-Feb. **Fruiting**: July-Feb.

Habitat Ecology: Throughout, mostly in plains among grasses & cultivated fields.

Material Examined: NKO-203

Part Used: Leaves.

Folk Uses:-

- Powder of dry leaves taken orally twice a day for a week to cure fever.

Chemical Constituents:- Whole plant contains ophalic acid, abitter glycoside, swertia-marine and chiratin.

Biological Activity:- Plant is carminative, laxative, anthelmintic, anti-inflamatory, liver tonic, urinary astringent, depurative, revulsive and anti-periodic.

150. Erythrina suberosa Roxb.

Syn: *E. alba* Roxb., *E. reniformis* Ham. *Micropteryx suberosa* Walp.,

Family: Fabaceae. **Vern.** : Panarvo.

Sanskrit Name: Bahupuspha, , Parijata. **English Name:** Indian Coral-Tree.

Regional Names:-

Ass.: Mandal;**Beng.:** Palita madar;**Hin.:** Dadap, Mandara, Pharad;

Mal.: Kalyanamurikku;**Mar.:**Mandar,Pangara;**Oriya:**Piri;**Pb.:** Gulnashtar, Pariara, Thab;**Tam.:** Kaliyanamurukku, Kavir;**Tel.:** Badisa, Modugu.

Distribution: India.

Description: A moderate-sized tree with trifoliate leaves and prickly branches, bark corky, deeply fissured. Racemes capitate. Pods torulose.

Flowering: Feb.-Mar. **Fruiting**: Mar.-May.

Habitat Ecology: Edges of cultivated fields and mostly near river banks.

Material Examined: NKO-82

Part Used: Stem, Whole plant.

Folk Uses:-

- Being ornamental it is a prized tree in kitchen gardens.
- Dried stem is used as fuel.
- Wood used as musical instruments.

Chemical Constituents:- Erysotyrine (leaves); 3, 5-diglucosides of delphinidin, cyaniding and pelargonidin (flowers); erysodine, erysotrine, erythraline and hypaphorine (seeds) have been isolated.

Biological Activity:- Seed fatty oil antibacterial and antifungal.

151. Eucalyptus citriodora Hk.

Family: Myrtaceae. **Vern.** : Nilgiri.

Sanskrit Name: Nilaniryasa, Tailaparna.

English Name: Tasmanian Blue Gum, Eucalyptus.

Regional Names:-

Hin.: Nilgiri, Tailaparna;**Tam.:** Yukkalimaram;**Mal.:** Yukkalimaram.

Distribution: India.

Description: A large evergreen tree, bark white, peeling off. Leaves lanceolate, sickle shaped, thick white-mealy. Flowers white, solitary or 2-3 together. Fruit a capsule (pyxis or pyxidium) dehisces transversly.

Flowering: Feb.-Mar. **Fruiting**: Mar.-Apr.

Habitat Ecology: Cultivated on a large scale in the forest as a fast growing species, in gardens and compounds and on road sides.

Material Examined: NKO-126

Part Used: Stem, Leaves.

Folk Uses:-

- Extract of leaves is applied on child's chest to cure cough and cold.
- Stem is used for making poles of *sati*, (*Dhosari, Khapari)* and housing materials.
- Dried stem is used as fuel.

Chemical Constituents:- Leaves contain eucalyptin, sideroxylin, quercetin, quercetol and its 3-deglucoside, chrysin, rutin hyperoside, phloroglucin, derivatives, caffeic, ferulic, gallic, gentisic, protocatechuic, maslinic and oleanolic acids. Oil contains cineol and terpene hydrocarbons, pinene and camphene and in small quantities butyric, valerenic and caproic aldehydes having unpleasant smell.

Biological Activity:- Oil is acrid, bitter, astringent thermogenic, oleagenous, sialagogue, diaphoretic, antiseptic, deodorant, and stimulant, anodyne, carminative, and anthelmintic, cardiotonic, diuretic, sudorific, insect repellent, rubefacient and antipyretic.

152 .*Euphorbia neriifolia* Linn.

Syn: *E. ligularia* Roxb.

Family: Euphorbiaceae. **Vern.** : Kataro.

Sanskrit Name: Snuhi. **English Name:** Common Milk Hedge Plant.

Regional Names:-

Hin.: Sehund;**Kan.:**Elekalli;**Mal.:** Llakkalli;**Tam.:** Llaikkalli;**Tel.:** Akejemudu.

Distribution: India, SriLanka, Malaysia.

Description: A large, fleshy, much-branched shrub, branches rounded, some what verticillate with pairs of sharp, stipular spines arising from low conical, truncate, distant spirally arranged tubercles. Leaves fleshy, alternate, obovate rounded at the apex, smooth narrow at base, sessile, deciduous. Flowers involucers 3-nate, forming small, shortly, pedunculate, solitary or twin cymes. The central flower is male, 2 lateral flowers bisexual. Capsules of 3, 1-seeded, cocci.

Flowering: Feb.-Apr. **Fruiting**: Feb.-Apr.

Habitat Ecology: Planted for hedges round about the fields and very common in open waste lands.

Material Examined: NKO-272

Part Used: Leaves, Latex, Branches, Whole plants.

Folk Uses:-

- More new foliage appear on plant is sign of raining shortly. ?
- It is grown on field boundaries as a live fence.
- Dried branches are used as fuel.
- Plant latex is applied on effected part of body to get relief in sprains.

Chemical Constituents:- Stem and leaves contain milky latex, resin, calcium mallate, triterpenoids, 24-methlynecycloartenol, eubhorbol hexacosonate and taraxerol. Latex contains caoutchouc, enzymes.

Biological Activity:- The plant is bitter, acrid, thermogenic purgative, rubefacient, abortifacient, digestive, thermogenic purgative, rubefacient, abortifacient, and digestive, deobstrunt expectorant, depurative, anti-inflammatory, carminative, febrifuge, stomachic, and vermifuge.

153. Euphorbia tirucalli Linn.

Family: Euphorbiaceae. **Vern.** : Dandaliyo thor.

Sanskrit Name: Vajradruma.**English Name**: Indian Tree Spurge, Milk-Bush.

Regional Names:-

Ben.: Lankasij, Lata daona; **Hin.:** Konpal Sehund; **Kan.:** Bontakalli;**Mar.:** Shera, Vajraduhu;**Tam.:** Tirukalli;**Tel.:** Chemudu.

Distribution: Abyssinia & Soctra, Tropical Africa, India.

Description: A small unarmed, much-branched tree, branches thin, cylindrical, smooth, greed and almost leafless. Leaves small, linear, oblong, and deciduous. Flowers in axillary cyathia, small.

Flowering: Nov.-Feb. **Fruiting**: Nov.-Feb.

Habitat Ecology: Often planted as a hedge plant.

Material Examined: NKO-273

Part Used: Twig, Whole plants.

Folk Uses:-

- Yellow coloured twig is slightly roasted and 2 to 3 drop of juice is poured in ear to get relief in earache. ?
- It is grown on outskirt of cropland to prevent the entry of both human beings and animals.

Chemical Constituents:- Stem contains latex (caoutchouc), euphorbon, resin and minerals.

Biological Activity:- Latex is vesicant, antiphlogistic, themogenic, astringent, and rubefacient, cathartic, antiseptic.

154. Evolvulus alsinoides Linn.

Syn : *E. hirsutus* Lam., *E. angustifolius* Roxb., E. sericeus Wall., *Convolvulus valerianoides* Blanco, *C. linifolius* Linn..

Family: Convolvulaceae. **Vern.** : Kalisankhavali.

Sanskrit Name: Ladhuvishnukranta, Nilapushpi.

Regional Names:-

Bom.: Shankhavalli;**Hin.:** Shyma kranta;**Kan.:** Vishnu Karanti;**Mal.:** Vishnu kranthi; **Pb.:** Sankhpusphi;**Tam.:** Vishnu Kranthi;**Tel.:** Vishnu kranta.

Distribution: Pakistan, Tropical Africa, India, SriLanka.

Description: A softy hairy prostrate herb with woody branched rootstock. Flowers blue. Capsule globose, thin, 4-valved.

Flowering: Aug. - Nov. **Fruiting**: Aug. - Nov.

Habitat Ecology: Dry areas, waste places.

Material Examined: NKO-213

Part Used: Whole plant.

Folk Uses:-

- Powdered plant (2-5 g) given once a day for 15 days as a tonic.

Chemical Constituents:- Pharmacologically, the plant contains betaine, evolvine, pentatriacontane, tricontane and β–sitosterol.

Biological Activity:- Aq.ext. of petal antifungal.

155. Fagonia cretica Linn.

Syn: *Fagonia arabica* Linn.

Family: Zygophyllaceae. **Vern.** : Dhamaso.

Sanskrit Name: Duralapha. **English Name**: Khorasan Thorn.

Regional Names:-

Hin.: Ustarkhar, Dhamasa, Hinguna;**Kan.:** Vallidurave.**Mal.:** Kante chubak;

Tam.: Tulagunari;**Tel.:** Pilaregati.

Distribution: Pakistan, India, SriLanka.

Description: Profusely branched, pale-green, glandular, annual or perennial shrub lets. Leaves all uni or lower ones trifoliate. Leaflets liner oblong, stipular spines. Flowers pinkish purple. Axillary solitary. Capsules softly hairy.

Flowering: Sept.-Feb **Fruiting**: Oct.-Mar.

Habitat Ecology: Common in waste land throughout the study area.

Material Examined: NKO-44

Part Used: Whole plant.

Folk Uses:-

- The whole pant is crushed and boiled with water. This water is used for bath to relieve the patient from itching.(in chikasa village)

Chemical Constituents:- Plant contains a bitter principle, sapponin, minerals.

Biological Activity:- Whole plant is bitter, blood purifier, diaphoretic, anodyne, carminative, laxative, astringent, diuretic, febrifuge, expectorant, and stimulant.

156. Feronia limonia (Linn.) Swingle

Syn: F. elephantum Corr., *Limonia acidissima* Linn., *Schinus limonia* Linn.

Family: Rutaceae. **Vern.** : Kothu.

Sanskrit Name: Kapitthah. **English Name**: Elephant Appe, Wood Apple.

Regional Names:-

Hin.: Katbel, Kaith, Kavita;**Mal.:** Vilamaram, Vilavu;**Tam.:** Vilankaymaram; **Tel.:** Velagapandu.

Distribution: India, SriLanka.

Description: A big tree. Armed with spines. Leaves imparipinnate, petiole and rachis flat, narrowly winged, leaflets 3-9 opposite, obovate, or wedge-shaped. Flowers small, numerous, dull-red, in lateral or terminal, hairy, panicles with male and female flowers. Fruit a berry, amphisarca-globose, hard, many seeded, rough, grey coloured. Seeds embedded in edible pulp.

Flowering: Jan.-May. **Fruiting**: Mar.-June.

Habitat Ecology: Rare in Barda Hills.

Material Examined: NKO-51

Part Used: Fruits.

Folk Uses:-

- Ripe fruits pulp is used to prepare ‘Chutney’.
- A powder is prepared from dried fruits and taken as tonic with water.
- Fruit is eaten to check diarrhoea and dysentery.

Chemical Constituents:- Fruit contains pectin, calcium, vitamin c, mucilage, carbohydrate, and protein, plenty of citric acid, potassium and iron. Leaves contain essential oil.

Biological Activity:- Aromatic, astringent carminative, constipating, antiemetic, expectorant cardiotonic, alexipharmic.

157. Ficus amplissima Sm.

Syn: *F. tsiela*, Roxb.,

Family: Moraceae. **Vern.** : Pipar.

Sanskrit Name: Tvaksh.

Regional Names:-

Hin.: Pippal,Pipli,Pipar;**Kan.:**Aswattha.**Mal.:**Arayal;**Tam.:**Arasu,asvattam;

Tel.: Ravi.

Distribution: India.

Description: A large deciduous tree with few aerial roots. Leaves elliptic-lanceolate, acute, pointed, base rounded or narrowed. 3-nerved, stipules ovate. Receptacles crowded towards the ends of branches, axillary, sessile, globose, purple when ripe.

Flowering: Nov.-Feb. **Fruiting**: Nov.-May.

Habitat Ecology: Planted along roads and near villages.

Material Examined: NKO-282

Part Used: Stem, Fruits, Leaves.

Folk Uses:-

- Stem used in preparation of leveler, '*Kadhamnu*'.
- Dried stem is used as fuel.
- Raw, ripe receptacles are eaten.
- The leaves selected by children for making '*Pipudi'* (Whistle).

Chemical Constituents:- Plant contains arabinose, latex, mannose, glucose, tannin, phenolic glucoside ester, flacourtin, steroid, ramontoside, β-sitosterol and its β-D-glucopyranoside.

Biological Activity:- Astringent, aphrodisiac, antibacterial, antiseptic, nutritive, laxative, digestive.

158. Ficus bengalensis Linn.

Syn: *F. indica* Linn. *Urostigma bengalense* Gasp.

Family: Moraceae. **Vern.** : Vad.

Sanskrit Name: Vata, Vatpatra. **English Name**: The Banyan Tree.

Regional Names:-

Ass.: Bot;**Beng.:** Bar, But;**Bom.:** Barghat, Vad, Wad, War;**Hin.:** Bar, Bargat, Ber, Bor; **Kan.:** Ala, Alada, Alava, Ahlada;**Mar.:** Vada, War;**Oriya:** Boru;**Pb.:** Bargad, Bera, Bohar, Bohir, Bor;**Tam.:** Ala;**Tel.:** Mar, Peddimari.

Distribution: India.

Description: A very large tree with aerial roots. Leaves ovate, obtuse, entire, coriaceous, bud-scale stipules. Flowers receptacles in sessile pairs, axillary globose, red when ripe, with three basal bracts.

Flowering: Nov.-Jan. **Fruiting**: Nov.-Jan.

Habitat Ecology: Common every where and planted on roadsides and near villages.

Material Examined: NKO-283

Part Used: Stem, Fruits, Aerial root, Latex.

Folk Uses:-

- It is a sign of rain if aerial root grows fast and bends in south-west direction. ?
- Stem is used for making leveller.
- Dried stem is used as fuel.
- Aerial root is used as a toothbrush.
- Raw, ripe receptacles are eaten and unripe receptacles are used in preparation of '*Dholo*' adventitious.
- In Ratanpar village aerial root is used for making '*Ravai*' (churning rod). ?
- Latex used in cracked feet.
- In some villages of Porbandar district when any Maher suffer from bubo in the armpits it is advice to swing with columnar root of banyan tree, the bubo splits and patient feel relief. ?
- Columnar root tide together and '*Sali*' is prepared and used in field to clean water channels and prevent leakage.

Chemical Constituents:- 10% tannin is found in bark and buds. Bengalenoside, flavanoid glycosides, leucopelargonidin and leucocyanidin glycosides in fruits.

Biological Activity:- All parts of the plant are astringent, acrid, conceptic, sweet, aphrodisiac, anodyne, depurative, anti-inflammatory, ophthalmic, styptic, antiarthritic, diaphoretic, anti-diarrhoeal anti emetic.

159. Ficus carica Linn.

Family: Moraceae. **Vern.** : Anjir.

Sanskrit Name: Anjira. **English Name**: The Fig.

Regional Names:-

Hin.: Anjira;**Kan.**: Anjura.**Mal.:** Simayatt;**Tam.:** Simaiyatti;**Tel.:** Medipatu.

Distribution: Arabia, Persia, Mesopot, Pakistan, India, SriLanka.

Description: A small tree. Leaves large, cordate, serrate, deeply lobed, rough, stipules small. Receptacles, solitary or axillary, reddish purple when ripe.

Flowering: Nov.-Jan. **Fruiting**: Nov.-Jan.

Habitat Ecology: Cultivated for its fruits.

Material Examined: NKO-284

Part Used: Fruits.

Folk Uses:-

- Receptacles are fondly eaten and called anjeer.

Chemical Constituents:- Unripe fruits contain latex, enzymes, ficin, resin, tannin, calcium, oxalate, psoralen, bergapten, β-sitosterol, lupeol, coumarins, xanthotoxin. Ripe fruit contains tannin, proteins, sugars, flavonoids, fats, enzymes, iron, calcium, ascorbic acid, carotene, vitamin B, mucilage, zinc etc.

Biological Activity:- Fruit is nutritive, astringent, blood purifier, aphrodisiac, emollient, demulcent, aperients laxative, cooling. Latex is anthelmintic, digestive, and aphrodisiac, rubefacient.

160. Ficus glomerata Roxb.

Syn *: F. chittagonga* Miq., *F. goolereea* Roxb., *F. mollis* Miq., *F. racemosa* Wall., *Couellia glomerata* Miq., *C. mollis* Miq.

Family: Moraceae. **Vern.** : Umbaro.

Sanskrit Name: Udumbara. **English Name**: Cluster Fig.

Regional Names:-

Beng.: Jagya, Dumar, Yajnadumbar;**Bom.:** Umbar;**Hin.:** Dimeri, Gular, Lelka, Paroa, Tue, Umar, Umarai;**Kan.:** Atti, Kulla-kith;**Mal.:** Dumer;**Mar.:** Atti, Rumadi, Umbara;**Oriya:** Dimeri;**Pb.:** Batbar, Dadhuri, Kakammal, Kathgular, Krumbal, Palak;**Tam.:** Atti;**Tel.:** Atti, Boddu, Maoyai, Mari, Medi, Paidi.

Distribution: India, SriLanka.

Description: A large evergreen tree. Leaves ovate oblong, pointblunt, entire, slightly reddish, stipules ovate, scarious. Receptacles with short peduncles on trunks and branches, sub globose, red when ripe. Flowers as above.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Common everywhere near streams and rivers.

Material Examined: NKO-285

Part Used: Fruits.

Folk Uses:-

- Raw, ripe receptacles eaten voraciously.

Chemical Constituents:- A tetracyclic triterpene, glauanol acetate (13α:14β, 17βH, 20α, H-lansota-8, 22-diene-3 β-acetate) isolated from leaves, bark and heartwood, stem bark contains ceryl behenate, lupeol, its acetate α-amyrin acetate and three unidentified compounds, m.p.134^0 220^0, and 135^0, besides an unidentified long chain ketone and two leucoanthocyanines, leucocyanidin-3-O-β-D-glucopyranoside and leucopelargonidin-3-O-α-rhamnopyranoside. β-sitosterol and lupeol occur in root bark.

Biological Activity:- A glycoside rich fraction from leaves reported to have hypotensive, vasodilator and cardiac depressive effect. It had no effect on behaviour in rats or on isolated tissue preparations. Also found to be antiprotozoal, hypoglycetemic and anti cancer (Patel and Vasavada, 1985).

161. Ficus religiosa Linn.

Syn: *F. affinior* Griff., *Urostigma affine* Miq., *U. religiosum* Gasp.

Family: Moraceae. **Vern.** : Piplo.

Sanskrit Name: Pippala, Ashvattha.

English Name: The Peepul tree, Bo-Tree, Sacred Fig.

Regional Names:-

Beng.: Ashathwa, Asud, Asvatha, Aswat;**Bom.:** Jari, Pimpal, Piplo;**Hin.:** Pipal

Kan.: Arali, Arle, Asvatta, Bassi, Haspath, Ragi, Rangi;**Mar.:** Pimpala;

Mal.: Arayal;**Oriya:** Jari;**Pb.:** Bhor, Pipal;**Tam.:** Arasa, Aswartham;

Tel. : Ragi, Rai, Raiga, Ravi, Kulla-ravi.

Distribution: India.

Description: A large tree, often epiphytic, leaves ovate rotund, long acuminate, entire, wavy, base broad, rounded, truncate. Receptacles in pairs, axillary sessile, dark-purple when ripe, depressed globose.

Flowering: Nov.-Jan. **Fruiting**: Nov.-Jan.

Habitat Ecology: Universally planted everywhere.

Material Examined: NKO-286

Part Used: Fruits, Whole plants.

Folk Uses:-

- Plant is worshipped as a symbol of God 'Vishnu' and water is offered on a particular day (*Shradh*) to get good health.
- Unripe fruits are used as vegetable.

Chemical Constituents:- Whole plant contains latex, tannin, sugars (Arabinose, mannose, glucose), phenolic glucoside ester, flacourtin, steroid, ramontoside, β-sitosterol and its β-D-glucopyranoside, calcium, iron.

Biological Activity:- Stem bark anthelmintic, antiamoebic, antiviral.

162. Fimbristylis bisumbellata (Forsk.) Bub.

Syn : *F. dichotoma* (Vahl.), *Scirpus bisumbellatus* Forks.

Family: Cyperaceae. **Vern.** : Saj.

Distribution: India, SriLanka.

Description: A small, annual herb stems tufted, filiform. Leaves narrow, tapering to a fine point, sheaths hairy. Flowers in compound umbel, rays few or many, bracts filiform, spikelets angular, many-flowered, rachilla with large pits, clumes closely imbricate, ovate, reddish-brown, 1-3 nerved on the back, midnerve in a point with green keel. Nut compressed, white.

Flowering: Sept.-Feb. **Fruiting**: Sept.-Feb.

Habitat Ecology: Common in Barda sagar dam.

Material Examined: NKO-316

Parts Used: Rhizome, Aerial parts.

Folk Uses:-

- Rhizome dig out by *'Kodari'* and burn it, root is removed and given to cattle in famine condition.(in Modhvada village)
- The plant is stacked in compact bundles and tied to make the thatch work of cattle shelter roof.

163.Firmiana colorata (Roxb.) R. Brown

Syn: *Sterculia colorata* Roxb., *Erythropsis colorata* Roxb.

Family: Sterculiaceae. **Vern.** : Kodaro.

Regional Names:

Hin.:Bodal.**Mar. :** Khaosi.

Distribution: India, SriLanka, Burma.

Description: A tree with a straight, sometimes fluted trunk with ash coloured bark. Leaves at ends of branches on long slender stalks up to 30 cm. 3 or 5 lobed hearts shaped lobes triangular, pointed, young leaves and shoot downy. Flowers in short dense clusters at ends of branches bright coloured orange red, floral region covered with soft velvety star-shaped hairs. Fruit conspicuous, composed of 2 to 5 leaf like membranous valves, pink turning red on common stalk. Seeds one or two borne on the edges.

Flowering: Apr.-May. **Fruiting**: May-June.

Habitat Ecology: Rarely found in Rana Barda region.

Material Examined: NKO-35

Parts Used: Root bark.

Folk Uses:-

- ½ cup decoction of root bark is taken orally twice a day for two days in fever.

164. Flacourtia indica (Burm.f.) Merr.

Syn : *F. sepiara* Roxb., *F. ramontchi* L'Her., *F. latifolia* Cooke, *Gmelina indica* Burn.

Family: Flacourtiaceae. **Vern.** : Lodari.

Sanskrit Name: Svadukantaka. **English Name**: Mauritius Plum.

Regional Names: Hin.: Kondai;**Mar.:**Ataran;**Tel. :** Kanregu.

Distribution: India.

Description: An armed, thorny small tree. Leaves alternate, margin entire, apex acute. Inflorescence on leafless wood, short pubescent racemes, flowers greenish-yellow, small, diocious, actinomorphic. Fruit red or deep purple, glabrous, globose. Seed obovoid trigonous, pale yellowish-brown.

Flowering: Mar.-Apr. **Fruiting**: Apr.-May.

Habitat Ecology: Scattered in Barda Hills.

Material Examined: NKO-21

Parts Used: Roots, Fruits, Leaves.

Folk Uses:-

- Ripe fruits are eaten.
- Root juice is applied externally evenly to ward off flees in cattle.
- Leaves used as a nutritious fodder for goats.

Chemical Constituents:- The bark contains a phenol glucoside ester, (-)-flacourtin. The heartwood contains the steroid, ramonto glucopyranoside. The fruit contain 3.9-7.2% protein, vitamin C and mineral matter 0.39%, calcium 24.1% and phosphorus 12.5 mg/100g.

Biological Activity:- Hypotensive activity and effect on CNS found positive.

165. Foeniculum vulgare Gaertn.

Syn : F. capillaceum Gillb., F. offcinale Allion, F. dulce Bauh, F. panmorium Dc., Anethum foeniculum Linn., A. panmorium Roxb., Ozodia foeniculacea W. & A.

Family: Apiaceae. **Vern.** : Valiyari.

Sanskrit Name: Madhurika **English Name**: Fennel.

Regional Names:-

Beng.: Mauri, Pan-muhori;**Bom.:** Bari-Sopha;**Hin.:** Bari-saunf, Saunf;**Kan.:** Badi-Sopu;**Mal.:** Perumjirakam, Perincirakam.**Mar.:** Badishep;**Tam.:** Sohikire;**Tel.:** Pedda-jila-kurra.

Distribution: India, Sri Lanka, China.

Description: Tall, glabrous herb up to 90 cm. with 3-4 pinnate leaves and umbels of 15 or more rays. Vittae conspicuous.

Flowering: Jan. - Mar. **Fruiting**: Feb. - Apr.

Habitat Ecology: Cultivated, but often met as an escape in waste places.

Material Examined: NKO-156

Part Used: Fruits.

Folk Uses:-

- Fruit is chewed after meal for better digestion and good taste of the mouth.
- Fruit is commonly used as a flavoring agent in almost all food preparations.

Chemical Constituents:- Umbelliferone and bergapten (root), anethole, fenchone, anisalehyde and feniculin (plant), columbianetin, 7-hydroxy and 6,7-dihydroxy coumarins, marmesin, osthenol, psoralen, scoparone, seselin, xanthotoxin, α-and β-amyrins, oleanolic acid, Δ^5-avenasterol, campesterol, Δ^7-stigmasterol, stigmastadienol, linoleic, oleic, palmitic and petroselinic acids (Fruits/seeds) have been isolated (Asolkar *et al.*, 1992; Chatterjje & Pakrashi, 1997).

Biological Activity:-

Seeds & fruits antimicrobial.

166. Fumaria indica (Haussk.) Pugsley

Syn: *F. vaillantii* Loisel Var. *indica* Haussk.

Family: Fumariaceae. **Vern.** : Pitpapdo.

Sanskrit Name: Araka, Charaka, Katupatra, Panshu

English Name: Fine-Leaved Fumitory.

Regional Names:-

Beng.: Bansulpha;**Bom.:** Pitpatra;**Hin.:** Pitpapda;**Mar.:** Pitpapda;**Tam.:** Tura;

Tel.: Chatra-rashi.

Distribution: India.

Description: A diffuse herb with much-divided leaves. Flowers in lax racemes. Fruit globose, indehiscent.

Flowering: Aug. - Sept. **Fruiting**: Sept. - Oct.

Habitat Ecology: Weed in agriculture fields.

Material Examined: NKO-9

Part Used: Whole plant.

Folk Uses:-

- Entire plant is eaten in early morning.
- Decoction of the plant used to treat fever, ½ cup once every morning for 3-5 days.

Chemical Constituents:- Protopine, nonacosanol, sitosterol, n-alkanes and sterols (leaves and stem), protopine and 1-tetrahydrocoptisine, d-8-OMe-dihydroxanguinarine, fumarilinc and oxysanguinarine (seeds); sanguinarine, protopine, cryptopine, fumaridine, fumaramine, perfumidine, perfumine, d and dl-bicuculline, dl-tetrahydrocoptisine, fumarilline, fumarilicine, narceimine, dehydrocheilanthifoline, copticine and narlumidine have been isolated (Asolkar *et al.*, 1992).

Biological Activity:-Herb ext. anti arrhythmic in rabbits.

167. Gardenia turgida Roxb.

Syn: *G. resinifera* Roth., *G. lucida* Roxb.

Family: Rubiaceae. **Vern.** : Malan.

Sanskrit Name: Ramthi. **English Name**: King of The Day.

Regional Names:

Hin.: Dikamali; **Mar. :** Dikamali;**Tel. :** yerribikki.

Distribution: India.

Description: A small deciduous tree. Leaves elliptic oblong, obtuse, narrowed in to the petiole at the base, dark green above, paler beneath, stipules axillary, large, ovate, and acute. Flowers solitary, axillary, large, white, turning to yellow when old, fragrant. Fruit ellipsoid, crowned with the calyx lobes.

Flowering: Aug.-Oct. **Fruiting**: Sept.-Nov.

Habitat Ecology: Very common in forest of Barda Hills.

Material Examined: NKO-160

Parts Used: Gum.

Folk Uses:-

- Gum from the stem dissolved in water and given to kill intestinal worms.

Chemical Constituents:- The chemical compounds reported are the flavanoids gardenin, apegenin, wogonin and nevadensin. The steroid is β. sitosterol. There is also oelianoic acid β.mannitol, resin and volatile oil.

168. Gloriosa superba Linn.

Family: Liliaceae. **Vern.** : Dhudhiyo Vachhnag.

Sanskrit Name: Langali, Vishalya. **English Name**: The Glory Lily.

Regional Names:-

Hin.: Kalihari, Langli;**Kan.:** Kolikuttuma;**Mal. :** Mentonni, Mettonni, Kantal;

Tam. : Kalappaikkailanku, Nabbikkodi;**Tel.:** Adavinabhi;

Distribution: India.

Description: A large annual herbaceous climber, root stalk fleshy tuberous, solid and white. Leaves sessile, ovate-lanceolate, acuminate, tip ending in a tendril like spiral, base cordate, nerves parallel. Flowers large, axillary, solitary or sub-corymbose, at first greenish later becoming yellow and finally scarlet or crimson. Capsule long, septicidal seeds many rounded.

Flowering: Aug.-Oct. **Fruiting**: Aug.-Oct.

Habitat Ecology: Grows on sandy areas along the coastal area.

Material Examined: NKO-306

Parts Used: Leaves.

Folk Uses:-

- Leaves crushed in water and made in to a past and applied in rheumatism.

Chemical constituents:- The tuberous rhizome contains superbine, colchicines, gloriosine, benzoic acid, salicylic acid, sterols and resinous substances. The seed also contain gloriosine.

Biological Activity:- Rhizomes are acrid, bitter thermogenic, emmenagogue, abortifacient, depurative, anthelmintic, digestive, stomachic, purgative, emetic, gastrointestinal irritant, antipyretic, alexeteric, expectorant, rejuvenating and tonic.

169. Gmelina arborea Roxb.

Syn: G. rheedii Hook., Premna arborea Roth., P. tomentosa Miq.

Family: Verbenaceae. **Vern.** : Savan.

Sanskrit Name: Gumbhari, Kasmari, Sripanari.

English Name: Comb Teak, Cashmeri Tree.

Regional Names:-

Ass.: Gomari; **Beng.:** Gamari, Gumar, Gumbar; **Bom.:** Shewun; **Hin.:** Gamari, Gambari, Gambhar, Gamhar, Gumbhar, Kambhar, Khambhari, Khammara, Kumar, Kumbhar, Sewan, Shewan; **Mar.:** Shewan, Shivan; **Oriya:** Gambari; **Pb.:** Gumhar; **Tam.:** Cummi, Gumadi; **Tel.:** Gumar-tek, Gumudu, Peddu gomru.

Distribution: India.

Description: A moderate-size, deciduous, unarmed tree. Leaves large, broadly ovate, acuminate, and cordate at base hairy below. Flowers yellowish arranged in hairy panicles. Drupe ovoid orange yellow

Flowering: Feb.-Apr. **Fruiting**: Feb.-Apr.

Habitat Ecology: Common in Barda Hills and elsewhere, throughout the area.

Material Examined: NKO-245

Part Used: Stem, Fruits.

Folk Uses:-

- Stem used in preparation of plough and *'Dhosari'*.
- Ripe fruits are eaten raw.
- Small pieces of its stem and dried branches used for making fire in religious ceremonies especially in *'Havan*'.

Chemical Constituents:- Fruit contains benzoic acid, tertaric acid, butiric acid, resin better principle, sugar. Root contains resin, benzoic acid.

Biological Activity:- Stem bark antiviral, hypoglycemic and wood hypoglycemic.

170. Gossypium herbaceum Linn.

Family: Malvaceae. **Vern.** : Kapas.

Sanskrit Name: Karpasah. **English Name**: Cotton Plant.

Regional Names:-

Hin.: Kapas,Ruyi;**Kan.:**Janivara-hatti-mara;**Mal.:**Nalpparutti,Kurupparutti; Parutti.**Tam.:** Karpassam, Panju; **Tel.:** Pratti.

Distribution: India.

Description: An annual, erect, hairy herb. Leaves divided to the middle, cordate, usually with a gland on the midrib. Flowers yellow, axillary. Capsules ovoid-globose, seeds 6-7 ovoid, compose with white hairs (cotton) all round.

Flowering: Sept.-Feb. **Fruiting**: Oct.-Mar.

Habitat Ecology: Cultivated throughout the study area.

Material Examined: NKO-26

Part Used: Stem, Fruits, Whole plant.

Folk Uses:-

- Two day prier to Janmastami is called '*Randhanchatth*' Maher female implant in stove with *Cynodon dactylon*. ?
- In the farming of *Momordica charantica* and *Momordica dioica* dried cotton plant spread on soil and later on this crop plant spread on it so its fruit is protected and grow in large size.
- Dry stem used as fuel in stove.
- Immature fruit is eaten by children.
- Dry plant used to prepare roof and wall of huts and used as fencing too.

Chemical Constituents:- Seeds contain 10 to 29% oil.

Biological Activity:- Roots: acrid, astringent, midly thermogenic, emollient, antidysenteric, diuretic, depurative, emmenagogue and abortifacient. Leaves: diuretic, haematinic, cooling, constipating and tonic. Flowers: sweet, refrigent and liver tonic.

171. Grewia damine Gaertn.

Syn: *G. salvifolia Heyne* ex Roth.

Family: Tiliaceae. **Vern.** : Sisoti.

Regional Names:-

Mar. : Pandri.

Distribution: Pakistan, Tropical Africa, India.

Description: An erect shrub, up to 3 m high stem. Leaves ovate-oblong or obovate, minutely serrate or entire, rounded or truncate and slightly oblique at base. Flowers on small, axillary umbellate peduncles rarely solitary or twins. Yellow in colour. Fruit a drupe, 1-2-lobed, lobes globose, thinly covered with short, bristly hairs.

Flowering: Apr.-May. **Fruiting**: May-June.

Habitat Ecology: Common in Barda Hills.

Material Examined: NKO-40

Parts Used: Leaves, Stem, Fruits.

Folk Uses:-

- Fruits are used as substitute of food.
- Stem is used as a walking stick.
- Leaves are used as a green nutritive fodder for livestock.
- Wood is used to made toys and tool handles.

172. Grewia tenax (Forsk) Fiori.

Syn: *G. populifolia* Vahl., *Chandra tenax* Forsk.

Family: Tiliaceae. **Vern.** : Gangeti.

Sanskrit Name: Nagbala, Gangeruki.

Regional Names:-

Hin.: Gangeran;**Kan.:** Vattagruke;**Mal.:** Gangeti.

Distribution: Arbia, Persia, Mesopot, Pakistan, India, SriLanka.

Description: A shrub or under shrub. Leaves broadly ovate, or sub orbicular or obovate, acute or obtuse, dentate, base rounded, stipules small linear. Flowers

pure white, peduncle solitary. Drupes smooth, orange-yellow of 2 separable halves, each half didynamous.

Flowering: June-Nov. **Fruiting**: Sept.-Dec.

Habitat Ecology: One of the most common shrubs growing in hedges and Barda Hills.

Material Examined: NKO-41

Part Used: Branches, Fruits.

Folk Uses:-

- Dried branches are used as fuel.
- Ripe fruits are eaten.

Chemical Constituents:- Fruit contain oil, mucilage, sugars, minerals, organic acids.

Biological Activity:- Root is aphrodisiac, diuretic. Leaves are astringent, antiseptic, antiphlogistic styptic. Fruit is aphrodisiac, expectorant, anti bilious, demulant, diuretic.

173. Grewia villosa Willd

Family: Tiliaceae. **Vern.** : Padekhada.

Distribution: Tropical Africa, India.

Description: A small, woody shrub. Leaves round ovate, subcordarte, rounded or shortly acuminate, crenate serrate, rough hairy above, velvetly beneath, stipules foliaceous. Flowers dull yellow in axillary, leaf opposed cymes, peduncles very short. Drupe globose, copper-coloured when ripe, crustaceous, pilose and densely stellately hairy; stones 4, 1-2 seeded, smooth, pulp sweet.

Flowering: Aug.-Sept. **Fruiting**: Oct.-Nov.

Habitat Ecology: Common throughout the area in bushes and hedges.

Material Examined: NKO-42

Parts Used: Stem, Fruits.

Folk Uses:-

- Ripe fruits are sweet in taste and are eaten by Maher children.
- Stem is used as a fuel.

Chemical Constituents:- The methanol extract of the roots contain beta-carboline alkaloids, har-man, harmine, harmol, harmalol and harmaline.

174. Helianthus annus Linn.

Family: Asteraceae. **Vern.** : Surajmukhi.

Sanskrit Name: Suria-mukhi. **EnglisName**:Sunflower.

Regional Names:-

Beng.: Shuriamukti, Surjamuki;**Bom.:** Shuriamuki, Suryakanta;**Hin.:** Surajmukhi; **Kan.:** Adityabhakti;**Mal.:** Suryakanti, Suryappu;**Mar.:** Brahmoka, Surajmaka; **Tel.:** Aditya Bhakti-chettu, Podda-tria-gudda-chettu, Proddutirugudu chettu.

Distribution: North America, India, Brazil.

Description: A small annual of about 4-8 feet high. Leaves opposite, upper alternate, ovate, acute, hairy, serrate. Flowers in large heads, terminal or axillary, solitary, invol-bracts many, green leafy, ray florets ligulate, strap-shaped, neuter, yellow, disc florets bisexual, tubular, yellow, 5-lobed, in the axial of a palea of the receptacle. Cypsela without pappus.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Cultivated.

Material Examined: NKO-170

Parts Used: Leaves, Whole plants.

Folk Uses:-

- Drink leaves juice with leaves juice of *ocimum sanctum* to cure all type of fever.
- Planted near house as an ornamental plant.

Chemical Constituents:-

The plant contains ascorbic acid, carotene, citric, malic acid, lactic acid, succinic acid, aconitic acid and fumaric acid. The seed karnel contains albumin, globulin, glutelin, insoluble protein (14.2%), and fat (32.3%), ash (26%).

175. Helicteres isora Linn.

Syn: *H. chrysocalyx* Miq., *H. roxbhurghii* G. Don.

Family: Sterculiaceae. **Vern.** : Mardasing.

Sanskrit Name: Awartani, Mriga-shinga.

English Name: East Indian Screw Tree.

Regional Names:-

Beng.: Atmora;**Bom.:**Khiran,Kevana,Kewan; **Hin.:** Bhendu, Jonkaphal, Maraphali, Maror-phulli; **Kan.:** Kavargi; **Mal.:**Mori; **Mar.:**Kewan; **Oriya:**Muri-muri;**Pb.:**Kupasi,Mororphali;**Tam.:**Vadampiri,Valampuri, Valumberi;**Tel.:** Adasyamali, Gubadarra, Kavanchi, Nuliti, Syamali.

Distribution: India, Java Sumatra & Sunda, Australia.

Description: A shrub with young shoots full of stellate hairs. Leaves oblong, obovate, cordate suddenly and shortly acuminate, closely dotted with stellate hairs on both sides. Flowers red at first fading to lead colours bilabiate, in axillary clusters of 2-6 together, pedicels short, hairy, bracts small, hairy. Capsules twisted like a cork-screw, breaked, with stellate hairs. Seeds many, angular.

Flowering: July-Sept. **Fruiting**: Oct.-Dec.

Habitat Ecology: Common throughout in Barda Hills.

Material Examined: NKO-36

Parts Used: Fruits.

Folk Uses:-

- Fruit is tied on cradle to stop stomach pain in children. ?

Chemical Constituents:- Fruit contains tannin, bitter principles. Phytosterol, fibers. Hydroxyl-carboxylic acid, saponins, sugar, phlobotanin and lignin are found in its bark.

Biology Activity:- An unspecified part has effect on isolated ilium.

176. Heliotropium supinum Linn.

Syn: *H. malabaricum* C. B. Clarke

Family: Boraginaceae. **Vern.** : Ghediyo-okhrad.

Sanskrit Name: Suryavarta. **English Name**: Heliotrope.

Regional Names:-

Mar. : Vadasuri.

Distribution: Pakistan, Abyssinia & Soctra, Tropical Africa, Natal ECP, India.

Description: A much branched prostrate softly hairy annual herb. Stem numerous, spreading, in all directions, thickly clothed with soft, white hairs. Leaves alternate or rarely opposite, elliptic, obtuse, plicate. Flowers sub sessile in usually simple, densely villous spikes velvety scorpiold white, and nutlets dark-brown 2-4.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Common in study area.

Material Examined: NKO-208

Parts Used: Whole plant.

Folk Uses:-

- Plant is used as a fodder.
- Ash of dried plant mixed with *'Nariyal tel'* and applied on hairs to remove dandruff.

177. Hemidesmus indicus (Linn.) Br.

Syn: *H. wallichii* Miquel, *Asclepias pseudo-sarsa* Roxb., *Periploca indica* Willd.

Family: Periplocaceae. **Vern.** : Kapuri, Madhuri, Kamarvel.

Sanskrit Name: Ananta, Gopi-mulam, Sugnadhi.

English Name: Indian Sarsaparilla.

Regional Names:-

Beng.: Anantamue,Anatomue;**Bom.:**Uparasara;**Hin.:**Hindi-salsa,Jangli-chanbelle,Magrabu;**Kan.:**Sogadaherii,Sugandha-palada-gida;

Mal.: Nannari,Naruninti, Narunenti; **Mar.:** Anatamue, Upalasari;**Tam.:** Nannari;**Tel.:** Gadisugandhi, Palachukkani-deru, Palasugandhi-muttapulgam, Sugandhi-pala, Tella sugam-dhipala.

Distribution: India, SriLanka.

Description: A perennial twiner, nodes thickened. Leaves opposite, elliptic oblong to linear lanceolate, variegated with white above. Flowers in cymes, bracts ovate.

Flowering: July-Jan. **Fruiting**: July-Jan.

Habitat Ecology: Common everywhere in hedges.

Material Examined: NKO-202

Parts Used: Leaves.

Folk Uses:-

- 10 fresh leaves with sugar cube taken orally twice a day for a week in jaundice.

Chemical Constituents:- Air dried roots yield essential oil containing P-methoxy salicylic aldehyde as the major constituent. The aroma of the drug is attributed to this aldehyde. Other constituents in the roots are β-sitosterol, α- and β-amyrins, lupeol, tetracyclic triterpene alcohols, small amount of resin acids, fatty acids tannins, saponins, a glycoside and a ketone.

Biological Activity:- Roots are bitter, sweet. Stem is diaphorefic, diuretic. Flowers are antibacterial, antidermatitic.

178. Hibiscus cannabinus Linn.

Family: Malvaceae. **Vern.** : Bhindi.

Sanskrit Name: Nalita. **English Name**: Deccan Hemp.

Regional Names:-

Ben. Mestapat;**Hin. :** Ambari, Patsan, Pitwa;**Mal.:** Kanjaru;**Mar.:** Ambadi, Ambada;**Oriya:** Kanuriya;**Pb.:** Sankokla;**Tam. :** Pulichhai, Phlimanji, Kasini; **Tel.:** Gogu, Gonkura, Gaynaru.

Distribution: North America, Afghanistan, Pakistan, Tropical Africa, India, SriLanka, Brazil.

Description: A prickly shrub. Leaves 2 inches broad, cordate upper lobed, serrate. Flowers yellow with purple centre, axillary. Capsules ovoid, beaked, hairy. Seeds large, brown, with minute scales.

Flowering: Sept.-Nov. **Fruiting**: Oct.-Dec.

Habitat Ecology: Cultivated for its fibre. Found as an escape in open grass lands.

Material Examined: NKO-27

Parts Used: Leaves, Stem Bark.

Folk Uses:-

- Bark yields good quality fibre and used for ropes.
- Tender leaves used as a vegetable.

179. Hibiscus rosa-sinensis Linn.

Family: Malvaceae. **Vern.** : Jasud.

Sanskrit Name: Ondrapuspi.

English Name: Shoe-Flower.

Regional Names:-

Ben.: Joba;**Hin.:**Odhul;**Kan.:** Dasavala;**Mal.:** Cemparatti;**Oriya:** Mandaro;**Pb.:** Jasum;**Tam.:** Cemparutti;**Tel.:** Dasana, Mandara.

Distribution: Afghanistan, Pakistan, India, SriLanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea.

Description: A small shrub. Leaves ovate, acuminate, serrate, stipules lanceolte. Flowers red, blue, white etc, axillary, solitary.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Cultivated in kitchen gardens

Material Examined: NKO-28

Parts Used: Flowers, Whole plants.

Folk Uses:-

- Extract of flowers is applied on hairs to arrest falling hairs.
- Planted as ornamental plant.

Chemical Constituents:- Plant contains taraxeryl acetate, beta-sitosterol, camepesterol, stigmasterol, cholesterol, erogosterol, lipids, citric, tartaric and oxalic acids, fructose, glucose, sucrose, flavonoids and flavonoid glycosides, hibiscentin, cyaniding and cyanin glucosides. Flower also contains in very less quantity are nitrogen, fat, mucilage, calcium, phosphorus, iron and vitamin B and C.

Biology Activity:- Roots are demulcent and febrifuge. Leaves are hepatopaty, fatigue, abscesses, expulsion of the placenta. Flowers are astringent, bitter,

acrid, depurative, emollient, refrigerant, trichogenous, aphrodisiac, demulcent, emmenagogue haemostatic, brain tonic, cardio tonic.

180. Holarrhena antidysenterica (Buch.-Ham.) Wall

Syn: *H. codaga* G. Don, *H. pubescens* Wall. & ex Don, *Echites antidysentrica* Roxb., *E. pubescens* Buch.-Ham., *Wrightia antidysenterica* Grah.

Family: Apocynaceae. **Vern.** : Kalo Indrajav.

Sanskrit Name: Girimallika, Indra, Indrayavaphala, Kalingai, Kutaja.

English Name: Conessi Bark, Kurchi.

Regional Names:-

Ass.: Dudcory;**Beng.:** Kurchi, Titaindarjau;**Bom.:** Dolokura, Dowla, Kura;

Hin.: Dhudi, Karchi, Karra, Kora, Kureya;**Kan.:** Keor, Kewar;**Mal.:** Kaippa Kkotakappala;**Oriya:**Kherwa,Krya,Potrokrya;**Tam.:**Erukkalaipalai,Kudasam;

Tel.: Amkudu, Kakakodise.

Distribution: India, Malaysia.

Description : A small deciduous tree nearly 2-6 m tall with sweet scented, white flowers in terminal corymbose cymes, bark pale brown. Follicles white dotted. Seeds tipped with brown hair.

Flowering: July-Oct. **Fruiting**: Sept.-Jan.

Habitat Ecology: Field borders, near Barda Hills.

Material Examined: NKO-188

Parts Used: Leaves.

Folk Uses:-

- Made decoction of 100-400 ml water with leaves and root of *Andographis paniculata,* drink this decoction twice a day for a week to cure fever.

Chemical Constituents:- Active constituents present in various parts are kurchiphylline, kurchiphyllamine, kurchaline, holadysine and holadysamine (leaves); holacetine (root-bark); L-quebrachitol, dihydroisoconessimine and 3α-aminoconan-5-ene (bark); caoutchoue, lettoresinols A and B (latex); arginine, aspartic acid, concuressine, 3-epihetero-conessine, 11-α-20-dihydroxy-18, 20-epoxypregna-1, 4-dien-3-one, kurchamine, kurchiminine,

kurcholessine; protein; lupeol, β-sitosterol and tannin (plant); and linoceric, linoleic, linolenic, oleic, palmitic and stearic acids; 11,16-diketo-holarrhimine (holarricine) and 9-D-hydroxy-cis-12 octa-decenoic acid (seeds).

Biology Activity :- Bark hypotensive, fruit antiprotozoal, anticancer and hypoglycaemic.

181.Holoptelea intergrifolia (Roxb.) Planch.

Syn: *Ulmus integrifolia* Roxb.

Family: Ulmaceae. **Vern.** : Charal.

English Name: The Entire-leaved Elm.

Regional Names:-

Hin.: Chilbil, Chilmil, Dhamma, Karanji, Kumba, Kunj, Papri;**Kan.:** Ras-bija; **Mar.:** Wawali;**Pb.:** Arjan, Kacham, Khulen, Ranjain, Ranjan, Papri;**Tam.:** Aya, Tam-bachi-marum;**Tel.:** Nail, Namli, Navili, Pedda-nowlieragu.

Distribution: Europe, India, SriLanka, China.

Description: A large, deciduous tree. Leaves elliptic, acuminate, entire, and cordate. Flowers male and female mixed, in short racemes or fascicles at the scars of fallen leaves. Samara orbicular with reticulalely veined wings.

Flowering: Jan.-Mar. **Fruiting**: Jan.-Mar.

Habitat Ecology: Occurs in waste lands near villages. Planted as an avenue tree.

Material Examined: NKO-288

Parts Used: Seeds Stem.

Folk Uses:-

- Seeds are eaten as such.
- Stem is used as housing materials (doors, windows etc.) and furniture.

Chemical Constituents:- Bark contains tannin, mucilage etc. Leaves contains mucilage and tannin. The seed-cake contains lysine, glutamic acid and histidine.

Biology Activity:- Bark & Leaves are bitter astringent, acrid, thermogenic, antiphlogistic digestive, carminative, laxative, anthelmintic, depurative, urinary, astringent.

182. Hydrilla verticillata (Linn.f.) Royle

Syn: *Serpicula verticillata* Linn. f.

Family: Hydrocharitaceae. **Vern.** : Bam.

Distribution: India.

Description: A large submerged delicate, leafy, fresh water herb, stem much branched, slender with fibrous roots. Leaves sessile, 4-8 in a whorl, linear, acute, and entire. Flowers dioecious, male flowers solitary, in bell shaped spathe, female sessile tubular, narrow, acute at the apex. Fruit smooth or muricate. Seeds many, ovate, truncate at base.

Flowering: Aug.-Dec. **Fruiting**: Aug.-Dec.

Habitat Ecology: Common in tanks & rivers.

Material Examined: NKO-291

Parts Used: Leaves.

Folk Uses:-

- Fresh leaves rubbed to give relief from irritation caused by stinging hairs of *Tragaia cannabian.* ?

183. Hyphaene indica Becc.

Syn: *H. thebaica* (Indraji)

Family: Arecaceae. **Vern.** : Ravan-tad.

English Name: Indian Doum Palm.

Distribution: Abyssinia & Soctra, India.

Description: A large, unarmed palm with dichotomously branched stem. Leaves palmately divided. Flowers dioecious in large branched spadix with several spathes parianth. Drupe small, yellow-orange.

Flowering: Jan.-Apr. **Fruiting**: Feb.-May.

Habitat Ecology: Very common on the sea coast.

Material Examined: NKO-311

Parts Used: Fruits.

Folk Uses:-

- Fruits are used as substitute of food.

Biological Activity:- Tonic, diuretic.

184. Impatiens balsamina Linn.

Family: Balsaminaceae. **Vern.** : Galmendi.

Sanskrit Name: Dushpatrisati. **English Name**: The Garden Balsam.

Regional Names:-

Beng.: Dupati;**Bom.:** Terada;**Hin.:** Gulmendi;**Mal.:** Mecchingom;**Oriya:** Mujeth;**Pb.:** Halu, Tatura, Tilphar;**Tam.:** Kasittumbai.

Distribution: India, Malaysia.

Description: Annual pubescent herb, 30-90 cm tall, with alternate leaves and axillary flowers. Spur long. Seeds reticulate.

Flowering: July-Aug. **Fruiting**: Sept.-Oct.

Habitat Ecology: Abundant in waste lands.

Material Examined: NKO-46

Parts Used: Leaves, Flowers.

Folk Uses:-

- Leaves and flowers are yields dye. It is used as a substitute for henna.

Chemical Constituents:- Cyaniding, leucocyanidin, myricetin, quercetin, kaempfrol, 2-methoxy-1, 4-naphthaquinone (fowers); 3-mono-glucosides of cyaniding, delphinidin, kaempferol, pelargonidin and quercetin (stem); caffeic, p-coumaric, ferulic, gentisic, p-hydroxybenzoic, protocatechuic, salicylic, sinapic, syringic and vanillic acids, 4-(2-carboxyphenyl)-4-oxobutyric acid, 2-hydroxy-1, 4-naphthaquinone and naphtholglycosidase (plant); and β-amyrin, hosenkol-A, a baccharane triterpenoid (seeds) have been isolated (Chatterjee & Pakrashi, 1997).

Biology Activity:- 50% EtOH ext. of flowers exhibits marked antibiotic activity against *Selerotinia fructicola* and *Colletotrichum lindemuthianum* (Annon., 1959).

185. Indigofera oblongifolia Forsk.

Syn: *I. paucifolia* Del.

Family: Fabaceae. **Vern.** : Jhil.

Sanskrit Name: Jhilla.

Regional Names:-

Tam.: Kattukarchammathi;**Tel.:** Kondavempali.

Distribution: India, SriLanka, Malaysia.

Description: A twiggy herbs. Leaves alternate, imparipinnately compound. Inflorescence spicate, 20-50 flowered racemes, flower red, small. Fruit pods. Seed oblong.

Flowering: Aug.-Nov. **Fruiting**: Sept.-Dec.

Habitat Ecology: Common in waste lands.

Material Examined: NKO-83

Parts Used: Stem, Leaves, Aerial part.

Folk Uses:-

- Twigs are used as a broom.
- Twig is used as a toothbrush.
- 10-12 leaves chewed in mouth and applied on the neck of bullock to cure suffering from a neck sore. ?
- Aerial parts are used as a fodder in famine condition.

Chemical Constituents:- Whole plant contains tannin.

Biology Activity:- Root is pungent, laxative, antiphlogistic. Leaves are diuretic, antiseptic, expectorant, astringent, and pungent.

186. Ipomoea aquatica Forsk.

Syn: *I. reptans* Poir.

Family: Convolvulaceae. **Vern.** : Nasotar.

Sanskrit Name: Kalambi.

Regional Names:-

Hin.: Kalmisag;**Tam.:** Vellaikeerai;**Tel.:** Tutikura.

Distribution : Arabia, Persia, Mesopot, Pakistan, Abyssinia & Soctra, Tropical Africa, Madagascar, India, SriLanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, Polynesia.

Description: A floating aquatic plant with hollow stem, rooting at nodes. Leaves elliptic-oblong or linear cordate or hastate base. Flowers pale-purple in axillary cymes, bract small. Capsules ovoid. Seeds 2-4 hairy.

Flowering: Oct.-Apr. **Fruiting**: Oct.-Apr.

Habitat Ecology: Very common in tanks and moist places.

Material Examined: NKO-214

Parts Used: Leaves.

Folk Uses:-

- Leaves are used as vegetable.

Chemical Constituents:- Whole plant contains minerals (calcium, phosphorus, iron), bitter principles, vitamins B, C, E etc.

Biology Activity:- Plant is bitter, astringent, antiseptic, expectorant, emetic, alexipharmic.

187. Ipomoea batatas (Linn.) Lam. Tab.

Syn: *Batatas edulis* Choisy., *Convolvulus batatus* Linn.

Family: Convolvulaceae. **Vern.** : Ratalu.

Sanskrit Name: Alukam. **English Name**: Sweet Potato.

Regional Names:-

Hin.: Chupri alu, Khamalu; **Kan.:** Tengugenasu, Heggenasu; **Mal.:** Kaccilk, Kavuttu; **Tam.:** Perumvallikilanku, Kappankaccil; **Tel.:** Pendulamu.

Distribution: India, Central America & Mexico, Brazil.

Description: A large creeping plant, rooting at nodes and with white or red tuberous roots. Leaves hastate or angular lobed, base cordate. Flowers red or white, 3-4 together.

Flowering : All months. **Fruiting**: All months.

Habitat Ecology: Cultivated.

Material Examined: NKO-215

Parts Used: Root, Leaves.

Folk Uses:-

- Adventitious root is used as subsidiary food.
- Leaves are used as fodder for cows and buffalo.

Chemical Constituents:- The tubers contain sucrose sugars, starch, proteins, minerals, fibres, pectin etc.

Biology Activity:- Tubers are sweet, nutritive, cooling, aphrodisiac, mild laxative, tonic, diuretic and anthelmintic.

188. Ipomoea carnea Facq.

Syn: *I. crassicaulis* (Benth.) Robins, *I. fistulosa* mart. ex chois.

Family: Convolvulaceae. **Vern.** : Alpavardhini.

Distribution: India, Brazil.

Description: A large stout straggly shrub, with milky juice, with climbing habit. Leaves large, ovate or ovate-lanceolate, acuminate, base cordate, soft and fleshy. Flowers large, few flowered cymes, rose or light mauve colour.

Flowering: All months. **Fruiting**: All months

Habitat Ecology: Growing wild everywhere.

Material Examined: NKO-216

Parts Used: Whole plant.

Folk Uses:-

- It is grown on outskirt of cropland as a live fence and prevents soil erosion.

Chemical Constituents:- Ipomose, an anthracene glucoside, gum, jalapin and saponins have been isolated from leaves (Annon., 1959).

Biology Activity:- Ethanol ext. of the plant CNS depressant (Annon., 1959).

189. Ipomoea nil (Linn.) Roth.

Syn: *I. hederacea* Jacq., *I. coerulea* Koen., *I. punctata* Pers., *I. dillenii* Roem. & Sch., *Convolvulus nil* Linn.,*C. coeruleus* Spreng., *Convolvuloides triloba* Moench, *Pharbitis hederacea* Chois., *P. diversifolia* Lindl., *P. varifolia* Decne., *P. purshii* G. Don, *P. punctata* G. Don, *P. berbata* G. Don.

Family: Convolvulaceae. **Vern.** : Kalakupa.

Sanskrit Name: Krishnabij.

Regional Names:-

Beng.: Ghota;**Hin.:** Ghota, Kaladana;**Mar.:** Nilpushpi;**Oriya:** Kanikhonda;

Tam.: Sirikki;**Tel.:** Jiriki.

Distribution : North America, Afghanistan, Tropical Africa, India, SriLanka, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, Polynesia, Brazil.

Description: A small twiner. Leaves trilobed. Flowers corolatube funnel shaped, white limb pale blue, drying purplish red. Capsule subglobose.

Flowering: Aug.-Oct. **Fruiting**: Aug.-Jan.

Habitat Ecology: Very common in hedges.

Material Examined: NKO-217

Parts Used: Whole plant.

Folk Uses:-

- Extract of whole plant mixed with hot mustard oil applied on a hair for hair growth promoters.

Chemical Constituents:- Seeds contain chanoclavine, lysergol, penniclavine, iso-penniclavine and olymoclavine (Abou & Charles 1967).

Biology Activity:- Seeds (lysergol) hypotensive, psychotropic, analgesic, analeptic and uterus and intestinal stimulant (Ferrari, 1973).

190. Ipomoea pes-caprae (Linn.) Sweet.

Syn: *I. biloba* Forsk., *Convolvulus pes-caprae* Linn.

Family: Convolvulaceae. **Vern.** : Dipad vel.

Sanskrit Name: Maruadavalli, Sagaramekhala.

English Name: Goat's Foot Creeper.

Regional Names:-

Hin.: Dopatillata;**Kan.:** Bangadivalli;**Mal.:** Atampuvalli, Atampu;**Tam.:** Atampu, Atappankoti;**Tel.:** Balabantatige.

Distribution: Tropical Africa, India, Malaysia.

Description: A perennial glabrous trailing and rooting at nodes or twining, stem terete, glabrous laticiferous. Leaves often secound, firm, subcoraceous sub-orbicular, obovate, emarginated, rarely rounded at apex, glabrous, midrib

below with two glands at base. Flowers pale to bright or deep purple. Fruit glabrous brown. Seeds large, densely brown-velvety.

Flowering: Sept.-Dec. **Fruiting**: Sept.-Dec.

Habitat Ecology: Common on Sea Cost.

Material Examined: NKO-218

Parts Used: Whole plant.

Folk Uses:-

- Plant grown near by hut to prepare live roof. ?

Chemical Constituents:- The plant contains mucilage, a volatile oil, resins, bitter substances, red-colouring matter, pentatriacontane, triacontane, a sterol and behenic, melissic, butyric and myristic acids.

Biological Activity:- The plant is astringent antiseptic, acrid, refrigerant, mucilaginous, stomachic, antiphlogistic, laxative, diuretic and tonic.

191. Jasminum sambac Ait.

Family: Oleaceae. **Vern.** : Dolar.

Sanskrit Name: Vaarshiki. **English Name**: Arabian Jasmine.

Regional Names:-

Tel. : Malle.

Distribution: India.

Description: A scandent or sub-erect shrub, branchlets pubescent. Leaves opposite or sometimes ternate, variable in shape, usually ovate or elliptic, glabrous or nearly so, with prominent lateral nerves. Flowers white, very fragrant, solitary, or in 3-flowered terminal cymes.

Flowering: All months. **Fruiting**:- ----

Habitat Ecology: Cultivated.

Material Examined: NKO-181

Part Used: Whole plant.

Folk Uses:-

- The plant is not grown by them near their houses because they believe that it attracts snakes. ?

Chemical Constituents:- Whole plant contains easters, alcohols, methyl anthranilate and essential oil

Biological Activity:- Flowers are bitter, astringent, acrid, refrigerant, alexipharmic, ophthalmic, purgative and lactifuge.

192. Jatropha curcas Linn.

Syn: *J. moluccana* Herb. Russ.

Family: Euphorbiaceae. **Vern.** : Ratanjyot.

Sanskrit Name: Kananaerand, Nepala, Paravatayeranda.

English Name: Physic Nut, Purging Nut.

Regional Names:-

Beng.: Eranda-gachh, safed ind;**Bom.:** Maraharalu;**Kan.:** Maranarulli;

Mal.: Kaak-avenako;**Mar. :**Mogalieranda;**Oriya:**Baigab;**Pb.:**Jamalgota, Japhrota, Rattanjot;**Tel.:** Pepalan.

Distribution: Tropical America, India.

Description: Small deciduous tree. Leaves alternate 3 or 5 lobed. Flowers in terminal cymes, yellowish-green. Fruits black.

Flowering: Sept-Nov. **Fruiting**: Oct.-Nov.

Habitat Ecology: Filed borders.

Material Examined: NKO-274

Parts Used: Seeds, Latex, and Whole plant.

Folk Uses:-

- It is grown as fence surrounding cropland.
- Fresh latex of the leaves is applied over piles.
- Seed oil is used as biofuels.

Chemical Constituents:- Contains β-sitosterol, β-amyrin and taraxerol (stem bark); vitexin, isovitexin, campesterol, β-sitosterol 3β, 7β-diol and 1-triacontanol (Leaves); arachidic, linoleic, myristic, oleic, palmitic and sterquric acids; arabinose, galactose, glucose rhamnose, xylose, galacturonic acid and β-sitosterol (seeds).

Biological Activity:- 50% Et OH ext. of aerial parts CNS depressant and diuretic.

193. Jatropha gossypifolia Linn

Family: Euphorbiaceae. **Vern.** : Nepalo.

Sanskrit Name: Nikumba. **English Name**: Bellyache Bush.

Regional Names:-

Hin.: Bherenda;**Kan.:** Karituruka-haralu;**Mal.:** Sima-yavanakku;**Tam.:** Atalai; **Tel.:** Nela-amida.

Distribution: India, SriLanka, Brazil.

Description: A small, much branched shrub. Leaves 3-5 lobed, cordate, deep purplish red at first afterwards green, lobes aliptic-acute, petiole red covered with glandular hairs. Flowers in terminal cymes, monoecious, dark red. Capsule 3-furrowed truncate at both ends. Seeds red with a caruncle.

Flowering: July-Mar. **Fruiting**: July-Mar.

Habitat Ecology: Common every where in waste places and planted as a hedge plant in villages.

Material Examined: NKO-275

Parts Used: Whole plant.

Folk Uses:-

- It is grown on cropland boundaries as a field fence and prevents soil erosion.

Chemical Constituents:- Seeds contain fixed oil; curcin etc. bark contains an alkalid jatrophine.

Biological Activity:- Whole plant analgesic.

194. Kalanchoe pinnata (Lam.) Merr.

Syn: *Bryophyllum pinnatum* (Lam.) Oken. *Cotyledon pinnatum* Lam. *Bryophyllum calcycinum* Salisb.

Family: Crassulaceae. **Vern.** : Panphuti.

Sanskrit Name: Parnabijah. **English Name**: Life Plant.

Regional Names:-

Hin.: Jakh me hayat;**Kan.:** Gandukalinga;**Mal. :** Liamulacci, Llayinmeltai;

Tam.: Malaikkalli, Runakkalli;**Tel.:** Simajamudu.

Distribution: Tropical Africa, India.

Description: A succulent herb, stem obtusely 4-angled. Leaves variable, decussate, the lower simple, the upper 3-5 or 7-foliate, petiole long united by a ridge round the stems. Flowers drooping in terminal panicles with opposite stout branches reddish purple in colour. Follicles 4, enclosed in the papery persistent calyx and corolla. Seeds small, oblong-ellipsoid.

Flowering: Nov.-Dec. **Fruiting**: Dec.-Jan.

Habitat Ecology: Planted in the Kitchen garden.

Material Examined: NKO-120

Parts Used: Leaves.

Folk Uses:-

- Prepare a cup of Leaves juice, taken orally for 7 days; the kidney stone will be disintegrated.

Chemical Constituents:- Leaf contains bryophyllin and organic acids, citric, isocitric and malic.

Biological Activity:- Leaves are astringent sour, diuretic, sweet, refrigerant, emollient mucilaginous, haemostatic, vulnerary, depurative, constipating, anodyne, carminative, anti-inflammatory, disinfectant and tonic.

195. Lablab purpureus (Linn.) Sweet

Syn: *Dolichos lablab* Linn.

Family: Fabaceae. **Vern.** : Valor.

Sanskrit Name: Simbi. **English Name**: Flat Bean, Goa Bean.

Regional Names:-

Ben.: Shin; **Hin.:** Sem; **Kan.:** Chapparada; **Mal.:** Avara; **Mar.:** Pavta;

Tam.: Avarai.

Distribution: India, SriLanka.

Description: An annual twiner, with root tubercles. Leaves-alternate, trifoliate compound consisting of symmetrical leaflet at the end and two oblique or lop-sided leaflets on the sides. Flowers erect axillary racemes of 2-6 flowers, white

or purple bracts and bracteoles present, fruit –a legume, flat, curved, tipped, with presistent pointed style. Seeds few, flat, white, gray, red or black.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Commonly grown as a field cover crop.

Material Examined: NKO-84

Part Used: Pods.

Folk Uses:-

ν Green pods are cooked as vegetables.

Chemical Constituents:- G-Glitamylphelylalanine obtained from seeds.

Biological Activity:-The seed is sweet, acrid, dry, sourish, laxative, galactagogue, diuretic, anaphrodisiac, fattening, and alexiteric. The leaves are emmenagogue.

196. Lagenaria siceraria (Molina) Standl.

Syn: *Cucurbita siceraria* Molina, *Lagenaria leucantha* (Duchesne) Rusby, *L. valgaris* Ser.

Family: Cucurbitaceae. **Vern.** : Dudhi.

Sanskrit Name : Katutumbi, Tiktalabu. **English Name**: Bottle Gourd.

Regional Names:-

Hin.: Kadvi Dudhi, Dudhi;**Kan.:** Kadusora;**Mal.:** Kattucura;**Tam.:** Soraikkai; **Tel.:** Soraikkaya.

Distribution : Japan, Mediterranean, Afghanistan, Pakistan, Tropical Africa, India, Sri Lanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines , New Guinea, W. Indies.

Description: An annual monoecious climber with forked tendrils of 2 unequal arms, stems hairy-silky, grooved. Leaves 3-5 lobed, base cordate with 5 glands-hairy. Male flowers axillary and solitary, white, female flowers solitary and axillary. Pepo of various shaped fusiform or flask-shaped. Seeds white flat, many.

Flowering: Aug.-Oct. **Fruiting**: Aug.-Oct.

Habitat Ecology: Commonly cultivated as a crop.

Material Examined: NKO-143

Parts Used: Fruits.

Folk Uses:-

- Fruits are allowed to mature and dry on plant itself. Seeds are collected from dried fruits. These are grind into fine powder and given with honey for appendix.
- Young fruit is used as vegetable.
- Mature fruit is used for making containers.
- Dry fruit of bottle shaped varieties use to prepare *'Tambura'*.

Chemical Constituents:-Fruit of bitter variety contains cucurbitacins, minerals etc. fruit of sweet variety contains carbohydrate 2.5%, protein 0.2%, fat 0.1%, fibers, water, potassium, sodium, zinc, etc.

Biological Activity:-Roots are emetic, purgative and anti-inflammatory. Leaves and flowers are bitter, refrigerant, emetic, purgative, anodyne, expectorant, depurative and febrifuge.

197. Lannea coromandelica (Houtt.) Merr.

Syn: *Odina woodier* Roxb., *Dialium coromandelicum* Houtt., *Lannea grandis* Engler.

Family: Anacardiaceae. **Vern.** : Mavedo.

Sanskrit Name: Jhingini. **English Name**: Wodier.

Regional Names: -

Hin.: Jhingan;**Kan.:** Manjistha;**Mal.:** Kalasu;**Tam.:** Oti;**Tel.:** Uddimanu.

Distribution: India, Sri Lanka.

Description: A small to moderate sized deciduous tree, trunk thick, bark exfoliating, young parts hairy. Leaves with 3-5 pairs of leaflets and an odd one, membranous, green above and brown below, ovate-oblong, acute, tinged with pink when young, base oblique. Flowers unisexual, yellowish-green, male and female on different branches, male racemes compound, female simple. Drupe reniform, compressed, red.

Flowering: Feb.-Mar. **Fruiting**: Mar.-Apr.

Habitat Ecology: Found in Barda hills.

Material Examined: NKO-69

Parts Used: Stem bark.

Folk Uses:-

- If snakebite produces swelling, then bark of stem is made into paste with cow urine and applied over swelling. The cow urine is spinkled on to keep it wet. This acts as an anti-inflammatory agent.

Chemical Constituents:-Bark and leaves contain tannin.

Biological Activity:-Bark and leaves are acrid, astringent, womb purifier, sweet, thermogenic, stomatic, anodyne, antiphlogistic, and haemostatic.

198. Lantana camara Linn.

Syn: *L. aculeata* Linn.

Family: Verbenaceae. **Vern.** : Dhanidaria.

Sanskrit Name : Chatur-rangi, Vanacchedi.

English Name: Lantana, Wild Sage.

Regional Names:-

Kan.: Nata hu gida;**M.P.:** Raimuniya;**Mal.:** Arippu;**Mar.:** Chadurang;

Oriya : Naga-airi;**Pb.:** Desilantana;**Tam.:** Arippu;**Tel. :** Pulikampa.

Distribution: Pakistan, Tropical Africa, India, Sri Lanka.

Description: A hairy, spiny, rambling, evergreen shrub with tetragonous branches and flowers in long-stalked heads. Drupe black, shining.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Rocky wet slopes, waste places and in hedges.

Material Examined: NKO-246

Parts Used :Flowers, Fruits, Whole plants.

Folk Uses:-

- It is grown on field boundaries as a live fience.
- Fruits are edible.
- Chewing and massaging flower over gums is helpful in bleeding gums and decaying teeth.

Chemical Constituents:-α- and β-Pinenes, camphene, camphor, caryophyllene and its oxide, citronellal, p-cymene, elemol, bis (2-ethylbutyl) pthalate, geraniol acetate, menthen -1 -01, selinene (flowers), stachyose, verbascose, ajugose, verbascotetraose, lantaiursolic acid, lantanane A, lantanane B, theviridoside, theveside, geriposide, shanzhiside methylester, lamiridoside and 8-epiloganin (root); arachidic, linoleic, myristic and palmitic acids; 1-tricontanol; 1,8- cineole, citral, eugenol, fur furalger aniol, linalool, α-phellandrene, phellandrone; α-amyrin; β sitosterol; lantadene (flowers, leaves stem) and 1-8 cineole, citral, linalool, terpineol and β-sitosterol (seed oil) have been isolated (Chatterjee & Pakrashi, 1997).

Biological Activity:-Acid ext. of the shoot exhibits antibacterial activity.

199. Lawsonia inermis Linn.

Syn: *L. alba* Lamb

Family: Lythraceae. **Vern.** : Mahendi.

Sanskrit Name: Medhini, Madayantika, Nakharanjani.**English Name**: Henna.

Regional Names:-

Hin.: Mehandi;**Kan.:** Madurangi;**Mal.:** Mailanci, Mayilanci;**Tam.:** Mailenanti, Marutani;**Tel.:** Goranta.

Distribution: Pakistan, Abyssinia & Soctra, India, SriLanka, Australia.

Description: A much branched shrub, branches 4-angled, often with a sharp point. Leaves opposite, elliptic, acute, mucronate, entire, base narrow. Flowers many, fragrant, white or rose coloured, in large terminal panicled cymes. Capsule globose, supported by calyx-tube and tipped with the style. Seeds many,triangular.

Flowering: Apr.-Sept. **Fruting :** May-Dec.

Habitat Ecology: Cultivated as a hedge plant.

Material Examined: NKO-130

Parts Used: Leaves, Whole plant.

Folk Uses:-

- It is grown on outskirt of field as a live fence.

- Poultice of leaves mixed with lime juice is tied over soles of feet of persons suffering from burning sensation. ?
- Dyes obtained from leaves are used for colouring palms.

Chemical Constituents:-It contains tannin-10.21%, lawsone, water soluble matter, galic acid, behanic, arachidic, stearic, palmitic and oleic acids, glucose, mannitol, fat, mucilage, 2-hydroxy-1:4-nephthaquinone which is present in dried leaves in a concentration at 1-0-1-4% and a volatile oil.

Biological Activity:-Bitter, refrigerant, depurative, diuretic, emmenagogue, abortifacient and trichogenous, astringent, acrid, emetic, expectorant, anodyne anti inflammatory, constipating, depurative liver tonic, haematinic, styptic, febrifuge, cardio tonic, soporific, antipyretic.

200. *Lepidium sativum* Linn.

Family: Brassicaceae. **Vern.** : Aselio.

Sanskrit Name : Ashalika, Bhadra, Chandrika, Darakrishna, Kalamesha, Nandini, Suvasra, Vasupreshpa. **English Name** : Garden Cress.

Regional Names:-

Beng.: Aleverie, Halim;**Bom.:** Ahaliva;**Hin.:** Chaunsar, Halim, Hurf;

Mar.: Ahliva;**Pb.:** Halim, Tezak;**Tam.:** Aliverani;**Tel. :** Adalavitulu;

Urdu : Halim.

Distribution: India.

Description: An erect, glabrous annual up to 45 cm tall with sessile cauline leaves and radical ones long petioled. Flowers white, in long racemes. Pods notched at the apex.

Flowering: Jan.-mar. **Fruiting:** Feb.-Apr.

Habitat Ecology: Cultivated.

Material Examined: NKO-12

Parts Used: Seeds.

Folk Uses:-

- Seeds are nutritive and used with milk.

- To remove foreign particles in eyes, ten seeds are placed in eyes within few minutes particles are removed from eyes with slimy substance. ?

Chemical Constituents:-Possesses glucotropoeolin, 4 methoxy glucobrassic in, sinapine, sinapic acid, β-sitosterol, benzylcyanide, calmodulin, sinapoyglucose, esters of caffeic, p-coumaric, ferulic and quinic acids (plants); and lepidine, N-N'-dibenzyl urea, N-N'-dibenzylthiourea, sinapic acid and its choline ester;arachidic, behenic and lignoceric acids (seeds) (Chatterjee & Pakrashi, 1997)

Biological Activity:-Crushed leaves antibacterial against *Bacillus subtilis* and *micrococcus pyogenes* var *aureus*. The volatile oil has pronounced oestrogen activity (Anon., 1962)

201. Leptadenia reticulata (Retz.) Wt. & Arn

Syn: *Cynanchum reticulatum* Retz.

Family: Asclepiadaceae. **Vern.** : Kharkhodi.

Sanskrit Name: Jivanti. **English Name** : Leptadane.

Regional Names:-

Hin.: Dori;**Mal.:** Atapatiyan, Atapotiyan, Ataktiyan;**Mar.:**Dori;**Tam.:** Palaikkirai;**Tel.:** Palagurugu.

Distribution: Madagascar, India, SriLanka.

Description: A twiner, Leaves small, coriaceous, ovate, acute, base rounded. Flowers small, greenish-yellow in umbellate cymes, many flowered. Follicles smooth, turgid, tapering to a short curved beak. Seeds comose.

Flowering: Apr.-Sept. **Fruiting**: May-Oct.

Habitat Ecology: Common in bushes and hedges.

Material Examined: NKO-196

Parts Used: Stem, Fruits.

Folk Uses:-

- Green unripe fruits are eaten.
- Stem used as string to tie bundle of grass or fire wood.

Chemical Constituents:- Whole plant contains stigmasterol. Leaves contain leptadane, diosmetin, flavonoids, and b-sitosterol.

Biological Activity:- Leaves and roots are refrigerant, ophthalmic, emollient, alternant, tonic, stimulant, aphrodisiac, expectorant and galactagogue.

202. Leucas cephalotes Spreng

Syn : *Leucas capitata* Desf. *Phlomis cephalotes* Roth

Family: Lamiaceae. **Vern.** : Kubo.

Sanskrit Name: Dronapushpi. **English Name**: Thumbe.

Regional Names:-

Beng.: Barahalkasa;**Hin.:** Dhurpi-sag;**Kan.:** Tumbe;**Mal.:** Tumpa;**Mar.:** Tumba;**Pb.:** Guldoda, Maldoda, Phuman, Sisalius;**Tam.:** Tumbai;**Tel.:** Tummi.

Distribution: Afghanistan, Pakistan, India.

Description: A small, annual herb, stem square and hairy. Leaves ovate lanceolate, lobed, thin, hairy, crenate-serrate, base tapering. Flowers white sessile, in large terminal, globose whorls, the floral leaves come out of the vertioil, bracts green. Nutlets 4, obovate.

Flowering: Aug.-Nov. **Fruiting**: Aug.-Nov.

Habitat Ecology: Grow in waste lands, open areas and cultivated fields.

Material Examined: NKO-250

Parts Used: Leaves.

Folk Uses:-

- Juice of fresh leaves introduced in nose to cure headache.

Chemical Constituents:- Whole plant contains a bitter principle, essential oil, minerals.

Biological Activity:- Leave and flowers are acrid, thermogenic, antibilious carminative, digestive, anthelmintic, anti-inflammatory, emmenagogue, sudorific, antipyretic, expectorant, antibacterial and depurative.

203. Luffa acutangula Var. *amara* Clarke

Syn: *L. amara* Roxb.

Family: Cucurbitaceae. **Vern.** : Kadva Turiya.

Sanskrit Name : Svadukosataki. **English Name**: Bitter Ribbed Gourd.

Regional Names:-

Hin.: Kadavtori;**Kan.:** Kadupadigila;**Mal.:** Piccil;**Tam.:** Pikangai;**Tel.:** Birakya, Verribeera.

Distribution: Pakistan, Tropical Africa, India, SriLanka.

Description: A large monoecious climber, stems 5-angled, tendrils usually 3-fid. Leaves orbicular, palmately 5-7-angled, scabrid on both sides, base cordate. Male flowers in axillary 12-20 flowered racemes, yellow with green hairy veins, female flowers solitary. Pepo small 10-ribbed, seeds black, ovoid.

Flowering: Aug.-Sept. **Fruiting**: Aug.-Sept.

Habitat Ecology: Comman in hedges.

Material Examined: NKO-144

Parts Used: Whole Plant.

Folk Uses:-

- 500 g fresh whole plant material is boiled in 250 ml water, concentrated and taken while warm to get relief from insect bite.

Chemical Constituents:- Fruit contains a bitter principle, arginine, glycine, threonine, glutamic acid, leucines, serine, alanine, γ-amino butyric acid and pipecolic acid, saturated oleic, linoleic.

Biological Activity:- Fruit is bitter, emetic, cathartic, demulcent, antipyretic alexiteric, diuretic. Seeds are bitter, expectorant and purgative.

204. Luffa echinata Roxb.

Family: Cucurbitaceae. **Vern.** : Kukadvela.

Sanskrit Name: Koshataki, Devdali, Jimut. **English Name** : Bristly Luffa.

Regional Names:-

Hin.: Bindoal, Ghagerbel, Sonaiya;**Kan. :** Devdali;**Mal.:** Bedaldoda;

Tam. : Panibira;**Tel.:** Datargandi.

Distribution: Pakistan, Tropical Africa, India.

Description: A monoecious climber, much branched, tendrils sporsely aculeate pubescent, bifid. Leaves sub-orbicular, reniform 5 rarely 7-lobed to about the middle, base cordate. Male flowers white solitary or in pairs in each axil,

female flowers solitary. Fruits small ellipsoid covered with ciliate bristles. Seeds black numerous.

Flowering: Sept.-Oct. **Fruiting**: Sept.-Oct.

Habitat Ecology: Common hedge plant in Ghed regions.

Material Examined: NKO-145

Parts Used: Stem.

Folk Uses:-

- 5-10 g poweder of stem with jaggery is taken orally for relief in quartan fever.

Chemical Constituents:- Fruit contains as amorphous bitter substance (echinatine), luffein, and saponin. Seeds contain oil.

Biological Activity:- Fruit is bitter, stomachic emetic, alexepharmic, blood purifire, womb purifier, anthelmintic, purgative, diuretic, antipyretic, stimulant, antiseptic, abortifacient.

205. Lycopersicon lycopersicum (Linn.) Airy-Shaw.

Syn: *L. esculentum* mill. *Solanum lycopersicum* Linn.

Family: Solanaceae. **Vern.** : Tametu.

Sanskrit Name: Raktamachi. **English Name**: Love Apple.

Regional Names:-

Hin.: Tamatar;**Kan. :** Capparabadane;**Mal.:** Takkali;**Tam.:** Takkali;

Tel.: Simavanga.

Distribution: India.

Description: A small hairy herb. Leaves irregulary pinnatisect, dentate, hairy. Flowers yellow, in many flowered cymes. Berry globose, red, many seeded.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Cultivated as a summer cash crop.

Material Examined: NKO-225

Parts Used: Fruits.

Folk Uses:-

- The ripe fruits are used as vegetable or eaten raw and making soup.

Chemical Constituents:- Ripe fruit contains sugars, mucilage, iron, potassium, calcium, manganese, minerals, and carotenoids, lycopene, carotene, xanthophylls, xanthophylls ester, vitamin C, pectin, tartaric acid, citric acid, oxalic acid, phosphorus, magnesium.

Biological Activity:- Fruits are sweet, sour emollient carminative, digestive, aperient, haematinic, depurative, intestinal, antiseptic, liver and kidney stimulant and tonic.

206. Madhuca indica Gmelin

Syn: *M. latifolia* (Roxb.), MacBridge *Bassia latifolia* Roxb.

Family: Sapotaceae. **Vern.** : Mahudo.

Sanskrit Name: Madhuka. **English Name**: Mahuva, Butter Tree.

Regional Names:-

Hin.: Mahuva, Mohva;**Hin.:** Mahuwa, Mouo, Mauro, Mawda, Mowa, Mohuro, Muall, Muwal, Muwa;**Kan.:** Erappe;**Mal.:** Poonam;**Mar.:** Mahuva;**Tam.:** Illupai;**Tel.:** Ippa.

Distribution: India.

Description: A large tree with a short trunk and rounded crown. Leaves elliptic, buntly-acuminate acute at base, coriaceous. Flowers in dense fascicles near the ends of branches, buds long, pointed, rufous hairy, yellow. Berry ovoid, fleshy, greenish 1-4 seeded.

Flowering: Feb.-Mar. **Fruiting:** Mar.-Apr.

Habitat Ecology: Common in Barda Hills.

Material Examined: NKO-176

Parts Used: Flowers, Fruits.

Folk Uses:-

- Flowers and fruits are eaten raw or cooked.
- Flowers and fruits are raw materials of the local liquor.

Chemical Constituents:- The plant contains myristic, palmitic, stearic, oleic and linoleicacids. The flowers contain glucose (2.2%) invert sugar (53%) cellulose (2.4%) albuminoides (2.2%) enzymes, ash and water, seeds contain fixed oil (50%) fat, tannin, saponin, albumin, resin, starch and ash. Ash contains silisic acid, sulphuric acid, calcium, iron, potassium and sodium.

Biological Activity:- Astringent, emollient, stimulant, aphrodisiac, diuretic, anthelmintic

207. Maerua oblong folia (Forsk.) A. Rich

Syn: *M. arenaria* Var. *glabra* HK. f & Thomas., *M. arenaria* (DC) Hooker, *M. ovolifolia* Camb.

Family: Capparaceae. **Vern.** : Dholo Katkiyo.

English Name: Earth Sugar -Root.

Regiona Names:-

Tam.: Mulmurandai, Pumichakrel;**Tel.:** Bhucakoramu, Puta-tiga.

Distribution : North America, Arabia, Afghanistan, Tropical Africa, India, Brazil.

Description: A large, scabrous, unarmed, woody climbing shrub with pale-brown, smooth bark. Leaves elliptic-oblong, obtuse, rarely retuse, mucronate, glaucous, glabrous, coriaceous, terete petioles. Flowering greenish-white, in axillary or terminal corymbs. Fruits a much constricted twisted and knotted berry, each lobe containing a seed. Seed globose, rough.

Flowering: Nov.-Dec. **Fruiting**: Dec.-Feb.

Habitat Ecology: Common in hedges.

Material Examined: NKO-20

Parts Used: Whole plant.

Folk Uses:-

- It is grown on field boundaries as a live fence.

Chemical Constituents:- Root contains sugar, glycerrhizin, bittern principles.

Biological Activity:- Root is sweet, tonic, stimulant, cooling, womb purifier,conceptive blood purifier, antiphlogistic, expectorant.

208. Mangifera indica Linn.

Family: Anacardiaceae. **Vern.** : Ambo.

Sanskrit Name: Amra, Chuta. **English Name**: Mango Tree.

Regional Names:-

Hin.: Aam, Aamb;**Kan.:** Mavu;**Mal.:** Mavu;**Tam.:** Mamaram, Mankai;

Tel.: Mamidi.

Distribution: India.

Description: A large evergreen tree with a heavy dome-shaped crown. Leaves crowded at the ends of branches, oblong or lance-shaped, pointed at the tip, dark glossy green, pinkish when young, with an aromatic resinous odor when crushed. Flowers small, polygamous, in large, many-flowered, greenish-yellow, scented, male and bisexual on the same panicle. Drupe large, fleshy, yellow when ripe, stone compressed fibrous. Seed large, testa papery.

Flowering: Jan.-Feb. **Fruiting**: Feb.-May.

Habitat Ecology: Rare in forest commonly cultivated throughout the area.

Material Examined: NKO-70

Parts Used: Stem, Fruits, Seeds, Flowers, and Leaves.

Folk Uses:-

- Stem used preparation of furniture and agriculture empliments(*Nipyu.)*
- Unripe fruits are pickled, ripe ones eaten raw.
- Roasted seeds are used as mouth freshner.
- Flowers collected at the night of full moon day(‘*sarad poonam’*) and rubed in to the palm , the hand is apply lightly over effected part of scorpion sting to relif pain. It is usefull for whole year. ?
- Leaves are used as a‘*Toran’*on the gate at the time of marriage ceremony and Diwali festival.

Chemical Constituents :- Leaves contain tannin, resin, ascorbic acid. Fruit contains β-carotene and xanthophyllus, Z-octene, α and β-pinene, α-phellandrene, limonene, dipentene, nerol, geraniol, neryl acetate, citronella, a sesquiterpene alcohol named, mangiferol and a sesquiterpene ketone, tannin, tartaric, citric and malic acid, mangiferine, sugar, cellulose, benzole, fat, starch

and gum. Ripe fruit contains sugars, fibers. Seeds contain starch, calcium, fat tannin.

Biological Activity:- Plants are astringent, acrid, styptic, antisyphillitic, vulnerary, antiemetic, anti-inflammatory, constipating, and haematinic.

209. Manilkara hexandra (Roxb.) Dubard.

Syn : *Mimusops hexandra* (Roxb.) Dubard.

Family : Sapotaceae. **Vern.** : Rayan.

Sanskrit Name : Raja danah, Kshiri, Dradhaskanda. **English Name** : Milk Tree.

Regional Names :-

Beng.: Krikhiyur;**Hin.:** Khirni;**Mal.:** Pala;**Mar.:**Rayan;**Tam.:** Palla;**Tel.:** Pala.

Distribution: India, SriLanka.

Description: A large evergreen, slow growing tree. Leaves obovate, oblong emarginated, dark green, coriaceous, petioles grooved. Flowers white, solitary or in fascicles. Berry yellow, fleshy, 1-2 seeded.

Flowering: Nov.-Feb. **Fruiting**: Dec.-Mar.

Habitat Ecology: Gregarious in patches in Barda Hills.

Material Examined: NKO-177

Parts Used: Stem, Fruit.

Folk Uses:-

- Stem used in preparation of seed drill
- Dried branches are used as fuel
- Ripe fruits are eaten raw.
- Branch is used as a walking-stick.

Chemical Constituents:- Fruit contains sugars, pectin, tannin, vitamin A, B and C, minerals, proteins, latex, calcium, phosphorus iron, carotene, thiamine, and riboflavine. Bark containes tannins latex, nicotinic acid and ascorbic acid. Seeds contain saponin. Ripe dried fruits contain much sugar.

Biological Activity:- Bark is astringent, sweet, refrigerant, aphrodisiac, stomachic, anthelmintic fruits are sweet, cooling, aphrodisiac, appetiser emollient, and astringent.

210. Manilkara zapota (Linn.) Van Royen.

Syn: *Achras zapota* Linn.

Family: Sapotaceae. **Vern.** : Chiku.

English Name: Sapodilla.

Regional Names:-

Hin.: Sapota;**Tam.:** Simaiyiluppai;**Tel.:** Sapotasima.

Distribution: North America, India, Brazil.

Description: A small, evergreen tree, hairy, with milky juice. Leaves elliptic, entire, leathery, hairy brown. Flowers white, solitary, axillary. Berry fleshy, egg-shaped, rough, rusty-brown. Seeds 4-5, shining black.

Flowering: Apr.-Oct. **Fruiting**: May.-Nov.

Habitat Ecology: Cultivated for its fruits.

Material Examined: NKO-178

Parts Used: Fruits.

Folk Uses:-

- Ripe fruits are edible.

Chemical Constituents:- Fruit contains latex, sugars, pectin, and minerals. Seeds contain saponin. Bark contains tannin.

Biological Activity:- Fruit is stomachic, cooling, aphrodisiac, antipyretic, and astringent. Seeds are diuretic, laxative.

211. Martynia annua Linn.

Syn: *M. diandra* Linn.

Family: Martyniaceae. **Vern.** : Vichhudo.

English Name: Devil's Claw, Tiger Claw.

Regional Names:-

Hin.: Hathajori; **Mal.:** Pulinakham; **Tam.:** Thelkodikkukai;**Tel.:** Garuda-mukku.

Distribution: India, Malaysia, Java Sumatra & Sunda.

Description: An erect, widely branched, glandular hairy herbs, stem thick, subterete, fistular. Leaves broadly ovate-orbicular, cordate at base, subobtuse at apex. Inflorescence in axillary racemes, flowers pale pink or purple. Capsule 1 seeded long horned.

Flowering: Aug.-Dec. **Fruiting**: Aug.-Dec.

Habitat Ecology: Common in waste lands.

Material Examined: NKO-238

Parts Used: Seeds, Fruits.

Folk Uses:-

- Seeds are used as an antidote for scorpion sting.
- Garland of fruit is prepare in black thead and worn to children, it is beleved that children does not afraid from wild animal.

Chemical Constituents:- Pelargondin-3, 5-diglucoside and cynidine-3, galactoside isolated from flowers.

Biological Activity:- Hypotensive activity and effect on respiration found positive.

212. Maytenus emarginata (Willd.) Ding.

Syn: *M. senegalensis* (Lam.) Exell., *Gumnosporia montana* (Roth) Benth., *celastrus senegalensis* Lam.

Family: Celastraceae. **Vern.** : Vikro.

Sanskrit Name: Vikankata, Swadukantaka.

Regional Names:-

Hin.: Vingar, Kantai, Kikani;**Kan.:** Tandrasi;**Tam.:** Kattanji;**Tel.:** Danti, Pedda chintu..

Distribution: Afghanistan, Tropical Africa, India, Australia.

Description: A small compact tree. Young branches purple, often spine, with leaves and flowers on the spines. Leaves coriaceus, much variable in size and shape elliptic or obovate. Flowers prolific in di or tri-chotomous, axillary cymes or fascicles, white. Fruits puple or nearly black when ripe, coriaceous. Seeds 1-2, rarely 3.

Flowering: Oct.-Dec. **Fruiting**: Nov.-Jan.

Habitat Ecology: Common in open fields and hedges.

Material Examined: NKO-60

Parts Used: Leaves, Rootbark, and Whole plant.

Folk Uses:-

- It is grown on outskirt of field of a live fence.
- The fresh root bark is ground into paste and mixed with water. One teaspoon of the decoction is taken daily for 5 days to expel worm from the human body.
- 10 to 15 Leaves with sugar cube taken orally two times for 7days to cure jaundice.

Chemical Constituents:- Leaves contain emarginatine, gymnosporine, tannin and mineral salts.

Biological Activity:- Leaves are astringent, antibilious, cooling, anthelmintic, vermifuge, anticholagogue. Fruits are sweet, digestive, astringent.

213. Medicago sativa Linn.

Family: Fabaceae. **Vern.** : Gadab.

English Name: Alfalfa, Lucerne.

Regional Names:-

Hin.: Wilayta-gawuth, Lasunghas;**Kan.:** Vilayati-hullu;**Mar. :** Vilayatgavat;

Pb.: Lusan.

Distribution: India.

Description: A hairy herb. Leaves pinntely 3-foliate, leaflets oblanceolate, toothed, and truncate. Flowers purple. Pod spirally twisted.

Flowering: All months. **Fruiting**:All months.

Habitat Ecology: Usually cultivated for the sake of fodder for bullock.

Material Examined: NKO-85

Parts Used: Flowers, Whole plant.

Folk Uses:-

- Flowering twigs are tied around the marriage '*Mandap'*as toran to decorate it in house of bride. ?
- Plants are used as healthy nutritive fodder.

Chemical Constituents:- Plant contains proteins, bioflavonoids, coumarins, vitamins, prophyoins, alkaloids, fibres, isoflavones, and prophyrins. Seeds contain protein. Leaves contain vitamin A, K, P, minerals (Calcium, Phosphorus, iron).

Biological Activity:- Seeds are bitter, astringent, nutritive, emmenagogue and uterine tonic. Leaves are nutritive, antiseptic, and haemostatic.

214. Melia azedarach Linn.

Syn: *M. sempervirens* Sw., *M. bukayan* Royle

Family: Meliaceae. **Vern.** : Bakanlimbdo.

Sanskrit Name: Arishta, Himadruma, Mahaneimba, Nimba, Nimba-vikshana, Parvata-nimbu-vrikshaha. **English Name**: Bead Tree, Persian Lilac.

Regional Names:-

Beng.: Ghoranim, Mahanim;**Bom.:** Bakayan, Drek;**Hin.:** Mahanimba;

Kan.: Turakabevu;**Kum.:** Dainkamn;**Mal.:** Malaveppu;**Mar. :**Bakananimb, Limbara;**Pb.:** Bakain, Chein, Dek, Drek;**Tam.:** Malaivembu, Pisidam;

Tel.: Taraka, Turakavepa, Vepa;**Urdu:** Bakyana.

Distribution: Persia, Mesopot, India, China, W. Indies, Brazil.

Description: A medium-sized tree, 12 m tall. Leaves bipinnate deciduous. Flowers small, honey-scented lilac, in long peduncled, axillary panicles. Drupe subglobose.

Flowering: Mar.-Apr. **Fruiting**: Apr.-May.

Habitat Ecology: Cultivated in compound and along the roads.

Material Examined: NKO-57

Parts Used: Leaves, Branches.

Folk Uses:-

- Dried branches are used as fuel.
- The plant leaf and custard apple leaf paste is applied over head for 12 hours for removing lice and louse of the hairs.

Chemical Constituents:- Azaridine, a resin, tannin, meliotannic acid, benzoic acid, bakayanin sterol, a bitter principle margosine and a fixed oil containing sulphur have been, isolated from fruits (Chopra *et al.*, 1956).

Biological Activity:- Stem-bark anticancer, antiviral and spasmolytic (Saklani & Jain 1994).

215. Mentha longifolia (Linn.) Huds.

Syn: *M. spictata* Linn. Var. *longifolia* Linn., *M. sylvestris* Linn., *M. royleana* Wall. exBenth., *M. longifolia* Var. *royleana* Rech. f., *M. longifolia* Var. *royleana* (Benth) Raiz & Sax.

Family: Lamiaceae. **Vern.** : Fudino.

Sanskrit Name : Ajirnahara, Pudina, Rochani, Ruchishya, Shakashobana, Sugandhipatra, Vantihara, Vyanjana. **English Name**: Horse mint.

Regional Names:-

Bom.: Pudina;**Hin.:**Podina;**Pb.:**Koshu,Pudnakushna,Vien, Yura;**Urdu:** Pudina;

Distribution: Pakistan, India, Sri Lanka.

Description: A hoary-tomentose, aromatic perennial herb. Stem robust. Whorls in terminal spikes. Bracts lanceolate. Nutlets reticulate.

Flowering: Rarely found. **Fruiting**: ---

Habitat Ecology: Cultivated.

Material Examined: NKO-251

Parts Used: Leaves.

Folk Uses:-

- Leaves used for making 'Chutney'.

Chemical Constituents:- Essential oil yields diosperol, piperitenone oxide, diosphenolene, piperitone, piperitenone, limonene and cineol (Chopra et al., 1969).

Biological Activity:- Leaves are acrid, aromatic, thermogenic, stimulant, anodyne, deodorant, antiseptic, vulnerary, anthelmintic, carminative, digestive, stomachic, antiemetic, cardiotonic, expectorant, diuretic, depurative, sudorific, emmenagogue, dentifrice, antispasmodic, febrifuge and contraceptive.

216. Merremia gangetica (Linn.) Cufod.

Syn: *M. emargianata* (N. Burm.) H. Hallier., *Ipomoea reniformis* Choisy, *Convolvulus gangeticus* Linn..

Family: Convolvulaceae. **Vern.** : Undarkani.

Sanskrit Name: Akhukarni.

Regional Names:-

Hin.: Musakani, Muskari;**Ben.:** Bhuikamri, Indurkani;**Mal.:** Eliccevi;

Tam.: Elikkatukkirai, Perattaikkirai;**Tel. :** Elika jimudu.

Distribution: Tropical Africa, Natal ECP, India, SriLanka.

Description: A prostrate herb, rooting at nodes. Leaves broader than long, reniform, margins crenate-dentate, obtuse. Flowers yellow, axillary solitary or 2-3 in clusters. Capsule 4-5 mm aeross sub-globose, enclosed in calyx.

Flowering: Aug.-Nov. **Fruiting**: Aug.-Dec.

Habitat Ecology: Common in moist places and in agricultural field as a weed.

Material Examined: NKO-219

Parts Used: Whole plant.

Folk Uses:-

- Plant decoction taken internally to cure rheumatic pain.
- Use as a fodder.

Chemical Constituents:- Leaves contain bitter principle, minerals fibers.

Biological Activity:- Plant is bitter, acrid, refrigerant, deobstruant, diuretic anthelmintic, carminative and digestive.

217. Millingtonia hortensis Linn.

Family: Bignonaceae. **Vern.** : Akash-limdo.

English Name: Indian Cork Tree.

Regional Names:-

Hin.: Akas-nim.

Distribution: Arabia, Tropical Africa, Madagascar, India, SriLanka, Java Sumatra & Sunda, Philippines, New Guinea, Brazil.

Description: A tall, handsome, evergreen tree with dark grey, corky bark. Leaves large, much divided into leaflets. Flowers fragrant, white, in hanging masses. Fruit a linear capsule, splitting into 2 valves when ripe. Seeds in many rows, surrounded by a gland dotted delicate wing.

Flowering: Dec.-Feb. **Fruiting**: Feb.-Mar.

Habitat Ecology: Cultivated in gardens and along roads.

Material Examined: NKO-233

Parts Used: Whole plant.

Folk Uses: - Planted as a ornamental tree.

Chemical Constituents:- Bark contains tannin.

Biological Activity:- Bark is antipyretic and astringent.

218. Mimosa hamata Willd.

Family: Mimosaceae. **Vern.** : Kasedi.

Distribution : India.

Description: A much branched, armed shrub, branches downy, with numerous straw-coloured.curced or straight prickles. Leaves bipinnate, leaflets 6-10 pairs, ovate, oblong, and acute, mucronate rounded at base. Flowers 4-merous in globose heads, peduncles axillary, pink in colour. Pods falcate, consisting of 4-8, one-seeded joints, pubescent. Seeds chestnut-brown.

Flowering: Aug.-Nov. **Fruiting**: Sept.-Dec.

Habitat Ecology: Common in hedges, rare in forest.

Material Examined: NKO-115

Parts Used: Roots.

Folk Uses:-

- 10-12 ml root juice is taken orally twice a day for three days to cure diarrhoea. ?

Chemical Constituents:- Bark contains tannin.

Biological Activity:- Plant is anti-inflammatory, astringent. Seeds are blood purifier.

219. Mimosa pudica Linn.

Family: Mimosaceae. **Vern.** : Lajamani.

Sanskrit Name: Lajjalu, Samanga.

English Name: Sensitive Plant, Humble Plant.

Regional Names:-

Hin.: Lajjavanti,Lajavanti;**Kan.:**Nacikegida;**Mal.:**Tottavati,Tottalvati, Tintarmani;**Tam.:**Tottalvati,Tottalcurunki;**Tel.:**Manugumaramu, Muttavapulagamucettu.

Distribution: Tropical Africa, India, Central America & Mexico, Brazil.

Description: A diffuse under shrub, armed with prickles. Leaves sensitive, digitate, stipules liner-laceolate, leaflets linera-oblong. Flowers pink in globose heads. Pods curved, moniliform, 3-5 seeded.

Flowering: Aug.-Sept. **Fruiting**: Sept.-Oct.

Habitat Ecology: Common along open places throughout the area.

Material Examined: NKO-116

Parts Used: Leaves.

Folk Uses:-

- Crushed leaves are tied over swollen parts of skin.

Chemical Constituents:- Root contains ash (55%) tannin (10%) mimosine, norpinephrine, gentisic acid, jasmonic acid and D-panitol. The seed contains mucilage and greenish-yellow oil (17%).

Biological Activity:- Astringent, acrid, cooling vulnerary, alexipharmic, resolvent, diuretic, antispasmodic, emetic, constipating, febrifuge, sudorific and tonic.

220. Mimusops elengi Linn.

Family: Sapotaceae. **Vern.** : Borasali.

Sanskrit Name : Bakul, Vakul.

English Name: Spanish Cherry, Bullet-Wood Tree.

Regional Names:-

Beng.: Bakul, Bakal, Bohl;**Bom.:**Borsali;**Hin.:**Bakul-mulsari, Maulsarau, Mulsari, Maulser;**Kan.:** Bokalboklu, Kanja, Mugali, Pogada;**Mar.:** Bakeila,

Ovalli, Vavoli, Wowli;**Oriya :** Baul, Bauto;**Pb.:** Maulsari, Maul-sir; **Tam.:** Magadom, Magila-maram;**Tel.:** Pogada.

Distribution: India, SriLanka, Burma.

Description: A small evergreen tree with a compact leafy head. Leaves elliptic, acute. Flowers white, fragrant, solitary or in fascicle of 2-6 pedicle deflexed. Berry ovoid, yellow, 1-seeded.

Flowering: Jan.-Feb. **Fruiting**: Mar.-Apr.

Habitat Ecology: Planted in the gardens and also field boundries.

Material Examined: NKO-179

Parts Used: Stem, Fruits.

Folk Uses:-

- Stem is used for making *'Sati'* and *'Petaro'*.
- Ripe fruits are eaten.

Chemical Constituents:-3 to 7% tannin, gum, seponin and alkalies are found in bark. Volatile oil in flowers, 16 to 25% fixed oil in seeds. Seeds also contain saponin.

Biological Activity:- Bark and flowers are acrid, astringent cooling, tonic, febrifuge and anthelmintic. Seeds are laxative.

221. Mirabilis jalapa Linn.

Family: Nyctaginaceae. **Vern.** : Gal.

Sanskrit Name: Krishna-keli, Sundhyakali.

English Name: Four O'clock Flower, Marvel of Peru.

Regional Names:-

Beng.: Gulabas,Krishnakeli;**Bom.:**Gubhaji;**Hin.:**Gulabbas;**Kan.:**Chandra-mallige, Gulamaji, Sanja-mallige;**Mal.:** Antimalari, Gula-bajh, Gule-abbar; **Pb.:**Abasi,Gulabbas;**Tam.:**Antinarulu,Pattarachi;**Tel.:**Bhadrakshi, Chandrakanta, Chandra-mali;**Urdu:** Guleabbas.

Distribution: North America, India, Brazil.

Description: Erect leafy herb, 30-75 cm tall with cordate leaves and long tubular fragrant flowers. Fruits elliptical leathery, black.

Flowering: Aug.-Feb. **Fruiting**: Aug.-Feb.

Habitat Ecology: Commonly cultivated in the gardens everywhere for its beautiful flowers.

Material Examined: NKO-256

Parts Used: Seeds.

Folk Uses:-

- Five seeds are crushed with water and given orally to children in hydrocele. ?

Chemical Constituents:- Active constituents isolated from flowers are miraxanthins I, II, III & IV, indicaxanthin and vulgaxanthin.

Biological Activity:- Whole plant spasmolytic.

222. Mitragyna parvifolia (Roxb.) Korth.

Syn: *Nauclea parvifolia* Roxb., *Stephegyne parvifolia* (Roxb.) Korth.

Family: Rubiaceae. **Vern.** : Kalam.

Sanskrit Name: Vitana. **English Name**: Kalm.

Regional Names:-

Hin.: Kayim, Kaddam, Kamgi;**Kan.:** Kongu, Kadaga;**Mal.:** Vimpu, Birkkatampu, Rosu katampu;**Tam.:** Katampai, Nirkkatampu, Sinnakkatampu;**Tel.** Nerkadamba.

Distribution: Tropical Africa, India, SriLanka.

Description: A big, deciduous tree. Leaves opposite, elliptic, obovate, apex rounded or acute, stipules large, interpetiolar, pink, caducous. Flowers greenish yellow, fragrant, in globose heads, peduncle with 2 small leaves at the base. Fruit capsular, close together in heads, of 2 dehiscent cocci, bluntly 10-ribbed, seeds many, winged.

Flowering: Apr.-May. **Fruiting**: May-July.

Habitat Ecology : Common in forest and waste land.

Material Examined: NKO-161

Parts Used: Stem bark, Wood.

Folk Uses:-

- Paste of bark is smeared on infected area as effective remedy in rheumatism.
- Wood is used as an agricularal implement and toys.

Chemical Constituents:- Plant contains pyroligneous acid, methyl acetate ketones and aldehydes methanol. Bark contains tannin, an alkaloid, sugars.

Biological Activity:- Acrid, bitter, stomachic, febrifuge, styptic, vulnerary, stomachic, anti-inflammatroy, anodyne, depuretaive.

223. Momordica balsamina Linn.

Family: Cucurbitaceae. **Vern.** : Chhochhinda.

Distribution: Tropical Africa, Natal ECP, India, SriLanka, Malaysia, Australia.

Description: A monoecious, much branched, climbing perennial from a tuberous root, tendrils simple. Leaves ovate, base cordate, entire or 3-7 lobed to about middle, minutely punctate. Flower monoecious, allsolitary, male flowers peduncle bears a big cordate, green or white bract near the apex, female flowers ebracteate of bracteate peduncles. Fruit subglobose to ovoid, orange red to scarlet when ripe. Seeds 8 with a carmine red arilus, grey, ovate or obling in outline.

Flowering: Aug.-Oct. **Fruiting**: Aug. - Oct.

Habitat Ecology:

Material Examined: NKO-146

Parts Used: Fruits.

Folk Uses:-

- Unripe fruits are used to prepare ‘kari’. ?

Chemical Constituents:- The plant contains ribosome inactivating protein mooring II. Methanolic extract of the aerial parts contains phenylpropanoid esters, verbscoside, celceolarioside and rosmarinic acid.

224. Momordica charantia Linn.

Family: Cucurbitaceae. **Vern.** : Karela.

Sanskrit Name: Karavellam. **English Name** : Bitter gourd.

Regional Names:-

Him.: Karella, Karela; **Kan.:** Kareate, Kagalakayi; **Mal.:** Kaypa;**Tam.:** Pavakkay, Paval, Pakar;**Tel.:** Kakara.

Distribution: Tropical Africa, India, SriLanka, China, Malaysia.

Description: An annual, monoecious climber with simple tendrils, stem angled and grooved, hairy. Leaves alternate, orbicular, hairy, deeply 5-7 lobed, lobes acute, spinous dentate, base cordate. Male flowers yellow solitary, peducles long, with reniform bracts below the middle, female flowers solitary, bract near the base. Pepo fusiform, pendulous, green, ribbed, with many triangular tubercles. Seeds compressed.

Flowering: July-Oct. **Fruiting**: July-Oct.

Habitat Ecology: Cultivated as avegetable.

Material Examined: NKO-147

Parts Used: Fruits.

Folk Uses:-

- Fruits are used as vegetable.
- Rosted fruit is given orally in measles.
- Extract of fruits taken orally to control diabeties.

Chemical Constituents:- Seeds contain glycosides, oil etc. Ascorbic acid and momordicine are found in fruits. 88.75% moisture in fesh fruits, 2.93% ether ext., 1.62% albuminoids, soluble carbohydrates 1.52% black thread and 8.53% ash found in dry fruits. Leaves contain glycoside, resin, saponin, mucilage etc.

Biological Activity:- Bitter, acrid, astringent, ophthalmic, antipyretic, emetic, purgative, thermogenic, depurative, vulnerary, stimulant, appetizing, antidiabetic, carminative digestive, stomachic, anti-inlammatory, emmenagogue, febrifuge and tonic.

225. Momordica dioica Roxb. ex Willd.

Family: Cucurbitaceae. **Vern.** : Kantola.

Sanskrit Name: Vahassa, Karkotaki. **English Name**: Small Bitter Gourd.

Regional Names:-

Hin.: Golkankra, Melsa, Khekhsa;**Mal.:** Vempaval;**Tam.:** Aegarvalli;

Tel.: Karkotaki, Agakar.

Distribution: India, SriLanka, Malaysia.

Description: A perennial, dioecious tuberous rooted climber, tendrils simple, stem furrowed. Leaves broadly ovate, base cordate, entire or 3-5 lobed, minutely punctate. Male flowers solitary, bract near the flower and enclosing it. Yellow in colour, female flowers solitary, bract near the base. Pepo small, ellipsoid, echinate with soft spines, beak short. Seeds many, enclosed in red pulp.

Flowering: Aug.-Oct. **Fruiting**: Aug.-Oct.

Habitat Ecology: The plant is a vigorously growing showing climbing habit in Barda region.

Material Examined: NKO-148

Parts Used: Fruits.

Folk Uses:-

- Tender and mature fruits are used as vegetable.

Chemical Constituents:-

Unripe fruits contain minerals, iron, carbohydrates, manganese, vitamin A, bitter principles, fibers etc. Roots contain bitter principles.

Biological Activity:-

Roots are antiseptic, antiphlogistic and stimulant. Unripe fruits are bitter, astringent diuretic, stimulant, appetizer etc.

226. Morinda tomentosa Heyne ex Roth.

Syn: *M. tinctoria* Var. *tomentosa* Hk.f.

Family: Rubiaceae. **Vern.** : Aal.

Sanskrit Name: Paphanah. **English Name**: Indian Mulberrly.

Regional Names:-

Hin.: Acc, Aal;**Kan.:** Haladipaveta, Tagatemaru;**Mal.:** Pavitta, Mannappavita; **Tam.:** Mannahatti, Mannamunai;**Tel.:** Maddicettu;

Distribution: India.

Description: A small tree. Leaves elliptic or oblong-lanceolate, acuminate, hairy, dull. Flowers pure white in globose heads. Fruit a succulent sorosis, white when ripe, containing a number of hard, cartilaginous 1 seeded, pyrenes.

Flowering: May-June. **Fruiting**: July-Oct.

Habitat Ecology: Found in waste land and Barda hills.

Material Examined: NKO-162

Parts Used: Leaves.

Folk Uses:-

- 2 to 3 drops of leaves juice is used as ear drops to treat earache.

Chemical Constituents:- The root bark contains morindone and its glucoside morindin. The heatwood contains three anthequinone, namely morindone, dammacanthal and nor damnacanthal.

Biological Activity:- Rootsare styptic, constipating, anti-inflammatory, alexeteric and tonic. Leaves are digestive, carminative, febrifuge and tonic.

227. Moringa oleifera Lamk.

Syn: *M. polygona* DC., *M. pterygosperma* Gaertn. *M. Zeylancia* pers. *Guilandina moringa* Linn., *Hyperanthera decandra* Willd., *H. moringa* Vahl.

Family: Moringaceae. **Vern.** : Saragvo.

Sanskrit Name : Shobhanjana-vrikshah, Sigru, Sobhanjana.

English Name: Drum-Stick.

Regional Names:-

Beng.: Sajina, Sajma, Sojna, Sujuna;**Bom.:** Mangai, Sanga, Saragvo, Segat, Sekto, Shegwa, Sujna;**Hin.:** Segva, Shainah, Shajna, Soanjana;**Kan.:** Nugge, Nugge-gida;**Mal.:** Sigru;**Mar.:** Achajhada, Munagacha-jhada, Shevaga, Shevgi;**Oriya:** Munigha, Sajina;**Pb.:** Sanjna, Senjna, Soanjna;**Tam.:**Morunga, Murungai;**Tel.:** Advi-munaga, Karumunga, Munaga, Muraga, Sajana.

Distribution: India.

Description: A small, soft wood tree. Leaves usually 3-pinnate, petiole thickened at base, pinnae and pinnules opposite, deciduous, with a gland at the base. Flowers white in large panicles, capsules elongate, 9-ribbed slightly twisted. Seeds winged, 3-angled.

Flowering: Sep.-Oct. **Fruiting**: Nov.-Dec.

Habitat Ecology: Found in forest and also cultivated.

Material Examined: NKO-71

Parts Used: Pods, Gums, Flowers.

Folk Uses:-

- Pods are cooked as vegetable, flowers are used to prepare 'Kari'.
- Gum is applied at the place of toothache. ?

Chemical Constituents:- Fruit contains protein, carbohydrate, oil, carotene, nicotinic acid, ascorbic acid, oxidase Sulpher and a prolamin, the essential amino acids present in the total proteins are arginine, histidine, lysine, tryptophan, phenylalanine, menthionine, threonine, leucine, isoleucine and valine, no-protein, nitrogen, histidine, arginine, threonine, valine, methionine, phenylanine, isoleucine, leucine and tryrosine, lysine and tryptophan traces and cystine nil. The root bark contains moringine alkaloids. The root contains an active antibiotic pterygospermin. The seeds contain transparent, thick and colourless fixed oil (36.6%).

Biological Activity:- Unspecified parts anthelmintic, anticancer, antifertility, root bark, wood, fruit spasmolytic, root bark antiviral.

228. Morus alba Linn.

Syn: *Morus India* Linn.

Family: Moraceae. **Vern.** : Shetur.

Sanskrit Name: Tula. **English Name** : Mulberry.

Regional Names:-

Beng.: Tut;**Bom.:**Chinni, Satur,Tut;**Hin.:**Chinni,Tut;**Kan.:**Uppunute;**Oriya :** Tuticoli, Tuto;**Pb.:**Tut;**Tam.:**Kambali,Pattuppuchi;**Tel.:**Pippalipandu chettu;

Distribution: Japan, North America, India, China, Brazil.

Description: A large deciduous shrub. Leaves ovate thin, cordate, acute serrate, often lobed, stipules small. Flowers monoecious, male & female flowers on different branches of the same tree, greenish mature fruits back.

Flowering: Jan.-Mar. **Fruiting** :Feb.- Mar.

Habitat Ecology: Common along agricultural boundaries.

Material Examined: NKO-287

Parts Used: Fruits.

Folk Uses:-

- Ripe fruits are eaten.
- Fruits are given early in the morning to cure burning urination.

Chemical Constituents:- Volatile constituents of leaves are n-butanol, β,γ-hexenol, methyl-ethyl acetaldehyde, hexaldehyde, isobutylaldehyde, methyl-ethyl ketone, methylhexylketone, butylamine and acetic, propionic and isobutyric acids. (Anon., 1962).

Biological Activity:- Aq. And alk. exts. Of leaves and stems show microbial activity against gram +ve bacteria and yeasts (Annon., 1962).

229. Mucuna pruriens Bak.

Syn : *M. prurita* Hk., *Dolichos pruriens* Linn.

Family: Fabaceae. **Vern.** : Bhairaw singi.

Sanskrit Name: Atmagupta, Kapikacchhu.

English Name : Horse-Eye Bean, Common Cowitch Cow Hage.

Regional Names:-

Hin.: Gonca,Kaunch,Kivacch;**Kan.:**Masuganni,Nayisonangunalli;

Mal.: Naykkoranna,Maykkurana,Voriavalli;**Tam.:**Punaikkali, Punaippidukkan;

Tel.: Pilliadugu.

Distribution: India.

Description: A twiner. Leaves 3-foliate, silky, stipules lanceolate, leaflets rhomboid-ovate, oblique, and mucronate. Flowers 6-30 flowered racemes,

purple in colour. Pods turgid, curved, covered with persistent irritant hairs, 5-6 seeded.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Edge of fields in Barda region

Material Examined: NKO-86

Parts Used: Fruits.

Folk Uses:-

- When mouse cause more harm to agricultural product at that time dried fruit kept near burrow to keep away mouse. ?

Chemical Constituents:- Seeds contain protein, ether, extra fiber and mineral matter, calcium, iron, phosphorus, sulpher and manganege. The seeds also contain lacithin, dihydroxyphenylalanine gallic acid, oil and a glucoside are present. They contain also a number of alkaloids like prurieninin, pruienidine and five other base designeated base.

Biological Activity:- Plants are thermogenic, emollient, stimulant, purgative, aphrodisiac, emmenagogue, anthelmintic, febrifuge, vermifuge.

230. Mukia maderaspatana (Linn.) M. Roem.

Syn: M. *scabrella* Arn. *Melothria maderaspatana* (Linn.) Cogn., *Cuccumis maderaspatanus* L.,

Family: Cucurbitaceae. **Vern.** : Chanak chibhadi.

Regional Names:-

Tel.: Nugudhosa.

Distribution: Pakistan, Tropical Africa, India, China.

Description: An annual monoecious climber with simple tendrils. Leaves deltoid-ovate, entire or 3-5 lobed, scabrid above, base cordate, apex acute, dentate. Male flower in small fascicles, yellow, female flowers, sessile, fascicled rarely solitary. Pepo small, size of a pea, green variegated with yellow, finally wholly red.

Flowering: Aug.-Sept. **Fruiting**: Aug.-Sept.

Habitat Ecology: Common in waste land and agriculture field.

Material Examined: NKO-149

Parts Used: Fruits, Leaves.

Folk Uses:-

- Upripe fruits are eaten (by children specially).
- ½ cup leaves jice and 10 g seed powder mixed and given twice a day for the treatment of diabetes.

231. Murraya koenigii Spreng.

Syn : *Bergeru Koenigii* Linn.

Family: Rutaceae. **Vern.** : Mitho limdo.

Sanskrit Name : Kristna-nimba, Nimba-patram, Surabhi, Surabhi-nimbu.

English Name: Curry-Leaf Tree.

Regional Names:-

Ass.: Bishahari, Narasingha;**Beng.:** Barsunga;**Bom.:** Goranimb, Karripat;

Hin.: Bursunga, Harri, Katnim;**Kan.:** Kari-bevu;**Kum.:** Gandla gani;

Mal.: Karea-pela;**Mar.:** Karipat;**Oriya:** Basango, Barsan, Bhursungu;

Pb.: Gandla;**Tam.:** Karu-uembu;**Tel.:** Kari-vepu.

Distribution: India, Sri Lanka, Burma.

Description: A small, strong-smelling, deciduous tree with dark grey bark and imparipinnate leaves upto 30 cm long. Flowers white, in many flowered peduncled corymbs. Berries black, rough with glands.

Flowering: Mar.-Apr. **Fruiting**: Apr.-June.

Habitat Ecology: Cultivated.

Material Examined: NKO-52

Parts Used: Leaves.

Folk Uses:-

- Leaves are used for flavouring curries.

Chemical Constituents:- Active constituents isolated are cadinene, caryophyllene, dipentene, d-α-pinene, di-α-phellandrene, d-sabinene, cadivirol, isosafrol, d-α-terpineol, lauric and palmitic acids (essential oil);

mahanimbidine, mahanimbine, isomahanimbine, mohanimbineine, scopoline, carotene, vitamins (leaves); koenoline (root-bark); girinimbine, mahanimboline, mukoline and mukolidine (root); mahanimbinol (wood); curryangine, curryanine, mukanol, murrayacine, murrayacinine, isomurrayazoline, murrayazolinine, murrayazolinol, 3(1,2-dimethylallyl)-xanthyletin (stem-bark).

Biological Activity:- Root antiamoebic, hypotensive, aerial parts antiamoebic and spasmolytic.

232. Musa sapientum Linn.

Syn : *M. paradisiaca* Linn.

Family: Musaceae. **Vern** .: Kela.

Sanskrit Name : Kadli, Rambha. **English Name**: The Banana, Plantain.

Regional Names:-

Beng.: Kach, Kala, Kula;**Bom.:** Kel, Kela;**Hin.:** Kach-kula, Kela, Maoz-kulo; **Kan.:** Bale, Balenaru;**Mal.:**Kadali, Kel;**Mar.:** Kadali, Kel;**Pb.:** Kela, Khela, Muz;**Tam.:**Valei, Vazhaip-Pazham; **Tel.:** Amti, Anati, Ariti, Bonta-ariti Kadali, Chakrakeli-ariti, Nalla-arii.

Distribution: India.

Description: A large tree like herb with thick rhizome, pseudostem fleshy, succulent formed by the imbricate leaf-sheaths. Leaves large, oblong, petioles long, channeled bright glossy green. Flowers on recurved large spadix, drooping, the lower flowers all female, the upper all male, clusterol and enclosed in the axils of large, reddish-purple, caduceus, boat-shaped spathes or bracts. Berry fleshy, narrow at both ends, seeds rarely present in cultivated variety. Propagated by off shoots.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Extensively cultivated.

Material Examined: NKO -296

Parts Used: Leaves, Fruits.

Folk Uses:-

- Four leaves of it tied on small table *'Bajoth'* to prepare *'Mandap'* in *'Satyanarayan Katha'* a puja performed on a full-moon day.
- Unripe fruit is taken orally to arrest dysentery.
- The skin of unripe fruits is cooked as a vegetable.

Chemical Constituents:- Fruit contains pectin, sugars, an albumin and a globulin, glutelin, prolamines and proteoses are also present. Cystine, lysine, histidine, arginine, serine, glycine and aspartic acid, threonine, glutamic acid, alanine, amino bytryric acid, tyrosine, methionine, valine, leucin, phenylalanine, isoleucien, sugar, starch, vatimins A, B and C, iron, potassium, calcium, manganese, Sulpher, silica etc. Unripe fruit contains tannin.

Biological Activity:- Steryl acyl glucosides sitoindosides I & II (5: D) from fruit showed compele protection against aspirin-induced ulceration in rats (Rastogi & Mehrotra, 1993, pp.441-42).

233. Nelumbo nucifera Gaertn.

Syn : *N. indica* Poir., *Cyamus mysticus* Salisb., *C. nelumbo* Smith, *Nelumbium speciosum* Willd., *Nymphaea asiaticum* Rich., *N. nelumbo* Linn.

Family: Nelumbonaceae. **Vern**.: Surya kamal.

Sanskrit Name : Aravin, Camala, Mabotpala, Nalina, Padma, Padmachari, Pushcara, Rajiva, Sabafrapatra, Sara, Sarasiruba, Stapatra, Tamarasa, Visaprasuna.

English Name: The Sacred Lotus.

Regional Names:-

Beng.: Padama, Padma;**Bom.:** Kamala, Kankadi;**Hin.:** Kanval, Kanwal;

Kan.: Tavaribija, Tavarigadde;**Oriya:** Padam;**Pb.:** Galte (Seed), Kanwal-kakri, Pampish;**Tam.:** Ambal, Shivappu-tamaraver;**Tel.:** Era-tamara-veru.

Distribution : India.

Description: A large aqutic herb, with elongated creeping stems, sending out roots at nodes. Leaves thin, orbicular, concave above, peltate, entire, radiately nerved, glabrous, petioles with distant prickles. Flowers solitary, white or rosy, peduncles and petioles rise high above the surface of water. Fruit etaerio of

achenes, which become loose in the cavities of the large fleshy thalamus. Seeds round.

Flowering : Asll months. **Fruiting** : All months.

Habitat Ecology: Occasional in pondsand lakes.

Material Examined: NKO-7

Parts Used: Flowers, Seeds.

Folk Uses:-

- Beautiful flowers are used in the worship of 'Shiva'.
- Seeds are used in various religious ceremonies especially in *'Havan'*.

Chemical Constituents:- The leaves contain alkaloids : nuciferine, roemerine, nor-nuciferine and the flabonoid : quercetin. The rhizome yields proteins nelumbine sugars and vitamins. The receptacles contain quercetin. Dry seed contains protein (17.2%) fat (2.4%), carbohydrate (66.6%), calcium, phosphorus, iron, ascorbic acid and sugar, nelumbine.

Biological activity:- Astringent, bitter, sweet, cooling, emollient, diuretic, sudorific, antifungal, antipyretic, cardiotonic, fragrant, anthelmintic, depurative and aphrodisiac.

234. Nerium indicum Mill.

Syn: *N. latifolium* Mill., *N. ordoratum* Lamk., *N. ordorum* Solander

Family: Apocynaceae. **Vern.** : Lal karen.

Sanskrit Name : Asvamaraca, Chandata, Karavira, Karvir, Pratihasa.

English Name: Sweet Scented Oleander.

Regional Names:-

Beng.: Karabi;**Bom.:** Ganira, Kanhera, Kanir;**Hin.:** Kaner, Karber, Knel, Kuruvira;**Kan.:** Kanagale, Levagani-galu;**Mar.:** Kaneri;**Pb.:** Gannira, Kaner, Kanira;**Tam.:** Alari, Aralivayr;**Tel.:** Ganneru, Gheneru, Kasturi-patte.

Distribution: Japan, Afghanistan, India.

Description: A small shrub, milky jice present. Leaves verticillate in 3 or 2 opposite, linear-lanceolate, narrow at both ends. Flowers in terminal panicals of

cymes, pink, red or white, single or double fragrant. Fruit a pair of follicles. Seeds many comose.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Commonly grown in the gardens and everywhere.

Material Examined: NKO-189

Parts Used: Latex, Leaves.

Folk Uses:-

- Latex is applied externally two or more times a day and washed with decoction of leaves for a week in case of reddish, itchy skin with small blisters (dermatitis).

Chemical Constituents:- All parts of the plant are poisonous. Roots, bark and seeds contain cardio-active glycosides, formerly adesignated as neriodorin, neriodorein and karabin, neriodorin and karabin were reported to have a paralyzing action on the heart, like digitalin, and a stimulating action on the spinal cord, like strychnine, neriodorein was less active. Scopoletin, scopolin, tannin, flobefin, yellow, coloured fixed oil and rutin are found in its bark. Leaves contain oleandrin, neriodorin, potassium etc.

Biological Activity :- Roots are bitter, acrid, astringent, anthelmintic, thermogenic, aphrodisiac, stomachic, febrifuge and diuretic. Leaves are powerful repellent. Flowers are purifying the air.

235. Nicotiana tabacum Linn.

Family : Solanaceae. **Vern.** : Tamaku.

Sanskrit Name : Dhumra Patrika. **English Name**: Tobacco.

Regional Names:-

Beng.: Tamak; **Bom.:**Tambakhu; **Hin.:**Tamak,Tamaku,Tambaku; **Mal.:** Pokala; **Kan.:**Hogesoppu;**Tam.:** Poghako, Poghu, Pugai-ilai;**Tel.:**Pogaku, Dhumraptramu.

Distribution : India.

Description: An erect, viscidly pubescent herb with lower leaves decurrent and funnel-shaped corolla. Flowers pinkish, pedicelled, bracteate in panicled racemes. Fruit a capsule.

Flowering: Oct.-Dec. **Fruiting**: Oct.-Dec.

Habitat Ecology: Rarely cultivated in the field.

Material Examined: NKO-226

Parts Used: Leaves.

Folk Uses:-

- During traveling in cycle if puncture is occur than farmer poure 10 mg tobacco leaves powder in tube and feel air in it. Flow of air is temperorly stoped. ?
- Dry leaves smoked for nervous exitement.

Chemical Constituents:- Possesses nicotine, nicoteine, nicotimine, anabasine (plant), oxalic acid (bark), tahacinin, tahacilin and 0.25-1.7% isoquercitrin (leaves).

236. Nyctanthes arbor-tristis Linn.

Family: Oleaceae. **Vern.** : Parijat.

Sanskrit Name : Parijatah, Sephalika.

English Name: Coral Jasmine, Tree of Sorrow.

Regional Names:-

Hin.: Harsinghar;**Mal.:** Parijatukam;**Mar.:** Parijat;**Tam.:** Pavilamalligai;

Tel.: Parjatamu.

Distribution: India.

Description: A small tree with drooping branches and quadrangular brarnchlets. Leaves opposite, ovate rough with stiff white haris, entire or coarsely toothed. Flowers fragrant orange coloured stalkless, in clusers of 3-7 forming terminal cymes. Capsule flat, roundish 2-seeded. Seed erect, round and flattened.

Flowering : Aug.-Oct. **Fruiting**: Sept.-Nov.

Habitat Ecology: Cultivated.

Material Examined: NKO-182

Parts Used: Whole plant.

Folk Uses:-

- It is cultivated in kitchen gardens for its fragrant ivory white flowers.

Chemical Constituents:- The flowers contain d-mannitol, essential oil, methyl salicylate, nyctanthin, tannin and glucose. The oil consist of the glycerides of linoleic, oleic, lignoceric, stearic, palmitic and probably myristic acids, a-sitosterol is the main component of the un-saponifiable matter. The leaves contain tannic acid, methyl salicylate, and amorphusglycoside, mannitol, an amorphous resin and a trace of volatile oil, bark contains tannin and an alkaloid.

Biological Activity:- Leaves are acrid, thermogenic, antibacterial, anodyne, anti inflammatory, cholagogue, anthelmintic, depurative, sudorific, febrifuge, trichogenous.

237. Nymphaea pubescens Willd.

Syn: *N. Stellata* Willd., *N. sagittata* Edgeworth.

Family: Nymphaeceae. **Vern.** : Ghitela, Kumbhna.

Distribution: Tropical Africa, India.

Description: Aquatic rhizomatous herbs. Leaves oblong or rotundate, hastate, entire or sinuate margined, uillous beneath, petioles and peduncles smooth, purplish. Flower purple white. Fruit a fleshy berry globose and green surrounded by the persistent, green filaments of the stamens forming a corona on the top. Seeds many.

Flowering: Aug.-Oct. **Fruiting**: Sept.-Nov.

Habitat Ecology: Common in ponds and Barda Sagar dam.

Material Examined: NKO-8

Parts Used: Seeds, Rhizomes.Flowers.Wholeplant.

Folk Uses:-

- Rhizomes and unripe fruits are edible, it is cooling laxative.
- Flowers are dried, powdered, it is use as a cooling agent.
- Plant is chosen for the wall canvasses with panting using chalk *'Geru'* and cow dung.

Chemical Constituents:- Plant contains nymphaeine, nymphain, starch, mucilage, minerals. Fruit contains protein, starch, fat.

Biological Activity:- Flowers are cardiotonic, aphrodisiac. Fruits are stomachic.

238. Ocimum basilicum Linn.

Syn: *O. pilosum* Willd., *O. album* Linn. *O. minimum* Burm., *O. hispidum* Lamk. *O. methaefolium* Benth., *O. caryophyllantum* Roxb., *Plectranthus barrelieri* Spreng.

Family: Lamiaceae. **Vern**: Marvo.

Sanskrit Name: Ajagendhika, Asurasa, Barbara, Karahi, Surabhi, Tulasidvesha.

English Name: Basil, Common Basil, Sweet Basil.

Regional Names:-

Beng.: Babui-tulsi,Debunsha; **Hin.:**Bahari,Kalitulsi; **Kan.:**Kam-Kasturi, Sajjebiya;**Mal.:** Pachcha;**Mar.:** Marva, Sabja;**Oriya:** Dhala Zulasi;**Pb.:** Baburi, Rehan;**Tam.:** Tirnutpatchie, Tirunitra;**Tel.** Rudrajada, Vipudi-patri.

Distribution: Tropical Africa, India.

Description: An erect softly hairy strongly scented annual with small pinkish-white flowers in densely racemose whorls. Nutlets ellipsoid, pitted.

Flowering: July-Oct. **Fruiting**: July-Dec.

Habitat Ecology: Commonaly cultivated rarely as an escape in moist places.

Material Examined: NKO-252

Parts Used: Seeds. Leaves.

Folk Uses:-

- 3-4 drops of leaves exstract is pored in ear to cure earache.
- Flowers are offered to Lord '*Pir.*'

Chemical Constituents:- Essential oil from leaves contain methyl cinnamate 1-linalool and terpinene, compositon of oil from fresh flowering herbs shows 65.3% linalool and small amounts of cineole, eugenol, sesquiterpenes and d-terpene (Chopra *et al.*, 1956).

Biological Activity:- Plant is acrid, bitter, aromatic, thermogenic, anti-inflammatory, anodyne, alexipharmic, antispasmodic, galactagogue, appetising, carminative, digestive, stomatic, anthelmintic, cardiotonic, depurative,

expectorant. diuretic, emmenagogue, antidiarrhoeal, antiemetic, insecticidal, antibacterial, stimulant, pectoral, sudoritic and antipyretic.

239. Ocimum canum Sims

Syn: *O. americanum* Linn.

Family: Lamiaceae **Vern:** Tukmaria

Sanskrit Name: Ajaka, Gambhira, Kuthaera. **English Name**: Hoary Basil

Regional Names:

Hin: Kala tulsi, Mamri,**Tel** : Kukka tulsi,**Tam** : Nayi tulsi;**Mal** : Katta tulsi

Kan: Nayi tulsi

Distribution: India, SriLanka,Java Sumatra & Sunda.

Description: A small, annual herb much branched hairy. Leaves elliptic. lanceolate, acute at, both ends, entire, gland-dotted. Inflorescence terminal racemes; flower white or pink. Fruit carcaerulus splitting in to 4 nutlets

Flowering: July-Dec. **Fruiting:** July- Dec.

Habitate Ecology: Grow in wasteland.

Material Examined: NKO-253

Parts Used: Whole plant

Folk Uses:

- Sweetened infusion of seeds drunk as a cooling medicine.

Chemical Constituents: Xylose, arabinose, rhamnose, galactose, galactoronic acid and glucoronic acid.

240. Ocimum sanctum Linn.

Syn: *O. inodorum* Burm. *O. monachorum* Linn. *O. tenuiflorum* Linn.

Family: Lamiaceae. **Vern.** : Tulsi.

Sanskrit Name: Ajaka, Bahupatri, Krishan tulsi, Majarika, Parnasa, Subhaga, Surasa, Tulashi, Tulasi, Vrinda. **English Name**: The Sacred Basil.

Regional Names:-

Beng.: Kala-tulsi, Tulsi, Varanda;**Bom.:** Tulas, Tulasa;**Hin.:** Baranda, Kala-tulsi, Tulsi, Varanda; **Kan.:** Tulashi-gida, Vishnu tulasi; **Mal.:** Trittavu; **Mar.:** Kalitulasi, Tulasa, Tulas-icha-jhada;**Pb.:** Bantulsi, Tulsi;**Tam.:** Tulashi, Tulasi;

Tel.: Graggera-chettu, Krushna-tulasi, Tulasi.

Distribution: Persia, Mesopot, Afghanistan, Pakistan, India, Malaysia, Australia.

Description: An annual, much branched herb, stem square, hairy, purplish. Leaves opposite decussate, elliptic-oblong, obtuse or acute, entire or serrate, hairy, minutely gland dotted. Flowers purplish in racemes formed of many verticillasters. Nutlets 4 surrounded by persistent Calyx.

Flowering: Sept.-mar. **Fruiting**: Sept.-Mar.

Habitat Ecology: planted near almost every Hindu house and in temples-sacred to the gods.

Material Examined: NKO-254

Parts Used: Stem, Leaves.

Folk Uses:-

- After death of person leaf of plant, water of river 'Ganga' (*Gangajal*) and a coin of 25 Np is kept in mouth.
- Making rosaries for religious worshipping and wear by aged women of Maher.
- Leaves used for flavoring tea.
- Decotion of leaves taken orally to cure cold and cough.

Chemical Constituents:- Leaves contain eugenol, methlychavicol, essential oil etc. seeds contain mucilage.

Biological Activity:- Unspecified parts analgesic, anti-allergic, anti-inflammatory.

241. Oldenlandia corymbosa Linn.

Family: Rubiaceae. **Vern.** : Parpat.

Sanskrit Name: Kshetraparpata. **English Name**:Two–Flowered Indian Madder.

Regional Names:-

Hin.: Daman-papar,Pitpapda;**Mar.:**Papti,Fupti;**Tel. :** Verinellavemu.

Distribution : Arabia, Tropical Africa, Madagascar, India, SriLanka, Java Sumatra & Sunda, Philippines, New Guinea, Brazil, Abyssinia & Soctra, Burma, W.Indies, Central America & Mexico.

Description: A small herb. Leaves subsessile, linear-lanceolate acute recurved and hairy margins, stipules membranous, truncate, with a few bristles. Flowers white, small peduncles axillary, solitary. Capsule globose, seeds many.

Flowering: Sept.-Nov. **Fruiting**: Oct.-Dec.

Habitat Ecology: It is a weed of the waste land, often found in cultivated land.

Material Examined: NKO-163

Parts Used: Whole plant, Leaves.

Folk Uses:-

- Decoction of leaves is given in jaundice, two tsp thrice a day.
- Decoction of plant is given orally of chronic liver enlargement.

242. Opuntia dillenii Haw.

Syn: *O. stricta* (Haw.) Haw., Var. *dilleni, Cactus indicus* Roxb.

Family: Cactaceae. **Vern.** : Hathlo thuar.

Sanskrit Name : Vidara.

English Name: Prickly Pear, Slipper Thorn.

Regional Names:-

Beng.: Nug-phana;**Hin.:** Nag-phana;**Mal.:** Palakakkalli;**Mar. :** Samar;

Oriya : Nagophenia;**Pb.:** Chhittarthohar;**Tam.:** Naga-dali;**Tel.:** Naga-dali.

Distribution: India, Brazil.

Description: An evergreen succulent shrub, stem jointed and flattened. Leaves reduced to spines. Flowers bright yellow, solitary. Berries pyriform.

Flowering: Feb.-Apr. **Fruiting**: Feb.-May.

Habitat Ecology: Edges of fields.

Material Examined: NKO-150

Parts Used: Whole plant, Fruit.

Folk Uses:-

- It is grown on outskirt of field to prevent the entry of both human beings and animals.

- The juicy sweet pinkish-red fruits are relished.
- Fruit is given once daily orally to children on empty stomach for 30 days as blood purifier. ?

Chemical Constituents:- Pharmacologically, the plant contains glycosides of isorhamnetin, quercetin, isoquercitrin, traces of free flavanols, arabinogalacton and betanin (Chatterjee & Pakrashi, 1997; Chopra *et al.,* 1969)

Biological Activity:- Ether ext. of the stem exhibits some antibiotic properties. (Annon., 1966).

243. Oroxylum indicum (Linn.) Vent.

Syn: Calosanthes indica Blume. Bignonia indica Linn., Spathodea indica Pers.

Family: Bignoniaceae. **Vern.** : Tetu.

Sanskrit Name: Munduka-purna, Syonaka.

English Name: Indian Trumpet Tree.

Regional Names:-

Ass.: Kering;**Beng.:** Nasona, Sanpatti, Sona;**Bom.:** Assar-sauna, Karkath, Phalphura-tantun, Tetu, Ullu;**Hin. :** Arlu, Assar-sauna, Kharkath, Pharkath-sauna, Ullu;**Kan.:** Teta;**Mar.:** Tetu;**Oriya:** Phnphuna;**Pb.:** Miringa, Mulin, Sori, Tat Morang, Tatpalang;**Tam.:** Achi-vanga-maram, Pana, Vanga;**Tel.:** Dondlup, Dundillam, Pamania, Pampana.

Distribution: India, SriLanka, Burma, China, Malaysia.

Description: A small tree with green juice. Leaves 3-5 feet long bi or tri pinnate, pinnae opposite, leaflets 2-4 pairs, ovate or elliptic, acuminate, cordate. Flowers foetid, in large erect racemes, 1-2 feet long, whitish or bright purple. Capsules 2-valved, 2-3 feet long, sward-like, flat. Seeds many, flat and winged, thin with silvery wings.

Flowering: May-Aug. **Fruiting**: May-Aug.

Habitat Ecology: Found in Barda Hills.

Material Examined: NKO-234

Parts Used: Seeds, Stembark.

Folk Uses:-

- Seeds are orally used in throat infection.

- Decoction of stem bark is used as appetizer in indigestion.

Chemical Constituents:- The stem and root barks contain three flavone colouring matters, oroxylin a baicalein and chrysin. The bark contains also traces of an alkaloid, charya, tannic acid, sitosterol and galactose. The seed contain a yellow crystalline principle and baicalein and its glucoside named tetuin and yellowish oil.

Biological Activity:- Astringent, bitter, acrid, antioxidant, refrigerant, anti-inflammatory, anodyne, aphrodisiac, expectorant, appetizing, carminative, digestive, anthelmintic, constipating. Diaphoretic, diuretic, antiarthritic, febrifuge.

244. *Oryza sativa* Linn.

Family: Poaceae **Vern:** Dangar, Choka, Dhan.

Sanskrit Name: Dhanyah, Vrihi, Sali. **English Name**: Paddy, Rice.

Regional Names:

Hin : Dhan, Caval;.**Ben** : Chal ;**Tel** : Biyyam, Vari.**Mar** : Tandula, Dhan, Bhat.

Tam : Nellu, Arisi.**Mal** : Nellu, Navaranellu, Ari.**Kan** : Akki, Bhatta.

Distribution: India.

Description: 75-100 cm tall, annual herbs; culms hollow, erect; Leaves linear, flat; Inflorescence solitary or fascicled; Grain elliptic – oblong.

Flowering: Oct.-Nov. **Fruiting**: Oct.-Nov.

Habitate Ecology: It is rarely cultivated as a staple grain when sufficient irrigation is available.

Material Examined: NKO-326

Parts Used: Stem, grains.

Folk Uses:

- The Maher used grains putting on vermillion tika spot on the forehead of the bride and groom especially in marriage ceremony.
- The dried stocks are used as a fodder and thatching materials.
- Grains are used in dinner especially in *'Khichadi'*.

Chemical Constituents : Acetaldehyde, acetone, adenine, allantoin, alpha-tocopherol, antheraxanthin, ascorbic-acid, beta-sitosterol, choline, cycloartenol,

cycloeucalenol, ferulic-acid, isoeugenol, lencithin, lignin, lignocetic-acid, linoleic-acid, lutein, niacin, oleic-acid, P-aminobenzoic-acid, P-coumaric-acid, P-hydroxy-benzoic-acid, palmitic-acid, pantothenic-acid, pyridoxine, shikimic-acid, squalene, stearic-acid, stigmasterol, tricin, trigonelline, vanillic-acid.

245. Pandanus odoratissimus Willd.

Syn : *P. teetorius* Soland.

Family: Pandanaceae. **Vern.** : Kevada.

Sanskrit Name: Ketaka, Ketaki. **English Name**: Fragrant Screwpine.

Regional Names:-

Beng.: Keori, Ketki-keva, Ketuki, Keya;**Bom.:** Kenda, Keur;**Hin.:** Gagandhul, Keora, Ketgi;**Kan.:** Ketaki, Kyad-agegida, Tale mara;**Tam.:** Talum, Tazhai, Thalay;**Tel.:** Gajangi, Gedangi, Ketaki, Mugali.

Distribution: Pakistan, India, Burma, Polynesia.

Description: A large shrub with aerial stilt roots which possess very large root-caps. Leaves long, sword-like, acuminate, coriaceous with spines on the midrib and margins. Flowers dioecious male flowers spadix with numerous subsessile cylindric spikes, enclosed in long whitish-yellow, very fragrant caudate acuminate spathes, female flowers - spadix solitary. Fruit sorosis oblong globose, yellow or red.

Flowering: July-Sept. **Fruiting**: July-Sept.

Habitat Ecology: Cultivated in the gardens for its very sweet scented male flowers leafy golden bracts.

Material Examined: NKO-313

Part Used: Whole plant, Leaves, Flowers.

Folk Uses:-

- Planted as an ornamental plants.
- Leaves and flowers used for the worship of ‘Shiva’.

Chemical Constituents:- Flowers contain *kevda* oil is methyl-ether of phenylethyl alcohol to which is due the characteristic aroma of the spadices. The oil essential also contains dipente, d-linalool, phenylethyl acetate, citral, phenylethyl alcohol, ester of phthalic acid, fatty acids and stearoptene.

Biological Activity:- Oil is obtained from the bracts is stimulant and antispasmodic.

246. Panicum antidotale *Retz.*

Family: Poaceae. **Vern.** : Dhusado.

Distribution: North America, Afghanistan, Pakistan, Tropical Africa, India, SriLanka, Brazil, Australia.

Description: A tall, perennial grass. Leaves linear, flat, glabrous, tapering from the rounded base to a fine point. Inflorescence panicles, pyradimal, usually with fascicled branches, spikelts long, acute laxly crowded on branches ovate.

Flowering: Aug.-Oct. **Fruiting**: Aug. - Nov.

Habitat Ecology: Grows in the hedges.

Material Examined: NKO-327

Part Used:-Aerial parts.

Folk Uses:-

- Aerial parts are used as a lean fodder.

Chemical Constituents:- (Present on dry matter at maturity): crude fibre 40.47 crude proteins 7.26, total ash 7.97 Ca 0.54, P 0.21, Mg 0.35, Na 0.34, K 1.95

247. Parkinsonia aculeate Linn.

Family: Caesalpiniaceae. **Vern.** : Pardesi baval.

Sanskrit Name: Kikirat, Nimbulika. **English Name**: Jerusalem Thorn.

Regional Names:-

Hin.: Kikirat.

Distribution: India, Central America & Mexico, Brazil.

Description: An armed, small tree with sharp, woody spines which represent the rachises of the bipinnate leaves, youg branches green. Pinnae 1-3 pairs, the rachis green and much flattened. Leaflets numerous minte, oblanceolate, obtuse. Flowers in axillary racemes yellow. Pods moniliform pointed at both ends.

Flowering: Feb.-Apr. **Fruiting**: Mar.-May.

Habitat Ecology: Cultivated for hedges or growing as an escape in waste lands.

Material Examined: NKO-106

Parts Used: Wholeplant, Stem, Fruits.

Folk Uses:-

- It is grown on outskirt of field as a live fence.
- Dried stem is used as fuel.
- Dried pods are eaten.

Chemical Constituents:- Seeds contain proteins, mucilage, carbohydrate and fatty oil.

Biological Activity:- Plant is diaphoretic, antipyretic, abortifacient, antipblogistic, nutritive, astringent

248.Parthenium hysterophorus Linn.

Family: Asteraceae. **Vern** .Congress ghas.

Distribution: India, Brazil.

Description: An erect, stout, puberulous herbs. Leaves long, alternate, pinnatifid. Inflorescence heads, white in terminal, flower radiate. Fruit achemes minute, compressed, 3-quetrous, puberulous along the sides.

Flowering: Aug.-Nov. **Fruiting**: Sept.-Dec.

Habitat Ecology: It is a weed of the waste land.

Material Examined: NKO-171

Part Used: Leaves.

Folk Uses:-

- Leaf juice is used in teeth caries.

Chemical Constituents:- Plant contains a bitter glycoside, parthenin and other unidentified alkaloids.

Biological Activity:- Plant is emmenagogue, febrifuge and analgesic.

249. Passiflora edulis Sims.

Family: Passifloraceae. **Vern.** : Pandav Kaurav Vel.

English Name: Passion Flower.

Regional Names:-

Hin.: Krishna kamal.

Distribution: India, Brazil.

Description: A big woody climber with stem tenarils. Leaves deeply 3-lobed, serrate, base rounded, petioles with 2 glands at the base of lamina. Flowers big solitary, white deeply tinted with purple. bracts 3 with glands at the margins. Berry globose. Seeds many, arillate.

Flowering: Aug.-Oct. **Fruiting**: Sept.-Nov.

Habitat Ecology: Cultivated.

Material Examined: NKO-134

Part Used: Leaves, Fruits.

Folk Uses:-

- The ripe fruits are usually eaten.
- 1 cup decoction of leaves is drunk for high blood pressure.

Chemical Constituents:- Fruit contains edulan, sugars, organic acids etc.

Biological Activity:- Fruit is nutritive, sour, sweet, sedative, hypnotic, anti spasmodic, anodyne. Leaves are astringent, styptic etc.

250. Pavonia ceratocarpa Mast.

Family: Malvaceae. **Vern.** : Khati chhas.

Distribution: Pakistan, India.

Description: 60-120 cm, stellate hairy, herb. Leaves alternate, elliptic oblong. Inflorescence axillary, solitary, flowers yellow, complete. Fruit cuneate, densely 3-horned, winged.

Flowering: Aug.-Oct. **Fruiting**: Sept.-Nov.

Habitat Ecology: It grows in open areas along with grasses.

Material Examined : NKO-29

Part Used: Leaves.

Folk Uses:-

- When water source is not available at that time as a supplement of water, leaves of it are chewed in mouth by Maher during rearing cattle. ?

251. Pedalium murex Linn.

Syn : *P. muricatum* Salisb.

Family: Pedaliaceae. **Vern.** : Motu gokhru.

Sanskrit Name: Sthula gokshurah, Tikta gokshurah.

English Name: Big Caltrap.

Regional Names:-

Hin.: Bara gokhru, Bada gokhru;**Kan.:** aneneggilu, Doddaneggili, Anenegaligida; **Mal.:** Kattunerinnil, Ananerinnil; **Tam.:** Yanainerunci, Perunerunci; **Tel.:** Pedda palleru.

Distribution : Abyssinia & Soctra, Tropical Africa, Madagascar, India, SriLanka.

Description : A small herb much branched and rough with scaly glands. Leaves opposite, fleshy, ovate-oblong, truncate, crenate-serrate, or lobed, base narrow, lower surface with small scales. Flowers bright yellow, axillary, solitary. Capsule hard, indehiscent pyramidal-ovoid, with horizontal spines from the 4 angles. Seeds 1 or 2 pendulous, elongate elliptic.

Flowering : July-Nov. **Fruiting**: July-Nov.

Habitat Ecology: Found along the roads, in fields and waste lands.

Material Examined: NKO-236

Parts Used: Fruits.

Folk Uses:-

- 2-3 teaspoonful decoction of fruits is given to children twice a day in cases of night discharge.

Chemical Constituents:- Whole plant contains resin, mucilage, alkaloids etc. Fruits contain an alkaloid, greenish fatty oil and resin.

Biological Activity:- The plant is astringent, cooling, mucilaginous, diuretic, lithontriptic, aphrodisiac, antispasmodic, emmenagogue, anti-inflammatory, digestive, carminative, tonic and rejuvenating.

252. Pennisetum typhoides (Burm.) Stapf & C. E. Hubb.

Syn : *P. typhoideum* Rich, *Alopecutos typhoides* Burm.

Family: Poaceae. **Vern.** : Bajro.

English Name: Pearl Millet.

Regional Names:-

Ben.: Bajra, Lahra;**Hin.:** Bajra, Lahra;**Kan.:** Sajje;**Mar.:** Bajari;**Tam.:** Kambu; **Tel.:** Sajja, Ganti.

Distribution: Tropical Africa, India.

Description: A large, anuual herb, stout and erect. Leaves alternate, long, and strap-shaped, sheath loose and long, ligules short and hairy. Flowers spike single and terminal, long erect, densely woody, spiklets in clusters of 1-8, bristles on one side, plumose, glumes 4, an equal, staminate florets beneath, the upper floral glume with a fertile flower.

Flowering: Sept.-Dec. **Fruiting**: Sept-Dec.

Habitat Ecology: Extensively cultivated throughout the study area.

Material Examined: NKO-328

Parts Used: Whole plants, Seeds, Stem, Roots.

Folk Uses:-

- Boiled seeds mixed with jaggery are given to animals during delivery.
- Unripe fruits are stored in seeds of it and eating them awaited till they come to desired state.
- Mud structures of '*Kothi*' (storage granairy) are prepared from lomy soil in which some amount of an ear of *bajara* is mixed which acts as a binding agent. ?
- Dried stalk are used to form cushion on the bier to carry the dead before laying the body. ?
- Straw is utilized as an inferior fodder for cattle.
- Dried stalks are used for thatching roofs.
- Roots are used to prevent soil erosion.

Chemical Constituents:- (Percen on dry matter) crude fibre 23.96, crude protein 8.88, total ash 7.68, ca 0.55, P 0.44, Mg 0.33, Na 0.13 and K 2.96

253. Pentatropis spirialis (Forsk.) Deene

Syn: *P. cynanchoides* R. Br., *Asclepias spiralis* Forsk.

Family: Asclepiadaceae. **Vern.** : Singroti.

Sanskrit Name: Suryavali.

Regional Names:-

Hin.: Kauathodi;**Mar.:** Shvetakavali;**Pb.** : Amber vel.

Distribution: Afghanistan, Pakistan, Tropical Africa, India.

Description: A perennial, more or less glabrous, twinning shrub, stem slender green. Leaves ovate or oblong, elliptic or linear, obtuse, base rounded. Flowers greenish in lateral umbellate cymes. Follicles lanceolate tapering to a beak. Seeds 4 mm long, ovate, flattned.

Flowering: May-Oct. **Fruiting**: July-Nov.

Habitat Ecology: A common plant throughout the area. Climbing on field fences and bushes.

Material Examined: NKO-197

Parts Used: Leaves, Fruits.

Folk Uses:-

- Green fruits are eaten.
- Crushed leaves mixed with cattle feed, given to milching cattle to increase milk yield. ?

Biological Activity:- The plant is bitter, acrid, heating, emetic. The dry roots are astringent, refrigerant and cooling.

254. Pergularia daemia (Forsk.) chiov.

Syn: *P. extensa* (Forsk.) Chiov., *Asclepias daemia* Forsk., *Daemia extensa* R. Br.

Family: Asclepiadaceae. **Vern.** : Chamar dudheli.

Sanskrit Name : Kurutaka, Uttamarani. **English Name**: Common Dandelion.

Regional Names:-

Hin.: Utaran, Sagovant, Jutak;**Kan.:** Talavaranaballi, Juttuve, Haloloratige;

Mal.: Velipparutti;**Tam.:** Velipparutti;**Tel.:** Gurticettu, Jittupaku, Dustapucettu.

Distribution: Afghanistan, Pakistan, India, SriLanka.

Description: a perennial twiner with milky juice, foetid hairy. Leaves ovate, cordate, thin. Flowers greenish-yellow in lateral cymes. Follicles with soft spines, seeds comose.

Flowering: July.-Feb. **Fruiting**: July.-Feb.

Habitat Ecology: Common in hedges and bushes.

Material Examined: NKO-198

Parts Used: Flowers.

Folk Uses:-

- 10-20 flowers are taken along with table salt twice a day to remove cough. ?

Chemical Constituents:- The musculotropic activity of the plant extract, formerly altributed to a bitter glucodisic principle, is due to the presence of a polypeptide in combination with betaine. The plant also contains latex, hentriacontane, lupeol and sitosterol. A more recent study shoed the presence of several cardenolides likes calctin, calotropin calotropagenin, uzarigenin and coroglaucigenin in the seeds and stems.

Biological Activity:- Plant is astringent, acrid, thermogenic, emetic, expectorant, emmenagogue, anthelmintic, and antipyretic, laxative.

255. Peristrophe paniculata (Forsk.) Burm.

Syn: *P. bicalyculata* (Retz.) Nees.

Family: Acanthaceae. **Vern.** : Kali anghedi.

Sanskrit Name : Kakjangha.

Regional Names:-

Hin.: Nasbhanga, Masi, Itarelal;

Distribution: Abyssinia & soctra, Tropical Africa, India.

Description: An erect branched herb, stems 6-angled, hairy and rough. Leaves ovate, acuminate, hairy, base rounded. Flowers pink in trichotomous cymes in large divericate, hairy panicles. Capsule pointed, narrowed into a stalk.

Flowering: Oct.-Jan. **Fruiting**: Oct.-Jan.

Habitat Ecology: A very variable. Plant as regards its indumentum.

Material Examined: NKO-242

Parts Used: Whole plant.

Folk Uses:-

- At the time of obsequies, first of all water and entire plant offered on roof of house. It is belived that it is used by fore fathers as toothbrush and there after an oblation offered to crows. ?

Chemical Constituents:-

Petunidin 3-rhamno-glucoside isolated from flowers.

Biological Activity:-

Antibacterial properties reported. Activity on blood pressure found positive.

256. Phaseolus mungo Linn.

Syn: *P. aureus* Ham., *P. hirtus* Retz., *P. max* Roxb.

Family: Fabaceae. **Vern.** : Mag.

Sanskrit Name : Mudga. **English Name**: Green Gram.

Regional Names:-

Beng.: Bulat, Ghoramuga, Kheruya, Krishnamuga, Mug, Mung, Nari-mung, Sonamuga;**Bom.:** Mung;**Hin.**: Mug, Mung, Munj, Narrimug, Pessara-walli, Mug;**Kan.**: Hesaru, Nesarnbell;**Mar.**: Mug;**Oriya:** Dhala-mug, Kala-mug, Saulimug;**Pb.:** Muji, Mung, Mungi;**Tam.:** Patchepaira, Puchu-payaru, Siru-payaru;**Tel.:** Patcha-pessara, Wuthulu.

Distribution: India, Malaysia.

Description: A sub erect, herbaceous annual. Leaves trifoliate, leaflets dark green, entire or rarely trilobed, membranous. Flowers in clusters of 10-25 on long pedicels. Fruit thin, sub cylindrical pods. Seeds 10-15, green, more or less globular.

Flowering: Aug.-Oct. **Fruiting**: Sept.-Nov.

Habitat Ecology: Cultivated as a winter crop.

Material Examined: NKO-87

Parts Used: Seeds.

Folk Uses:-

- Seeds used in worship and religious ceremonies in Maher community.
- The seeds are used as '*Dal*', either whole or split in two.

Chemical Constituents:- Seeds contain protein, carbohydrate, thiamine, riboflavin, fibers, nicotinic acid, pyridoxine, inositol, vitamin B 12, ascorbic acid, vitamin K, minerals.

Biological Activity:- Seeds are nutritive aphrodisiac, galactogogue, diuretic, styptic, constipating, digestive.

257. Phaseolus radiatus Linn.

Syn: *P. mungo* wall., *P. roxpurghii* W. & A., *P. setulosus* Dalz., *Vigna opisotricha* A. Rich.

Family: Fabaceae. **Vern** : Adad.

Sanskrit Name : Daniemasha, Hurita, Masha. **English Name**: Black Gram.

Regional Names:-

Beng.: Mash-kulai, Tircoral-kalai;**Hin.**: Dora, Thikiri, Urid, Urud;**Kan.**: Hasaru, Uddu;**Mar.:** Maga, Udid;**Pb.:** Mah, Mash, Urad;**Tam.:** Panny-pyre, Patchay-pyre;**Tel.:** Karu minumulu, Minumulu, Patasa-pesalu.

Distribution: India, Malaysia.

Description: Diffuse or shortly scandent herbs with often twisted stem with spreading or reflexed hairs. Leaflets ovate-lanceolate or ovate. Flowers bright yellow. Pods 2-5 cm. hairy. Seeds black or grey.

Flowering: Sept.-Oct. **Fruiting**: Sept.-Oct.

Habitat Ecology: Cultivated as a rainy season crop in fields.

Material Examined: NKO-88

Parts Used: Seeds.

Folk Uses:-

- Seeds paste made with jaggery and lime is used as strong leak-proof paste to check leakage from earthen pots. ?
- The ripe seeds are used as '*Dal*', either whole or split in two.
- Evil influences of spirits are attributed to a child on its regular weeping at night or uneasiness, put at night on junction of four roads seven red chilli, seven crystals of salt, lemon and 25g Seeds of these plants.

Chemical Constituents:- Seeds contain mucilage, protein, carbohydrate, hemicellulose, pectin, starch, oil and minerals.

Biological Activity:- Roots are narcotic. Seeds are emollient, antibilious, aphrodisiac, galactagogue, appetiser and nervine tonic.

258. Phoenix sylvestris Roxb.

Syn: *Elate sylvestris* Linn.

Family: Arecaceae. **Vern.** : Tadi.

Sanskrit Name : Bhumikharjurika, Haluka, Kharju.

English Name: Date-Sugar Palm, Indian Wine Palm, Sugar palm, Wild Date Palm.

Regional Names:-

Beng.: Kajar, Kajur; **Bom. :** Khajur, Sendi;**Hin.:** Kejur, Salma, Thalma;**Mal.:** Inta;**Mar.:** Boichand, Sendri;**Oriya:** Khovjura;**Pb.:** Khaji;**Tam.:** Ichambanai, Madal;**Tel.:** Ita, Peddayita.

Distribution: India.

Description: palm trunk stout, clothed with persistent leafbaes. Spadices erect. Fruits scattered on long, pendulous spikes.

Flowering: Jan.-Mar. **Fruiting**: Jan.-June.

Habitat Ecology: Common in river bads.

Material Examined: NKO-312

Parts Used: Whole plant, Leaves, Inflorescence, Fruits.

Folk Uses:-

- It is grown on outskirts of field as a live fence and prevent soil erosion.

- Ripe fruit are eaten raw.
- After shade of fruits remaing parts of inflorescence is used as a broom. The fronds or a leaves are also chosen for brooms.
- Leaves used for hut thatching.
- In festivals and marriages the wall canvaces of Maher tribed house with painting of this plant.

Chemical Constituents:- Fresh unfermented sap contains protein 0.37%, total sugar 11.01%, reducing sugars 0.97%, mineral matter 0.54%, phosphorus 0.10% calcium trace iron 0.04 % nicotinic acid, isonicotinic acid hydrazide and organic acids (Anon, 1969).

259. *Phyllanthus fraternus* Webster.

Syn: *P. asperulatus* Sensu, *P. niruri* auct. non. Linn.

Family: Euphorbiaceae. **Vern.** : Bhonya ambli.

Sanskrit Name : Bhumya malaki.

Regional Names:

Ben : Bhuiamla; **Mal** : Kizhanelli; **Mar** : Bhuivali; **Oriya** : Bhuiaola.

Tam : keelalelli; **Tel** : Nelausirika;

Distribution: Pakistan, Tropical Africa, India, W.Indies.

Description: 20-50 cm annual, erect herbs. Leaves alternate. Inflorescence axillary; flower pale-greenish-yellow. Fruit capsule; seed tri-gonous.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Very common in wasteland during monsoon

Material Examined: NKO-276

Part Used: Whole plant.

Folk Uses:

- Plant extract is given orally once or twice in a day to cure fever in children.

Chemical Constituents:- Lignans, estradiol, Kaempferol-4-rhamnopyroside, eriodictyol-7-rhamnopyroside.

260. Phyllanthus maderaspatensis Linn.

Family: Euphorbiaceae. **Vern.** : Bakrato.

Regional Names:-

Hin.: Kanochha; **Mar.:** Kanochha.

Distribution: Tropical Africa, India, SriLanka, China, Java Sumatra & Sunda.

Description: An annual erect herb, often woody at the base, stem glabrous, flowering branchlets sharply angular, often compressed, sulcate when dry. Leaves elliptic oblong, dark green stipulate. Flowers axillary the male and female flowers sometimes together in the leaf axils or the females more often solitary. Much larger than males. Capsules smooth, shining, 3-grooved, 3-lobed, 6 seeded, redish-brown.

Flowering: Aug.-Nov. **Fruiting**: Aug.-Dec.

Habitat Ecology: Grows in cultivated field and open areas.

Material Examined: NKO-277

Part Used: Aerial Parts.

Folk Uses:-

- An aerial part of plant is good fodder for goats.

261. *Physalis minima* Linn.

Syn: *P.parviflora* Br., *P. divaricata* Don, *P. villosa* Roth., *P. rothiana* Roem. & Sch., *P. hermanni* Dunal., *P. pubescens* Wight.

Family: Solanaceae **Vern.** : Sarpopati.

Sanskrit Name: Mridukunchika.

English Name: Sun Berry, Country Gooseberry

Regional Names:

Ben : Bantepariya;**Bom** : Nanvachiva, Thanmori;**Hin** : Bandapariya, Chirpoti, Tulati pati;**Kan** : Guddehannau;**Mal** : Njodinjotta;**Mar** : Chirboti, Lahanpoti; **Pb** : Habbikaknaj, Kakanj;**Tam** : Tholtakkali;**Tel** : Budda budama, Kupanti.

Distribution: Pakistan, Tropical Africa, India, SriLanka, Australia

Description: Herbaceous annual with erect stems up to 30 cm tall. Flowers yellow, Solitary. Berries included in the persistent calyx. Seeds numerous discoid orange-yellow.

Flowering: Aug- Nov. **Fruiting**: Aug-Nov.

Habitat Ecology: Common along water side, damp places.

Material Examined: NKO-227

Parts used: Fruits.

Folk Uses:

- Ripe fruits are eaten.

Chemical Constituents: Therapeutic properties attributed to arachidic, hexadecenoic, linolic, linolenic, oleic, palmitic, stearic acids; physalins A, B, C, and 5β, 6 β-epoxyphysalin B, dihydroxyphysalin B, Withaphysalins A, B, C Cleaves; and physalin D, 6, 7-dihydro-6-dehydrophysalin B, 5, 6, 7, -trimethoxy flavoae and 5-methoxy-6, 7-0 methylenedioxy flavones (chatterjee & pakrashi, 1997).

Biological Activity: An aerial parts diuretic.

262. *Pithecellobium dulce* (Roxb.) Benth

Syn: *Mimisa dulcis* Roxb. *Inga dulcis* Willd.

Family: Mimosaceae **Vern**: Goras ambli.

English Name: Manila Tamarind.

Regional Names:

Hin :Vilaiti imli;**Tam**: Karkapilli;**Tel** : Seemachinta

Distribution: India, Philippines, Central America & Mexico, Brazil.

Description: A middle-sized tree, armed, straight stipular spines. Leaves with one pair of pinnae leaflets asymmetrically elliptic to above-elliptic, glabrous of puberulous. Flowers in small heads which are 1 cm in diam, arranged racemosely

paniculately. Pods spirally twisted, velvety pubescent. Seeds black enveloped in a

pulpy, white, edible aril.

Flowering: Nov-Feb. **Fruiting**: Dec-Mar.

Habitat Ecology: Often planted as a hedge.

Material Examined: NKO-117

Parts Used: Whole plant, Stem, Aril.

Folk Uses:

- v It is grown on field boundaries as a live fence.
- v Stem used in preparation on leveler, Ada.
- v Dried stem is used as fuel.
- v The white or red juicy sugary aril is eaten fondly.

Chemical Constituents: Bark contains tannin Aril of pod contains tannin, ascorbic acid, sugars, calcium, magnesium, iron, phosphorus and calcium pectinate. Leaves and seeds contain saponin.

Biological Activity: Aril of fruit is astringent, sweet, sour, blood purifier, expectorant, nutritive. Bark is astringent, febrifuge. Leaves are astringent, emollient and abortifacient.

263. *Plumbago zeylanica* Linn.

Syn: *P. auriculata* Blume, *Thela alba* Lour.

Family: Plumbaginaceae. **Vern**: Chitrak.

Sanskrit Name: Agni, Agnisikha, Bhali, Chitra.

English Name: Ceylon Lead wort..

Regional Names:

Beng : Chita, Chitruk; **Bom** : Chitra, Chitrack; **Hin** :Chita, Chiti, Chitra;**Mal** : Tumpukotuveli; **Mar**: Chitraka, Chitramula; **Tam** : Adigarradi, Tigana; **Tel** : Agnimata, Chitra-mulam;

Distribution:Arabia, Persia, Mesopot, Abyssinia and Soctra, Tropical Africa, Natal ECP, Madagascar, India, SriLanka, Malaysia, Java Sumatra & Sunda.

Description: A rambling subscandent perennial herb. Stem clasping. Flowers white, in long spikes; rachis glandular. Capsule included.

Flowering: Sept.-Nov. **Fruiting**: Sept.-Nov.

Habitat Ecology: A common plant as undergrowth especially in moist localities.

Material Examined: NKO-175

Parts Used: Roots.

Folk Uses:

- Drink powder of root, bitter leaves of *Azadirachta indica*, leaves of *piper longum* leaves of *Terminalia chebula* and table salt with boiled water to cure fever.

Chemical Constituents: Roots yield plumbagin, 3-chloro-plumbagin, droserone,

3,3'-biplumbagin, zeylanone, iso-zeylanone and elliptinone.

Biological Activity: Root ext. antibacterial and antimicrobial.

264. *Plumeria rubra* Linn.

Syn: *P. acutifolia* Poir, *P. acuminata* R.Br.

Family: Apocynaceae. **Vern.** : Champo.

Sanskrit Name: Ksira champaka, Sweta champaka.

English Name: The pagoda Tree, Life Tree.

Regional Names:-

Hin.: Golenchi, Gopurchamp;**Kan.:** Kadusampige;**Mal:** Alari, Kunkumakkalli, Kunkumappuvu;**Tam.:**Alari, Kallimandarai;**Tel.:** Adaviganneru, Vadaganneru;

Distribution: India, Brazil.

Description: A small deciduous tree with milky latex, Leaves alternate, oblong, large acute at both ends, intramarginal veinpresent. Flowers large waxy white with a golden centre, fragrant in terminal cymose panicles. Follicle 2, rarely found.

Flowering: All months. **Fruiting**: Rarely found.

Habitat Ecology: Cultivated in kitchen garden and religious places.

Material Examined: NKO-190

Parts Used: Whole plant, Flowers, Milky juice.

Folk Uses:-

- Milky juice is applied on rheumatic joints twice a day for a week.
- Planted as an ornamental plants.
- Flowers used for the worship of 'Shiva'.

Chemical Constituents: The stem-bark contains plumierides and fulvoplumerin. It also contains tannin, volatile oil, mucilage and ash. Stem contains latex (caoutchouc).

Biological Activity: Root bark is bitter, acrid, astringent, carminative, thermogenic and purgative. Latex is antiseptic, vesicant, rubefacient, purgative, thermogenic.

265. Polyalthia longifolia Benth.

Syn: *Guatteria longifolia* Wall., *Uvaria longifolia* Lam.

Family: Annonaceae. **Vern.** : Asopalav.

Sanskrit Name: Ulkatah, Kashtadaruh.

English Name: The India Fir, Mast Tree.

Regional Names:-

Beng.: Devadar, Devadaru; **Bom.:** Asok, Asoka, Asopalav, Asupala, Asupil,Devadaru; **Hin.:** Asok, Debrdari, Devadar, Devadaru; **Kan.:** Asoka, Putrajiva; **Oriya:** Deb-daru; **Tam.:** Assothi; **Tel.:** Asokam, Devadaru.

Distribution: India, Sri Lanka.

Description: A tall evergreen with a clear, straight bole and a pyramidal crown. Leaves membranous, lanceolate, tapering to fine point, shining, glabrous, margin undulate or wavy, gland-dotted. Inflorescence a fascicle or shortly pendulced umbel, flowers yellowish-green. Fruit an etaerio of berries, berries stalked ovoid. Seeds large smooth and shining.

Flowering: Apr.-May. **Fruiting**: May-June.

Habitat Ecology: Planted as an evergreen avenue tree.

Material Examined: NKO-2

Parts Used: Whole plant Leaves.

Folk Uses:-

- It is a popular avenue tree because of its graceful appearance and dense shade.
- Leaves are used as a‘*Toran’*on the gate at the time of marriage ceremony and Diwali festival.

Chemical Constituents:- Leaves contain tannin; bitter principle etc. bark contains tannin, a bitter principle, iron.

Biological Activity:- Bark is bitter, acrid, febrifuge, astringent, thermogenic, expectorant, styptic, emmenagogue, anthelmintic, antipyretic, thermogenic.

266. Portulaca oleracea Linn.

Family: Portulacaceae. **Vern.** : Luni.

Sanskrit Name: Brihat loni, Ghotika. **English Name**: The Purslane.

Regional Names:-

Hin.: Badiloni, Bara aniya.**Kan.:**Budagora;**Mal.:**Koluppa, Koluppaccira, Karicira;**Tam.:** Karikkrai, Pruppukkrai;**Tel.:** Peddapuvilakura.

Distribution : Arabia, Persia, Mesopot, Pakistan, Abyssinia & Soctra, Tropical Africa, India, SriLanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea.

Description: An annual succulent, prostrate herb, stem reddish, swollen at nodes. Leaves fleshy, subsessile, and alternate or sub opposite, triangular, rounded and truncate at the apex, stipules absent. Flowers yellow, few together, in sessile terminal heads fruit a pyxis or pyxidium. Seeds many and black.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Common weed.

Material Examined: NKO-22

Parts Used: Leaves.

Folk Uses:-

- Fresh leaves are used as vegetable.
- Prepared the pest of leaves in milk and applied over pimples.

Chemical Constituents:- The whole pant contains, protein, carotene (vitamin A), vitamin B, sugars, mucilage, organic acid, nicotinic acid, oxalic acids, noradrenaline, the biflavonoid liquiritin, minerals (sodium, potassium, magnesium etc.).

Biological Activity:- Stem and leaves are astringent, sweet, mild laxative, emollient, demulcent, cooling, stomachic, alexeteric, antibacterial,

antiscorbutic, sudorific, aperient, alterant, diuretic, vulnerary, and tonic. Seeds are cooling, diuretic and antidysenteric.

267. Premna herbacea Roxb.

Family: Verbenaceae. **Vern.** : Ghiti.

Sanskrit Name: Bhumijambuk.

Regional Names:-

Hin.: Bhujam; **Tel. :** Navuru;

Distribution: India.

Description: A small shrub, arising from a perennial root stock. Leaves in a rosette, closely appressed to the ground or in 2 or 3 pairs. Flowers greenish yellow in small corymbs. Drupes globose, black.

Flowering: July-Nov. **Fruiting**: July-Dec.

Habitat Ecology: Common in forest of Barda Hill.

Material Examined: NKO-247

Part Used: Stem, Leaves, Fruits.

Folk Uses:-

- Dried branched are used as a fuel.
- Ripe fruits are eaten as such.
- Crushed leaves applied on forehead to cure headache.

Chemical Constituents:-The root contains several diterpenoids. Quinonemethide (bharangin) is reported from the plant.

268. Prosopis cineraria (Linn.) Druce

Syn: *P. spicata* Burm., *P. spicigera* Linn., *Adenanthera aculeate* Roxb., *Mimosa cineraria* Linn.

Family: Mimosaceae. **Vern.** : Khijado.

Sanskrit Name: Shami. **English Name**: Khejri Tree.

Regional Names:-

Beng. : Shami, Somi;**Bom.:** Saundad, Shami, Shamri, Shemi, Shemri, Shemu, Sounder, Sumri;**Hin.** Jand, Jhand;**Kan.:** Perumbai, Perumbe,Vunne;**Mar.:** Hamra, Khijado, Khijro, Saunder, Salandal, Semru, Shemi;**Oriya:** Savandal,

Shami;**Pb.:** Jand, Jandi, Jant, Jhand, Kanda, Kandi, Khar, Khunda, Sankhri, She, Shangar;**Tam.:** Jambu, Perumbe, Vanni, Vunner;**Tel.:** Chami, Chani, Jammi, Priyadarsini, Shumi.

Distribution: Persia, Mesopot, Afghanistan, Pakistan, India.

Description: A medium sized thorny tree. Leaves alternate, bluish green, bipinnate, pinnae and leaflets opposite, apex usually mucronate. Flowers in axillary spikes, creamy white. Pods turgid, filled with dry, sweetish pulpconstircted between 10-15 seeds.

Flowering: Dec.-Feb. **Fruiting**: Jan.-Mar.

Habitat Ecology: Common in hedges, wastelands and fields.

Material Examined: NKO-118

Part Used: Whole plant, Pods, Branches.

Folk Uses:-

- The flag is hoisted top of the pole on the tree and worship of 'Khijda Mama.
- Dry branching is used to prepare fencing surrounding the cropland.
- Dry pods are eaten.
- Fruit pulp crushed in cow milk is given with powder of *cuminum cyminum* and sugar cube twice a day for a week to cure polyuria.
- Soil is digout near the trunck and round hole is prepared beneth the root and child pass through it. It is belived that cures the bronchitis in children. ?

Chemical Constituents:- Leaves and bark contain tannins. Pods contain sugars, starch, mucilage, pectin's, minerals etc. leaves contain nitrogen 2.9%, phosphorus 0.4%, potassium 1.4% and calcium 2.8%, patulitrin, a glycoside is found from flowers. Galls contain tannin.

Biological Activity:- Bark is bitter, astringent, demulcent, pectoral, expectorant, and depurative. Leaves are astringent, bitter, depurative, and styptic. Pods are sweet, astringent, nutritive, bitter, thermogenic, diuretic, demulcent, expectorant.

269. Prosopis chilensis (Molina) Stuntz

Syn: *Prosopis juliflora* (Swartz) Dc.

Family: Mimosaceae. **Vern.** : Gando baval.

English Name: Mesquite, Algardea.

Regional Names:-

Hin.: Kabuli-Kikar.

Distribution: North America, India, Brazil.

Description: A large shrub or a small evergreen, armed tree, branches long. Leaves 1-3 at each node bipinnate, leaflets 13-25 pairs puberulous particularly on margins. Inflorescence in axillary spikes, flower pentamerous. Fruit pods, seed ovoid.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: a variable evergreen plant. Recently introduced in the region. It is a hardy plant grows fast.

Material Examined: NKO-119

Part Used: Branches, Pods, Wood.

Folk Uses:-

- Pods are very useful as cattle fodder in adverse condition.
- Dry branching is used to prepare fencing surrounding the cropland and also act as a live fence.
- Stem is used for making 'Ada'
- The wood is used for coal.
- Dried branches are used as fuel.
- Dried pods are eaten.

Chemical Constituents:- Pods contain protein, carbohydrate, calcium, phosphorus and tannin. Bark and root contains tannin.

Biological Activity:- Ripe fruits are nutritive, sweet and astringent. Unripe fruits are sour and sweet.

270. Psidium guajava Linn.

Family: Myrtaceae. **Vern.** : Per.

Sanskrit Name: Peruka. **English Name**: Guava Tree.

Regional Names:-

Hin.: Amrud, Saphed saphari, Lal saphari;**Kan.:** Balehannu, Keli;**Mal.:** Pera, Koyya, Atakkappalam;**Tam.:** Koya;**Tel.:** Jampandu, Goyyapandu.

Distribution : Tropical Africa, India, SriLanka, Burma, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, Central America & Mexico, Brazil.

Description: A small tree, bark white, thin, peeling off, young branches 4-angled. Leaves opposite elliptic, acute. Flowers axillary solitary or 2-3.Fruit a fleshy berry, many seeded.

Flowering: Mar.-May. **Fruiting**: Apr.-July.

Habitat Ecology: Cultivated for its fruits.

Material Examined: NKO-127

Part Used: Fruits.

Folk Uses:-

- Ripe fruits are eaten directly to cure constipation.

Chemical Constituents:- Unripe fruit contains tannin. Fruit contains tannin, sugars (carbohydrate), protein, vitamin C, B, eugenol, nicotinic acid, quercetin, gallic acid, organic acids, lipids, lupeol, pectin, ellagic acid, minerals calcium. phosphorus, iron, copper. Bark and leaves contain tannin.

Biological Activity:- Roots are astringent, haemostatic, constipating and antiemetic. Leaves are astringent, anodyne, febrifuge, antispasmodic and tonic. Flowers are cooling, laxative and tonic. Fruits are sweet, sour, cooling, galactagogue, astringent, aphrodisiac, laxative, generative of cough, brain tonie.

271. Pterocarpus marsupium Var. *acuminatus* Prain.

Family: Fabaceae. **Vern.** : Biyo.

Sanskrit Name: Asana, Bijaka. **English Name**: Kino tree, Bibla.

Regional Names:-

Hin.: Bijasal, Vijayasar;**Kan.:** Hannemara;**Mal.:** Venna;**Tam.:** Vengai;

Tel.: Beddagi, Asana.

Distribution: India, SriLanka.

Description: A tall deciduous tree. Leaves large. 15-30 cm long with 5-7 leathery alternate leaflets, sometimes notched at the tip or round, stalk of leaflets. Flowers fragrant yellow in paniculate racemes. Pods light yellowish brown with woody centre and waved membranous wing, usually one seeded. Seed reddish brown small and leathery.

Flowering: May-June. **Fruiting**: June-July.

Habitat Ecology: Found in Barda Hills.

Material Examined: NKO-89

Part Used: Wood.

Folk Uses:-

- The wood used chiefly for building purposes and furniture.

Chemical Constituents:- The heartwood yields liquiritigenin, isoliquiritigenin, pyro-catechin, a neutral unidentified component, alkaloid and resin. The wood also contains a yellow colouring matter and an essential oil and a semidrying fixed oil. Kino contains a non-glucosidal tannin, knotannic acid, kinoin and kino-red in addition to small quantities of catechol protocatechuic acid resin, pectin and gallic acid. The stem contains liquiritigenin, tannin, isoliquiritigenin, alkaloids and resin.

Biological Activity:- Epicatechin from stem bark is hypoglycemic (Rastogi & Mehrotra 1993 P. 538). Stem bark cardiostimulant.

272. Punica granatum Linn.

Syn: *P. nana* Linn.

Family: Punicaceae. **Vern.** : Dadam.

Sanskrit Name: Bijapura, Dadima, Granat. **English Name**: Pomegranate.

Regional Names:-

Ass.: Dalim;**Beng.:** Dalimgachh;**Bom.:** Anara, Dalima;**Hin.:** Anar, Dhalim;

Kan.: Darim;**Oriya :** Dalim, Dalimba;**Pb.:** Anar, Daan, Daru;**Tam.:** Kalumal, Madalai;**Tel.:** Dadimanu, Dadimba;**Urdu:** Anarmitha.

Distribution: Perisia, Mesopot, Afghanistan, Pakistan, India.

Description: Deciduous shrub with axillary thorns. Flowers scarlet, solitary axillary. Fruits globular, crowned with persistent calyx.

Flowering: Apr.-July. **Fruiting**: Apr.-July.

Habitat Ecology: Cultivated for its fruits.

Material Examined: NKO-132

Part Used: Fruits.

Folk Uses:-

- 1 glass juice of fruits is taken orally three times a day for a week to cure diarrhoea.
- Fruit is edible.

Chemical Constituents:- Chief active constituents are pelletierine, isopelletierine and pseudopelletierine (root-bark); punicafolin, granatins A and B, corilagin, strictinin, 1, 2, 4, 6-tetra-O-galloyl-β-D-glucose and 1, 2, 3, 4, 6-penta-0-galloyl-β-D-glucose (leaves); granatins A and B, puncalagin and puncalin (rind); and sitosterol, ursolic acid, maslinic acid, elegic and gallic acid (flowers).

Biological Activity:- Aerial parts CNS depressant and diuretic. Flower buds antifungal and antibacterial. Chloroform ext. of its stem and root anthelmintic (Charya *et al.*, 1979; Singhal, 1983; Trivedi & Kazmi, 1979).

273. Raphanus sativus Linn.

Family: Brassicaceae. **Vern.** : Mula.

Sanskrit Name: Mulika, Muli. **English Name**: Radish.

Regional Names:-

Hin.: Muli;**Kan.:** Mulangi;**Mal.:** Mullanki;**Tam.:** Mullanki;**Tel.:** Mullangi.

Distribution: India.

Description: An annual or biennial herb. Leaves radical, lyrate. Flowers light pink or white in colour, long terminal raceme. Fruit a short thick, beaked,

siliqua which is moniliform or lomentaceous, with a few seeds embedded in the spongy tissue.

Flowering: Nov.-Jan. **Fruiting**: Dec.-Feb.

Habitat Ecology: Cultivated but often an escape.

Material Examined: NKO-13

Part Used: Leaves, Roots.

Folk Uses:-

- Tap root and leaves are used as vegetable.

Chemical Constituents:- Seeds contain an active antibacterial principle-Raphanin. Other components are glycosinolates, enzymes, trace element, acids, aldehydes, and anthocyanin, pectin and arabinogalactan proteins. Leaves and roots contain water, protein, carbohydrates, minerals, calcium, phosphorus, iron, iodine, barium, manganese essential oil, butyl, isothiocynate sulphide.

Biological Activity:- Anthelmintic, antiseptic, acrid, bitter pungent, thermogenic, appetizing, digestive antipyretic, diuretic, and stomachic, laxative, depurative, anti inflammatory, anodyne, refreshing and antibacterial.

274. Ricinus communis Linn.

Syn *: R. inermis* Jacq., *R. lividus* Jacq., *R. speciosus* Burm., *R. spectabillis* Blume, *R. Viridis* Willd., *Croton spinosus* Linn.

Family: Euphorbiaceae. **Vern.** : Arandi.

Sanskrit Name: Eranda, Ruvuka. **English Name**: Castor-Oil Plant.

Regional Names:-

Ass.: Eri;**Beng.:** Bheranda;**Bom.:** Erendi;**Hin.:** Arand, Arend, Erand, Rand;

Kan.: Haralu;**Kum.:** Ind-rendi;**Oriya:** Bheronta, Chitroka;**Pb.:** Aneru, Arand;

Raj.: Edia;**Tam.:** Sittamunuk;**Tel.:** Amadam, Eramudapu.

Distribution: Tropical Africa, India.

Description: Tall evergreen shrub with palmately lobed, leaves. Flowers on large terminal branches. Capsules prickly. Seeds shining black.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Cultivated as a crop.

Material Examined: NKO-278

Part Used: Whole plant, Leaves, Seeds.

Folk Uses:-

- It is grown on field boundaries as a wind breaker.
- Roasted leaves are bandaged on head to relief headache. ?
- Remove juice from older leaves to rub on body and sleep in closed room to cure fever.
- Seed oil used as a laxative.

Chemical Constituents:- Active ingredients occurring in various plant parts are ricinine and 1-methyl-3-cyano-4-methoxy-2-pyridone (seeds, leaves); and arachidic, chlorogenic, oleic, palmitic, ricinoleic, stearic and dihydrostearic acids; hexa decanoic, hydrocyanic and uric acid (oil) (Chatterjee & Pakrashi, 1997).

Biological Activity:- Root and stem antiamoebic, anticancer, hypoglycaemic. Leaf antiviral, hypoglycaemic. Seed diuretic.

275. Rivea hypocrateriformis (Desr.) Choisy

Syn: *Convolvulus hypocrateriformis* Derr.

Family: Convolvulaceae. **Vern.** : Fang.

Sanskrit Name: Phanji, Jirnaphanji. **English Name**: Midnapore Creeper.

Regional Names:-

Hin.: Phang, Kalavi dhara;**Tam.:** Budthi kiray;**Tel.:** Boddi kura.

Distribution: India.

Description: A large, woody climber, stem terete, woody, argenteo-canescent when young, silky-pubescent later. Leaves usually as broad as long, glabrous above, adpressedly silky hairy below, base cordate. Flowers usually solitary, fragrant. Chestnut brown, glabrous polished subtended by persistent woody deflexed sepals. Seeds brown, glabrous, triangular in sections.

Flowering: Sept.-Nov. **Fruiting**: Sept.-Feb.

Habitat Ecology: A large climber commonly found throughout the area particularly climbing on *Euphorbia* bushes.

Material Examined: NKO-220

Part Used: Leaves, stem, Fruits.

Folk Uses:-

- Dorsal side of leaves is tied on abscess to heal it and ventral side of leaves is tied on abscess to rupture it. ?
- Leaves are used as vegetable and ripe fruits are eaten.
- Stem is used as string to tie bundle of grass or fire wood.

Chemical Constituents:- Leaves contain tannins, bitter principle, minerals.

Biological Activity:- Leaves are cooling, bitter, pungent, carminative, alexipharmic, astringent, antichloristic, aphrodisiac.

276. Saccharum bengalense Retz.

Syn : *S. exaltatum* Roxb., *S. arundinaceum* Hk.f., *S. ciliare* Anderss, *S. munja* Roxb., *S. procerum* Roxb., *S. sara* Roxb., *S. surpata* Hb. Ham. ex Wall

Family: Poaceae. **Vern.** : Munj.

English Name: Munj.

Regional Names:-

Beng.: Teng;**Hin. :** Munj;**Pb.:** Sarkanda;**Tel.:** Advi-chruku, Konda-kanamoo.

Distribution: India, SriLanka, China.

Description: A perennial tall and handsome grass up to 5.5 m high, with solid clum, stem erect from a stout root-stock. Leaves proportionately very long, linear, flat, and broadest about the middle. Flowers in long panicles, spikelets paired one sessile, other pedicellate, lower of sessile spiklet with long hairs.

Flowering: Feb.-Mar. **Fruiting**: Feb.-Mar.

Habitat Ecology: Throughout in dry sandy soils. Although it attains its maximum development in moist sand, the plant shows marked xerophylous adaptions. It does best on alluvial sandy deposits in the neighborhood of streams where the soil is not water logged.

Material Examined: NKO-329

Part Used: Whole plant, Aerial Part.

Folk Uses:-

- It is grown on outskirt of field to prevent soil erosion and as a live fence.
- Aerial part of the plant is used in preparation of head rests. ?

Chemical Constituents:- The stem is a good source of furfural (yield 5.67% dry basis). It yields 19.5% condry weight of reducing sugars when digested with sulphuric acid, glucose, xylose, galactose and rhamnose have been identified in the hydrolysata which contains 34.5% fermentable sugars.

277. Saccharum officinarum Linn.

Family: Poaceae. **Vern.** : Serdi.

Sanskrit Name: Kanguruku. **English Name**: Cane Sugar.

Regional Names:-

Beng. : Ak, Ganna, Ik, Kajuli, Kullua, Kushiar, Puri, Uk;**Bom.:** Gol, Serdi, Us; **Hin.:**Ganna,Ikh, Kumad, Naishakar, Rihu, Uk, Ukh; **Kan.:**Basari-mara,Khabu; **Mar.:**Aos,Kabbu,Us,Usa;**Oriya:**Aku;**Tam.:**Karumbu;**Tel.:**Arukanupula-kranuga, Charki, Cheruku, Cherukulo-bhedam, Kanupula-cheruku.

Distribution: India, SriLanka.

Description: A tall, perennial grass, stems thick, solid full of sweet juice with prominent nodes and internodes. Leaves long, strap-shaped, midrib prominent, smooth, margins sharp serrate, sheaths long, over-lapping, hairy, ligules prominent, hairy. Flowers in large cottony panicles.

Flowering: Nov.-Dec. **Fruiting**: Nov.-Dec.

Habitat Ecology: Extensively cultivated.

Material Examined: NKO-330

Parts Used: Stem.

Folk Uses:-

- Cotton plug is poured in mixture of Jaggery, ghee and water and a drop of it given orally to new born baby as '*Galthuthi*'.
- Jaggery is prepared in *'Shichudo'* from the stem of this plant.
- Liquor is prepared by fermentation & distillation of jaggery. It is colourless.

Chemical Constituents:- Stem contains sugars, (Sucrose, glucose), calcium oxalate, calcium, fructose, galactose, potassium, saccharans, schaftoside and isoschaftoside, iron, protein.

Biological Activity:- Roots are cooling and diuretic. Stems are sweet, cooling, emollient, laxative, antibilious, demulcent, cardiotonic, diuretic, galocatagogue, aphrodisiac, expectorant, haemostatic and tonic.

278. Salvadora oleoides Decne.

Syn: *S. indica* Royle, *S. stocksii* Wight

Family: Salvadoraceae. **Vern.** : Mithi jar.

Sanskrit Name: Pilu, Gudaphal. **English Name**: Salt Bush.

Regional Names:-

Bom.: Kakhan, Kankhina;**Hin.:** Jhal, Pilu;**Kan. :** Gonimara, Kankhian;

Mal.: Uka;**Mar.:** Khakhan, Kinkanda, Pilu;**Pb. :**Diar,Jal,Jhal,Khokar, Kubbur, Mithivan, Pil, Pilu, Pinju, Sal, Tak, Van, Vani, Wan;**Tam.:** Koku, Ughai.

Distribution: India.

Description: An evergreen, an small tree with a short twisted or bent trunk. Leaves opposite, inflorescence axillary, paniculate spikes of racemes. Flower greenish white. Fruit globose.

Flowering: Dec.-Jan. **Fruiting**: Jan.-Feb.

Habitat Ecology: Common in hedges and wasteland throughout the area.

Material Examined: NKO-183

Part Used: Fruits, Twigs.

Folk Uses:-

- Dried stem is use as fuel.
- Ripe fruits are eaten.
- Twigs are used as truth brushes.

Chemical Constituents:- Fruits contain fat; sugars etc. Seeds contain fixed oil. Leaves contain rutin. Root contains salvadorine, resin, tannin, trimethylamine, β-sitosterol, saponin, minerals, chlorine.

Biological Activity:- Fruit is aperient, sweet, pungent, acrid, thermogenic, aphrodisiac, emollient, and alexeteric, digestive. Leaves are pungent, antiseptic, laxative, styptic, antiscorbutic, deobstruent, diuretic, anthelmintic, astringent, expectorant, tonic, carminative, emmenagogue. Seeds are rubefacient, emmenagogue carminative.

279. Salvadora persica Linn.

Syn: *S. wightiana* Planch., *S. indica* Wight., *Cissus arborea* Forsk., *Embelia grossularia* Retz.

Family: Salvadoraceae. **Vern.** : Piludi.

Sanskrit Name: Pilu. **English Name**: Tooth Brush Tree.

Regional Names:-

Beng.: Jal, Pilu;**Bom.:** Kakhan, Pilvu;**Hin.:** Jal, Pilu;**Kan.:** Gonimara, Kankhina;**Mar.:** Pilu, Rhakhan;**Pb.:** Arak, Chootavan, Jhal, Jhar, Jhit, Jit, Kaurivan, Pilu;**Tam.:** Kalarva, Karkol, Om, Ughai, Uga;**Tel.:** Ghunia, Pinna-vara-gogu, Pedda vara goki, Waragu Wenki.

Distribution: Pakistan, Abyssinia & Soctra, Tropical Africa India.

Description: 2.5-4 m much branched evergreen small tree, leaves opposite. Inflorescence axillary and terminal compound; flowers greenish yellow, fruit drupes.

Flowering: Nov.-Dec. **Fruiting**: Dec.-Jan.

Habitat Ecology: Common in hedges and wastelands throughout the area.

Material Examined: NKO-184

Part Used: Fruits, Steam, Leaves.

Folk Uses:-

- Dried stem is used as fuel.
- Ripe fruits are eaten.
- Juice of leaves employed as mouth wash sore throat.
- Paste of leaves is applied on rheumatic joints twice a day for a week.

Chemical Constituents:- Root bark contains resin, tannin, salts, saponin, alkaloid salvadorine trimethylamine etc. The fruits contain fat, sugar, malenin and alkaloids. Leaves contain rutin, salvadorine. Seeds contain oil.

Biological Activity:- Plant is stimulant, emmenagogue, and curminative thermogenic, pungent, expectorant, anti scorbutic, deobstruant, diuretic, anthelmintic, astringent, antioxidant, styptic, antiseptic, and emmenagogue. Seeds oil is rubfacient, thermogentic.

280. Sapindus laurifolius Vahl.

Syn: *S. trifoliatus* auct.

Family: Sapindaceae **Vern.** : Arithi.

Sanskrit Name : Phenila, Arishtaka. **English Name**: The Soap Nut.

Regional Names:-

Hin.: Ritta, Ritha;**Kan.:**Kugtemara, Kugatekaye, Antawala;**Mal.:**Urunci, Uruvanci,Urulinci;**Tam.:**Puvankottai,Ponnankottai;**Tel.:**Kunkutikaya, umkuticettu, Phenilamu, Kumkullu.

Distribution: India.

Description: Trees with abruptly pinnate leaves, leaflets sub opposite 2-3 pairs, lanceolate, acute, entire, and hairy below. Flowers dull-white, in terminal, rusty-hairy panicles, male flowers membranous, bisexual, few. Fruit berry, fleshy 2 or 3 lobed, clothed with yellow hairs, 1-seeded.

Flowering: Oct.-Dec. **Fruiting**: Nov.-Jan.

Habitat Ecology: Common in Barda Hills.

Material Examined: NKO-68

Part Used: Fruits, Stem.

Folk Uses:-

- Dry fruit is soaked in water overnight and Maher women used as a substitute soap and shampoo.
- Stem is used for making *'Modari & Khapari'*.

Chemical Constituents:- Fruit contain saponins, sapindoside A, mukorosside, sugars, kaempfero, quercetin and a-sitosterol, emarginatoside. Seeds contain oil 45.4%.

Biological Activity:- Root and bark are expectorant and demulcent. Fruits are acrid, bitter, thermogenic, emetic, astringent, purgative alexeteric, alexipharmic, emmenagogue, antidote, expectorant, anthelmintic, obortifacient and tonic. Seeds are narcotic, bitter, sedative.

281. Sarcostemma acidum (Roxb.) Voigt

Syn: *S. bevistigma* Wt. & Arn., *Asclepias acida* Roxb.

Family: Asclepiadaceae. **Vern.** : Sandhiyavel.

Sanskrit Name: Soma, Somavalli.

English Name: Moon Plant, Moon Creeper

Regional Names:-

Hin.: Somalata;**Kan.:**Somlata, Hambukalli ;**Mal.:**Somalata; **Tam.:** Somam, Kotikkalli;**Tel.:** Kondapala, Somalata, Palmakasturi.

Distribution: India.

Description: A jointed succulent shrub-twiner. Leaves absent. Flowers greenish-white, in terminal umbels, bracts small. Follicles straight, seeds comose.

Flowering: Apr.-Sept. **Fruiting**: May-Oct.

Habitat Ecology: It grows mostly in the *Euphorbia* (*thor*) clumps.

Material Examined: NKO-199

Part Used: Leaves.

Folk Uses:-

- Leaves are boiled in water and bath is taken in stiff joint.

Chemical Constituents:- The plant contains mallic acid, latex, succinic acid, reducing sugar, sucrose, tannin, alkaloid, a phytosterol, and β-amyrins, lupeol and lupeol acetate and β-sitosterol.

Biological Activity:- The plant is bitter, acrid, alterant, narcotic, carminative, and antiphlogistic, thermogenic, expectorant, emetic, antiviral and rejuvenating. Latex is antiseptic, rubefacient thermogenic.

282. Securinega leucopyrus (Willd.) Muell.

Syn : *Fiueggea leucopyra* Willd.

Family: Euphorbiaceae. **Vern.** : Shinvi.

Sanskrit Name: Bhurifali.

Regional Names:-

Hin.: Pandufali; **Mar. :** Pandarfali.

Distribution: India, Sri Lanka.

Description : A straggling shrub, bark smooth, ash-coloured in younger parts, blackish-brown in older, stem erect, slender, much branched, branches

spreading leafy, terminating in to sharp spines. Leaves elliptic obovate, glabrous on both sides. Flowers pale-green or white, many in axillary fascicles at the end of branches. Ripe berries white, smooth, spherical, 3-lobed, and 6-seeded. Seeds dark yellowish-brown, trigonous, smooth.

Flowering: July-Oct. **Fruiting**: July-Nov.

Habitat Ecology: In hedges and waste lands.

Material Examined: NKO-279

Part Used: Fruits.

Folk Uses:-

- Ripe fruits are edible.

283. Sesamum orientale Linn.

Syn: *S. indicum* Dc., *S. luteum* Retz., *S. occidentale* Heer & Regel

Family: Pedaliaceae. **Vern.** : Tal.

Sanskrit Name: Homadhanya, Jatila, Pavitra, Puraphala.

English Name: Gingelly, Sesame.

Regional Names:-

Beng. : Bhadutil, Kalatil, Kheslatil, Krishnatil, Raktatil, Rasi, Sankitil, Sumsum, Tel, Til, Tilmi;**Bom.:** Kala katwa, Purbia, Tal, Til;**Hin.:** Bariktel, Gingli, Krishnatel, Mithatel, Tir;**Kum.:** Bhunguru, Til;**Mal.:** Chitelu, Ellu, Korellu;**Mar.:** Til, Zilechatil;**Pb.:** Kunjad, Til, Tili;**Tam.:** Ellu, Nuvvulu, Yelluchedi;**Tel.:** Nuvvu, Pollanuvvulu; **Urdu:** Til.

Distribution: India, Sri Lanka.

Description: A much-branched, erect hairy annual with an offensive smell. Leaves variable on same plant. Flowers axillary, solitary. Capsule tetragonal. Seeds numerous.

Flowering: Aug.-Oct. **Fruiting**: Aug.-Oct.

Habitat Ecology: Cultivated crop.

Material Examined: NKO-237

Part Used: Flowers, Seeds.

Folk Uses:-

- Extract of flower mixed in honey & cow milk is given twice a day for 15 days to cure calculus.
- Oil from seeds utilized for edible purposes.

Chemical Constituents:- Seeds rich in globulin, thiamine and niacin. Leaves contain pedaliin. Pinoresinol has been isolated from the plant.

Biological Activity:- Roots and leaves are emollient. Seeds are sweet, astringent, bitter, acrid, emollient, thermogenic, aphrodisiac laxative, galctagogue, hair-restorer and tonic.

284. Sesbania grandiflora Pers.

Family: Fabaceae. **Vern.** : Agathio.

Sanskrit Name: Agastya. **English Name**: Agati, Swamp Pea.

Regional Names:-

Hin.: Hathya, Agast, Basna, Hadga;**Kan.:** Agasi, Agaci;**Mal. :**Akatti, Agatti, Atti, Argatti;**Tel.:** Avesi, Avasinara.

Distribution : India, Australia.

Description : A small soft wooded tree. Leaves paripinnate, pulvini large, stipules small, leaflets 15-30 pairs, linear-oblong, entire, mucronate. Flowers white, showy and curved.

Flowering: Dec.-Mar. **Fruiting**: Jan.-Apr.

Habitat Ecology: Cultivated.

Material Examined: NKO-90

Part Used: Flowers.

Folk Uses:-

- Flowers are used as vegetable.

Chemical Constituents:- Leaves, contain saponin, protein, calcium, phophorus, iron, vitamins A, B, C. Seeds contain protein 70.1%, fat, carbohydrates. Flowers contain vitamin B and C, protein. Bark contains tannin.

Biological Activity:- Plant is acrid, bitter, sweet cooling, aperient, diuretic, antipyretic, anthelmintic, febrifuge, astringent, and ophthalmic, laxatile and alexiteric.

285. Sesbania sesban Var. *Picta* Sant.

Syn: *S. aegyptiaca* Poir.

Family: Fabaceae. **Vern.**:Resumadi, Jayanti.

Sanskrit Name: Jayantika.

Regional Names:-

Hin.: Zijam;**Mar. :** Shevari.

Distribution: India.

Description: A small shrub. Leaves paripinnate, stipules linear; leaflets 20-30 linear-oblong, obtuse. Flowers 6-10 flowered racemes, yellow, motted with purple. Pods twisted beaked.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Abundant in hedges of cultivated fields. Possibly cultivated.

Material Examined: NKO-91

Part Used: Whole plant.

Folk Uses:-

- Planted on field boundaries for breaking the wind.

Chemical Constituents:- The pods and leaves contain cholesterol, campesterol and beta-sitosterol. Flowers contain cyaniding and delphinidin glycosides. Pollen and pollen tubes contain alpha-ketoglu-taric, oxaloacetic and pyruvic acids.

Biological Activity:- Bark is astringent, cooling bitter, tonic. Leaves are acrid, bitter, and sweet, cooling contain a non-poisonous saloonine like substance.

286. Sida cordifolia Linn.

Syn: *S. herbacia* Micans, *S. althaeifolia* Sw., *S. rotundifolia* Cav.

Family: Malvaceae. **Vern.** : Bala.

Sanskrit Name: Badiyalaka, Bala, Baladhya, Bhadrabala, Brela, Jayanti, Kanaka, Krura, Nilaya, Suvarna, Svetberela, Vatyapuspi.

English Name: Bala, Brela.

Regional Names:-

Beng.: Bala, Brela;**Hin.:** Barial, Khreti, Kungui;**Mal.:** Katturam;

Mar.: Chikana, Khiranti;**Oriya:** Badiananla, Bisvokopari;**Pb.:** Kharent;

Tam.: Arivalmanaippundu, Nilatutti;**Tel. :** Antisa, Chirbendel.

Distribution : Arabia, Abyssinnia & Soctra, Tropical Africa, Madagascar, India, Srilanka, Burma, Malysia, Java Sumatra & Sunda, Philipines, New Guinea, W. Indies, C. America & Mexico, Brazil.

Description : A small, softly hairy, much-branched, annual erect herb with linear stipules. Leaves cordate, obtuse, crenate, peioles long. Flowers pale-yellow, solitary or few together. Fruit reticulated, seeds black.

Flowering : Sept.-Oct. **Fruiting** : Oct.-Nov.

Habitat Ecology : Common in wasteland and open forest.

Material Examined : NKO-30

Part Used : Roots, Seeds.

Folk Uses :-

- 2 teaspoonful decoction of roots given orally twice a day for 5 days for urinary troubles.
- Roasted seeds given with milk to cure flatulence.

Chemical Constituents :- Pharmacologically, the plant contains ephedrine ψ-ephedrine, S-(+)-Nb-methyltryprophan methylester, hypaphorine, vasicinone, vascicine, vasicinol, choline, betaine, phytosterol and resin acids (Chatterjee & Pakrashi, 1997).

Biological Activity :- Plant antiprotozoal (*Entamoeba histolytica* strain STA) and CNS depressant (Annon., 1972).

287. Solanum melongena Linn.

Family : Solanaceae. **Vern.** : Ringana.

Sanskrit Name : Varttaki. **English Name** : Brinjal, Egg Plant.

Regional Names :-

Hin.: Bengan, Badanjan;**Kan.:** Badanekaya, Doddabadane;**Mal.:** Valutina;

Tam. : Kattirikkai;**Tel.:** Vankaya, Niruvanga, Mettavanga.

Distribution : India.

Description : A small erect prickly shrub, hairy. Leaves large, sinuate or shallowly lobed. Flowers solitary or several in cyme, blue. Berry rounded or elongate white, yellow or dark purple, many seeded.

Flowering : All months. **Fruiting** : All months.

Habitat Ecology : Cultivated.

Material Examined : NKO-228

Part Used : Fruits.

Folk Uses :-

- Fruit is used as vegetable.

Chemical Constituents :- Fruit contain fat, protein, fibers, vitamin C, vitamin A, vitamin B, minerals (Calcium, phosphorus) iron, solasodine, carbohydrates, solanine.

Biological Activity :- Roots are laxative, analgesic and cardio tonic. Leaves are salalagogue, narcotic and antiherpetic. Unripe fruits are bitter, acrid, sweet, aphrodisiac, thermogenic, appetizer, stomachic, stimulant, cardiotonic, haematinic, diuretic, carminative, emmenugogue, expectorant, sedative, nutritive, pungent.

288. Solanum nigrum Linn.

Syn : *S. rubrum* Mill., *S. triangular* Lamk., *S. incertum* Dunal, *S. nodiflorum* Jacq., *S. uliginosum* Blume, *S. roxburghii* Dunal, *S. fistulosum* Rich., *S. miniatum* Bernh., *S. paludosum* Dunal, *S. erythraeum* Dunal

Family : Solanaceae. **Vern.** : Piludi.

Sanskrit Name : Bahuphala, Bhutikta, Ghanaghana, Kaka, Vayasi.

English Name : Black Nightshade.

Regional Names :-**Ass.:** Pichkati;**Beng. :** Gurkamai, Mako;**Bom.:** Ghati, Kamuni;**Hin.:** Gurkamai, Kabaiya, Mekoi;**Kan.:** Kakarundi;**Mar.:** Ghati, Kakmachi, Mako;**Pb.:** Kachmach, kambei, Meko;

Tel.: Gajucheetu, Kachi, Kasaka;**Urdu:** Makoya.

Distribution : Mediteranean, North America,Tropical Africa, Mada gasker, India, Srilanks,China, Malaysia, Java Sumatra & Sunda, Brazil.

Description : An erect, divaricately branched, leafy annual. Flowers umbellate, white. Berries globose, purplish black.

Flowering : Nov.-Jan. **Fruiting** : Nov.-Jan.

Habitat Ecology : Common along edges of cultivated areas, wasteland.

Material Examined : NKO-229

Parts Used : Leaves, Fruits.

Folk Uses :

- Fruits are eaten raw.
- Leaf juice is applied of inflamated part of arm and legs.

Chemical Constituents :- Therapeutic properties of the plant due to 12-hydroxysolasodine, N-methyl solasodine, 23-0-acetyl-12β-hydroxysolasodine, solanocapsine and solamargine (Anon., 1972).

Biological Activity :- Plants CNS depressant, hypotensive and spasmolytic.

289. Solanum surattense Burm.

Syn : *S. armatum* Br., *S. jacquinii* Willd., *S. diffusum* Roxb., *S. virginianum* Jacq., *S. xanthocarpum* Schrad & Wendl., *S. maccanni* Sant.

Family : Solanaceae. **Vern.** : Bhoyaringni.

Sanskrit Name : Kantakaree, Nidigadhika.

English Name : Yellow-berried Nightshade.

Regional Names :-

Beng.: Kantikari;**Hin.:**Katai, Kateli, Ringni;**Kan.:** Nelagulle;**Mar.:** Buiringani; **Oriya :** Ankranti, Bheji; **Pb.:**Kandyali, Mahori, Warumba;**Tam.:** Kandankattiri, Cundungkatric;**Tel.:** Nelamulaka, Pinnamulaka, Vankuda.

Distribution : Arabia, Persia, Mesopot, Pakistan, Abyssinia & Soctra,Tropical Africa, Madagascar, India, SriLanka, Burma, China, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, Ploynesia.

Description : A prickly, procumbent perennial with many straight spines on leaves. Flowers blue, in few-flowered extra-axillary cymes. Berries globose, yellow when ripe.

Flowering : Sept.-May. **Fruiting** : Sept.-May.

Habitat Ecology : Dry localities, roadsides, waste places.

Material Examined : NKO-230

Part Used : Fruits, Flowers.

Folk Uses :-

- Powdered fruits are boiled in mustard oil and cooked. This medicated oil is applied on skin eruptions on foot during winter.
- Five another lobes crushed with water and given orally to cure breathing difficulty in children.

Chemical Constituents :- Principal constituents in various plant parts are solasodine, solmargine, β-solamargine, solasonin, diosgenin, solassurine, β-sitosterol, stigmasteryl glucoside (fruits); arachidic, linoleic, oleic, palmtic and stearic acids and solanine-s (fruit oil); carpesterol, solasodine (roots); and β-carotene, caffeic, chlorogenic, isochlorogenic, neochlorogenic acids, esculin, esculetin, scopoletin, cycloartaniol, cycloartenol, cholesterol, diosgenin, apigenin (flowers) (Annon., 1972).

Biological Activity :- Aq. And alc. exts. of the plant hypotensive.

290. *Sorghum bicolor*, (Linn.) Moench.

Syn: *S. valgare,* Pers. *Holcus sorghum* Linn., *Holcus bicolor* Linn., *Andropogon sorghum* (Linn.)Brot.

Family : Poaceae. **Vern.** : Jowar, Jar, Sorghum, Great millet.

Sanskrit Name :Dirghamala. **English Name** : Indian Millet.

Regional Names :-

Beng.: Joar;**Bom.:** juari;**Hin.:** juvar; **Kan.:** Jolah;**Tam.:** Cholam;**Tel.:** Bonda-janu,Talla.

Distribution :North America,Tropical Africa,India,Brazil,Australia.

Description : 75-200 cm tall, stout annuals, grass. Leaves broadly lanceolate, flat, glabrous. Inflorescence. Panicles 10-25 cm long, densely thyrsoform

decompounds with verticillate branches, spikelets 0.3-0.5 cm long, broadly ovate-lanceolate, hairy.

Flowering : Oct.-Nov. **Fruiting** :Oct.-Nov.

Habitat Ecology : Cultivated as a cereal crop.

Material Examined : NKO-331

Parts Used :Whole plant,Stem,Seeds,Roots.

Folk Uses :

- Grains are used as a food.
- The dried stalks of the plants are an excellent source of fodder for cattle.
- The bundle of plants is used for roof and wall of cattle shelter.
- Dried stalks are used as toys.
- Roots are used to the prevent soil erosion.

Chemical Constituents :- (Percent ondry matter at maturity) : Crude fibre 33.68, crude protein 3.87, total ash 7.11, ca 0.63, P 0.25, Mg 0.37, Na 0.11, K 1.76.

291. *Sorghum halepense* (Linn.) Pers.

Syn : *Holcus halepensis* Linn., *Andropogon halepensis* (Linn.)Brot.

Family : Poaceae. **Vern.** : Baru.

English Name : Johnson Grass.

Regional Names :-

Beng. : Kalamucha;**Hin.:** Baru, Barua;**Tel.:** Gaddijanu;

Distribution : Mediterranean, Arabia, Persia, Mesopot, Afghanistan, Pakistan, Abyssinia & Soetra, Tropical Africa, India, SriLanka, China.

Description : 1.5-2.5 m tall perennial grass, with 1.3 m long, simple or branched, solid culms. Leaves linear to limear-lanceolate, flat, glabrous. Inflorescence. panicles, spikelets 0.5-0.6 cm long, lanceolate, pale-brown or straw-coloured.

Flowering :Sept.-Nov. **Fruiting** : Sept.-Nov.

Habitat Ecology : Grows in hedges and banks of water sources.

Material Examined : NKO-332

Parts Used :Wholeplant.

Folk Uses :

- A good fodder grass when young .
- The plant is stacked in compact bundles and tied to make the thatch work of cattle shelter roof and fixed vertically in wall.
- It is grown on outskirt of field to prevent soil erosion and as a live fence.

292. Soymida febrifuga A. Juss.

Family : Meliaceae. **Vern.** : Royan.

Sanskrit Name : Rohini. **English Name** : Indian Redwood Tree.

Regional Names :-

Beng.: Rohan, Rohina;**Hin.:** Rohan, Mans-rohini;**Kan.:** Sumanimanu, Suani;

Oriya : Karwi;**Tam.:** Shem;**Tel.:** Sonida manu.

Distribution : India.

Description : A large, tall tree, leaflets 3-6 pairs, oval or oblong, obtuse, oblique. Flowers greenish white. Capsule obovoid, black, seeds winged.

Flowering : Feb.-Mar. **Fruiting** : Mar.-Apr.

Habitat Ecology : Found in Barda Hills usually scattered.

Material Examined : NKO-58

Part Used :Stembark.

Folk Uses :-

- ½ cup decoction of stem bark is given orally in snake bite.

Chemical Constituents:- Lupeol, sitosterol and methyl angolensate, deoxyandirobin, quercetin-3-0-L-rhamnoside, 3-0 rutinoside, febrifugin, narigenin, myricetin, dihydrmyricetin and quercetin.

Biological Activity:- Bark is bitter, astringent antipyretic, antiperiodic, antidiarrhoeal, appetiser, blood purifier.

293. Spinacia oleracea Linn.

Family : Chenopodiaceae. **Vern.** : Palakh.

English Name : Spinach.

Regional Names :-

Hin.: Palak;**Kan.:** Spinach-soppu;**Tam.:** Vasayleykiray;**Tel.:** Dumpapachnali.

Distribution : Europe, North America, Tropical Africa, India, Brazil.

Description : A small, erect, annual herb, stem succulent, smooth, piped, reddish. Leaves alternate, the lower ones very long petioled. Flowers male on long terminal globose spikes, and short axillary spikes, very numerous and sessile, female flowers axillary. Capsule armed with 2 opposite short horns.

Flowering : Dec.-Feb. **Fruiting** : Jan.-Mar.

Habitat Ecology : Commonly cultivated.

Material Examined : NKO-266

Part Used : Leaves.

Folk Uses :-

- Leaves are Cooked as a vegetable.

Chemical Constituents :- Leaves contain vitamins A, B and C, carbohydrates, oxalic acid, lecithin, fibers, protein minerals ciron, mucilage potassium, calcium, sodium, phosphorus, chlorine.

Biological Activity :- Leaves are astringent, blood purifier, expectorant, anti oxidant, diuretic, demulcent, restorative. Seeds are diuretic, demulcent.

294. Sterculia urens Roxb.

Family : Sterculiaceae. **Vern.** : Kadayo.

Sanskrit Name : Balika. **English Name** : Gum Sterculia.

Regional Names :-

Hin.: Gulu, Katira;**Tam.:** Velly putali;**Tel.:** Kalvi.

Distribution : India, SriLanka.

Description : A moderate sized tree with an irregular, gnagled short trunk. Leaves at ends of branches, palmately 5-lobed pointed at the tip heart shaped. Flowers yellow, glandular-hairy, in bunches at the end of the branches when the tree is leaflets, male and female or bisexual flowers mixed. Fruit an etaerio of 4-5 folicles, ovoid-oblong hairy, brown in colour. Seeds 3-6 , oblong black.

Flowering : Mar.-Apr. **Fruiting** : Apr.-May.

Habitat Ecology : Found in open rocky forest area and hills.

Material Examined : NKO-37

Part Used : Twig.

Folk Uses :-

- Twig of the tree is used as tooth brush to toothache.

Chemical Constituents:- Bark contains gum known as kadaya-gum. Gum contains mucic acid.

Biological Activity :- Gum is antiseptic, demulcent, deobstruent, antiphlogistic, emmenagogue, cooling, astringent.

295. Syzygium cumini (Linn.) Skeels

Syn: *S. jambolana* Dc., *Eugenia jambolana* Lam.

Family: Myrtaceae. **Vern.** : Jambu, Ravana.

Sanskrit Name: Jambula, Jambu, Mahaskandha.

English Name: Black Plum, Java Plum.

Regional Names:-

Ass.: Jamu;**Beng.:** Kala-jam;**Bom.:** Jambul;**Hin.:** Jaman, Jam, Jamun, Paiman, Phalinda;**Mal.:** Naga, Nava, Perinnaral;**Oriya:** Jamkuli, Jamo;**Tam. :** Naval, Narvel, Naga;**Tel.:** Nairuri, Naredu, Nasudo.

Distribution: India, SriLanka, Malaysia.

Description: A large evergreen tree with coriaceous leaves and pale brown bark. Flowers white, sweet-scented, in trichotomous panicles. Berries dark purple, obliquely oblong.

Flowering: Mar.-May. **Fruiting**: Apr.-Oct.

Habitat Ecology: Common, especially in moist localities, cultivated borders of agricultural.

Material Examined: NKO-128

Parts Used: Stem, Fruits, Seeds.

Folk Uses:-

- Stem used in preparation of *'Sati'*.
- Dried stem is used as fuel.

- Ripe fruit ones cherished.
- 5 gram seed powder is taken orally with water for 10 days to cure calculi.

Chemical Constituents:- The constituents isolated are : jamboline (a glycoside), ellagic acid, tannin (19%) gallic acid, chlorophyll, fatty oil starch, resin, sugar and traces of oil (seeds) and delphinidin-3-gentiobioside, malvidin-3-laminaribioside, petunidin-3-gentiobioside, glucose, fructose, gallic acid, malic acid, eugenin triterpenoids A and B, oleanolic acid (fruits) (Chatterjee & Pakrashi, 1997; Chopra *et al.,* 1969).

Biological Activity:- Seeds hypoglycaemic, and aerial parts hypotensive.

296. Tamarindus indica Linn.

Syn: *T. Occidentalis* Gaertn., *T. Officinalis* Hook.

Family: Caesalpiniaceae. **Vern. :** Ambali.

Sanskrit Name: Ambia, Amlika, Tentrani, Tintidi, Tintili, Tintiri.

English Name: The Tamarind Tree.

Regional Names:-

Ass.: Tetai;**Beng.:** Ambli, Tentul, Tetal, Tintil, Tintiri, Tinturi, Tuli;**Bom.:** Ambli, Amli, Chinch, Chintz, Chncha;**Hin.:** Amli, Amlica, Anbli, Imli, Nuli, Teter;**Kan.:** Hunse, Hunashe-hannu;**Mar.:** Ambali, Amli, Chicha, Chinch, Chincha, Chitz;**Oriya:** Asok, Koyam, Koyan, Tentuli;**Pb.:**Imli;**Tam.:** Pollium, Puli, Pulia, Puliyam-pazam;**Tel. :** Asek, Chinta, Chinta-pandu.

Distribution: Tropical Africa, India.

Description: Handsome tree with a dome shaped crown. Leaves paripinnate, leaflets oblong, obtuse, stipules linear, caduceus. Flowers in few flowered terminal racemes pedicels articulated below the calyx, yellow with pink red stripes. Pod curved, indehiscent, with a tuft, scaly epicarp and edible pulpy, acid mesocarp. Seeds obovate oblong, truncate.

Flowering: May-July. **Fruiting:** June-Oct.

Habitat Ecology: Common in wastelands.

Material Examined: NKO-107

Parts Used: Seeds, Leaves, Stem.

Folk Uses:-

- The seeds of this tree are kept in mouth and chewed for hours by children and women especially.
- Stem is used for making handle of sickle
- Dried stem is used as fuel
- Sour leaves eaten raw by children, ripe fruits are eaten, and inflorescence crushed with table salt and onion and chutney is prepared.
- Seed is rubbed on stone and then placed on affected area of scorpion sting. The seed stick at that place and falls off after sucking the poison.

Chemical Constituents:- Fruit contains sugars, tartaric acid, citric acid, pectin, mallic acid, potassium bitartarate, oxalic acid, kernel, polysaccharides. Leaves contain flavonoid glycosides, citric acid, mallic acid, saponaretin, vitexin, orientin and homo orientin. Bark contains tannin. Seeds contain protein, fat, carbohydrate, minerals, and organic acid. Flowers contain organic acids.

Biological Activity:- Flowers antiviral.

297. Tamarix ericoides Rottl.

Syn: *T. muconata* Smith; *T. tenacissima* Ham. ex Wall ., *Myricaria vaginata* Desv, *Tricharus. ericoides* W. & A.

Family: Tamaricaceae. **Vern. :** Prans.

Sanskrit Name: Jhauka. **English Name:** Manna.

Regional Names:-

Hin.: Zau;**Mar :** Lai;**Tel. :** Erusarumanu;

Distribution: India.

Description: Bushy herbs; leaves minute, ovate lanceolate, scaly, sheathing at base. Inflorescence terminal, branched spikes, flower pale bright rose. Fruit capsule, conical, seed oblong pilose.

Flowering: Oct.-Nov. **Fruiting:** Nov.-Dec.

Habitat Ecology: It grows on river beds (Bhadar).

Material Examined: NKO-23

Parts Used: Branches.

Folk Uses:-

- Wood is used to prepare cattle shed.
- Dried branches are used as fuel.

Chemical Constituents: - Plants contains tannin.

Biological Activity: - Twigs are an astringent.

298. Taverniera cuneifolia Arn.

Syn: *T. nummularia* Bak.

Family: Fabaceae. **Vern.** : Jethimadh.

Distribution: Afghanistan, Pakistan, India.

Description: A smooth under shrub. Leaves obovate appressed-pubscent. Flowers 2-6 flowered racemes, pink. Pods 1-2 seeded covered with soft bristles.

Flowering: Sept.-Jan. **Fruiting**: Oct.-Feb.

Habitat Ecology: Found in waste lands in moist localities.

Material Examined: NKO-92

Part Used: Stem.

Folk Uses:-

- Twigs are used as a broom. ?
- 2 teaspoonful decoction of roots given orally twice a day for 3 day in throat problems.

299. Tecomella undulata (Sm.) Seem

Syn: *Bignonia glauca* Dcne., *B. undulate* Smith ex Ot., *Tecoma undulata* G. Don.

Family: Bignoniaceae. **Vern. :** Ragat-rohido.

Sanskrit Name: Rohi, Rohitak. **English Name:** Wave-Leaved Bignonia.

Regional Names:-

Raj.: Roheda, Rohira, Rohiro;**Hin.:** Rugrora.

Distribution: Arabia, Pakistan, India.

Description: A medium sized tree. Braches drooping, hairy branches. Leaves simple, narrowly oblong, entire, obtuse, and wavy. Flowers orange-yellow in

few flowered racemes on short lateral branches. Capsules big, flat, slightly curved, seeds winged.

Flowering: Feb.-Apr. **Fruiting:** Feb.-May.

Habitat Ecology: Found in Barada Hills and planted in border areas of agriculture fields.

Material Examined: NKO-235

Parts Used: Stem bark.

Folk Uses:-

- One cup decoction of stem-bark is taken orally twice a day for fifteen days to scatter the cotted blood.

Chemical Constituents:- Bark contains tannin, tecomin, starch, gum etc.

Biological Activity:- Bark is astringent, cooling diuretic, bitter, blood purifier, demulcent, deobstruent. Leaves and flowers are astringent ophthalmic, blood purifier, demulcent, and bitter.

300. Tectona grandis (Linn.) f.

Family: Verbenaceae. **Vern. :** Sag.

Sanskrit Name: Saka. **English Name:** The Teak Tree.

Regional Names:-

Ass.: Chingjagu;**Beng.:** Segun;**Bom.:** Sag, Sagwan, Sal, Tegu, Tekku;

Hin.: Sagun, Sakhu, Segan;**Kan.:** Jadi, Sagwani, Tega, Tegina, Tyagada-mar;

Mar.: Sag, Saga, Sagvan, Sagwan;**Oriya:** Singuru;**Pb.:** Sagun, Sagwan;

Tam.: Tek, Tekku, Tekkumaram;**Tel.:** Adaviteku, Pedda-teku, Tek, Teku, Teku-manu.

Distribution: India, Malaysia, Java Sumatra & Sunda.

Description: A large deciduous tree with square channeled, hairy stem. Leaves very large, opposite or whorled, entire, elliptic or obovate acute, rough and hairy. Flowers white in large terminal, branched, hairy cymose panicles. Drupe subglobose pericarp soft with flted stellate hairs, endocarp bony, enclosed in accrescent calyx. Seed exalbuminous.

Flowering: Sept.-Nov. **Fruiting:** Sept.-Nov.

Habitat Ecology: Common in Barda Hills & cultivated.

Material Examined: NKO-248

Parts Used: Stem, Seeds.

Folk Uses:-

- Stem is used for making poles of '*sati'* leveler and *'Data'*.
- Seeds crushed in cold water are given twice a day during burning sensation in urinary track.

Chemical Constituents:- Wood contains in its cavities white crystalline deposits of calcium phosphate, magnesium, silica and ammonium and magnesium phosphate, also a resin. Seed contains bland fatty oil.

Biological Activity:- Plant is astringent, acrid sweet, cooling, constipating, anthelmintic, depurative, haemostatic, anti-inflammatory, vulnerary, diuretic, demulcent verminfuge, ophthalmic, laxative, utertive, uterine sedative. Oil is trichogenous.

301. Teramnus labialis Spr.

Family : Fabaceae. **Vern.** : Valiya-velo.

Distribution : Afghanistan, Tropical Africa, India.

Description : A trailing or twining spreading hairy herbs. Leaves alternate, trifoliate, pinnately compound. inflorescence axillary & terminal, solitary, flowers violet-purple, fading pale-blue. Pods linear, straight. Seed smooth, polished.

Flowering : Aug.-Oct. **Fruiting** : Sept.-Nov.

Habitat Ecology : Found in grass land and hedges in monsoon.

Material Examined : NKO-93

Part Used : Whole plant.

Folk Uses :-

- Plant decoction taken orally for rheumatism.
- Use as a good fodder.

302. Terminalia bellirica Roxb.

Family : Combretaceae. **Vern.** : Baheda.

Sanskrit Name : Vibhitakah, Aksah, Bibhitak.

English Name : Belleric, Myrobalan.

Regional Names :-

Hin.: Baheda;**Kan.:** Behara, Tanrikayi, Santikayi;**Mal.:** Tanni, Tannikka;

Tam.: Tanni, Tannikka;**Tel.:** Tandra, Tani.

Distribution : India, Sri Lanka, Malysia.

Description : A big tree. Leaves alternate, coriacous, entire, elliptic-obovate, apex rounded, or acute, base tapering. Flowers pale greenish yellow, in axillary spikes and smelling, the upper flowers are male, but the lower are hermaphrodite. Drupe abruptly narrowed into a short stalk, obacurely angled when dry.

Flowering : Apr.-May. **Fruiting** : May-June.

Habitat Ecology : Found in Barda Hills.

Material Examined : NKO-122

Part Used :Stem bark.

Folk Uses :-

- 10 ml decoction of its 10gStem bark is given twice a day for 3 days with little sugar candy for gastitis.

Chemical Constituents :- Fruits contain about 17% tannins, (gallic acid, ellagic acid), ethylgalate, sugars, galloyl glucose and chebulagic acid. Herart wood and bark contain ellagic acid. Seeds contain oil.

Biological Activity :- Bark is diuretic, astringent, haemostatic. Fruit are astringent, acrid, thermogenic, anti-inflammatory, anodyne, styptic, digestive, anthelmintic, aperient, expectorant, ophthalmic, antipyretic, antiemetic and rejuvenating.

303. Terminalia catappa Linn.

Family : Combretaceae. **Vern :** Badam;

Sanskrit Name : Grahdrum. **English Name :** Indian Almond.

Regional Names :-

Hin.: DeshiBadam;**Mal.:**Adamarram;**Mar.:**Bangalibadam**Tam.:**Nattuvadumai;

Tel.: Badamuchett.

Distribution : India.

Description : A small tree with whorled horizontal branches in successive tires. Leaves alternate, obovate, oblong, pointed at apex, bae rounded with a depressed gland on each side of the midrib, exstipulate. Flowers greenish-white, small in axillary solitary spikes, bracteoles minute, lanceolate the upper flowers male, the lower hermaphrodite. Fruit a fibrous drupe, oval or ellipsoid compressed.

Flowering : All months. **Fruiting :** All months.

Habitat Ecology : Cultivated.

Material Examined : NKO-123

Parts Used : Fruits, Branches.

Folk Uses :-

- Dried branches are used as fuel.
- Ripe fruits are eaten.

Chemical Constituents :- Bark, leaves and unripe fruits contain tannin, ellagic acid, corilagin, organic acid. Ripe fruit contains, sugars, organic acids. Seeds contain protein, carbohydrate, oil

Biological Activity:- Astringent, haemostatic, aperient, digestive, sudorific, diuretic, antiseptic.

304. Terminalia chebula Retz.

Syn : *T. aruta* Ham., *T. reticulata* Roth., *Embryogonia arborea* Teys.And Binn., *Myrobalanus chebula* Gaertn.

Family : Combretaceae. **Vern.** : Harde.

Sanskrit Name : Abhaya, Haritaki (ripe fruit), Pathya, Haritaki-Pushpam (galls).

English Name : The Chebulic Black Myrobalan.

Regional Names :-

Ass.: Hillikha;**Bom. :** Hirda, Harda;**Hin.:** Bal-har (dried fruit), Harara, Harra, Har (ripe fruit), Pile-har, Sanghihar, Har(tree);**Kan.:** Alalekayi (ripe fruit);**Mar.:** Bata-hirdda (ripe fruit), Hirada, Hirdda;**Pb.:** Har, Halela,

Harar;**Tam.:** Kadakai-kaduk-kay, Piln-marda;**Tel.:** Kadukar, Karaka, Karaku, Karakkaya (ripe fruit), Kurka.

Distribution : India, Sri Lanka.

Description : A small tree. Leaves alternate, elliptic oblong, acute, penninerved, base rounded, petioles often with 2 glands near their apex. Flwers in terminal spike, braceoles exceeding the flowers linear, acute. Drupes ellipsoid, or obovoid stone oblong bony. Seed exalbuminous.

Flowering : Apr.-May. **Fruiting** : May-June.

Habitat Ecology : Found in Barda Hills.

Material Examined : NKO-124

Part Used : Stembark, Fruits.

Folk Uses :-

- 15-20g stem bark paste is taken in slightly hot water once a day for 3 days to cure gastric troubles.
- Fruit paste is applied on feet to cure the crack in the lowerside.

Chemical Constituents :- Fruit contains tannic acid 20-40%, gallic acid, resin, anthraquinone, derivative, chebulin, chebulinc acid, chebulic acid. Seeds contain oil.

Biological Activity :- Fruit are astringent acrid, bitter, sour, thermogenic, diuretic, anodyne, anti-inflammatory, vulnerary, alternate, stomachic, laxative, carminative, anthelmintic, cardiotonic, febrifuge.

305. Terminalia crenulata Roth.

Syn : *T. tomentosa* Cooke.

Family : Combretaceae. **Vern.** : Sajad.

Sanskrit Name : Asana, Chagakarnah. **English Name** : Black Murdah.

Regional Names :-

Hin.: Asaina;**Kan.:**Sadala;**Mal.:**Karimarutu;**Tam.:**Karumurdu;**Tel.:**Nellamaddi

Distribution : India, Sri Lanka.

Description : A big tree. Leaves alternate or subopposite, coriaceous, ovate oblong or elliptic-oblong. 1-2 glands are often found on the midrib, base

cordate. Flowers dull-yellow in axillary spikes or terminal panicles. Samara with five wings, big and red-brown.

Flowering : Sept.-Oct. **Fruiting** : Oct.-Nov.

Habitat Ecology : Common in clayey area of forest.

Material Examined : NKO-125

Part Used : Fruits, Leaves, Wood.

Folk Uses :-

- Wood used for making agricultural implements.
- Wood used for making housing materials.
- Decoction of fruits taken orally in the early morning in empty stomach to cure acidity.

Chemical Constituents :- The bark contain 18.7% tennin. Beta-sitosterol, arjunic and arjuno-jic acids. Arjunetin, betulinic and ellagic acids have been isolated from the bark.

Biological Activity :- The bark is bitter, astringent, cooling, cardiotonic, diuretic, styptic, constipating, vulnerary, expectorant. Anthelmintic and uterine tonic.

306. Thespesia populnea Corr.

Syn : *Hibiscus populneoides* Roxb., *H. populneus* Linn., *Malvaviscua populneus* Gaerth.

Family : Malvaceae. **Vern.** : Paraspiplo.

Sanskrit Name : Gardhabhanda, Parisa.

English Name : The Portia Tree, The Umbrella Tree, Tulip Tree of Indian Writers.

Regional Names :-

Bom.: Palas-pipal, Pares-pipal, Porash, Prash;**Hin.:** Bhendi, Gajahanda, Paras-pipal, Parsipu-pipal, Porush;**Kan.:** Asha, Huvarase, Hurvashi;**Mar.:**Bendi, Bhendi, Jhada, Parsacha, Ran-bhendi;**Pb.:** Paras-pipal;**Tam.:** Poovarasam kallai;**Tel.:** Gangaravi, Gangaraya, Gangarenu, Gangirana, Muniganga-ravi.

Distribution : Afghanistan, Pakistan, Tropical Africa, India, SriLanka, Burma, China, Malaysia, W. Indies.

Description : A small evergreen tree with an umbrella shaped crown. Leaves poplar-like, heart shaped, entire ponted at the tip, petiole 2.5-10 cm, stipulg awl-shaped, deciduous. Flowers axillary, solitary or two together, bisexual, bell-shaped, yellow. Fruit a globose capsule covered with minute stalked scales, calyx persistent black when ribe. Seeds ovoid.

Flowering : All months. **Fruiting** : All months.

Habitat Ecology : Planted as an avenue tree.

Material Examined : NKO-31

Part Used : Leaves.

Folk Uses :-

- Extract of 3-4 fleshy leaves ground with an equal quantity of cow milk. This mixture is taken on empty stomach early in the morning for seven days, it is effective remedy for jaundice.

Chemical Constituents :- Fruit contains thespesin, gossypol, populinin, populetin, populneol, bherbacetin, populnetin, glycosides of quercetin, gossypetin, epoxyleic acid, isoquercitrin, rutin, kaempferol 3-flucoside, lupenone, mansononeS, myricyl. Alcohol, lipids, β-sitosterol, thespesone and thespone. Bark contain tannin. Seeds contain oil, resin.

Biological Activity :- Plant is astringent, acrid, demulcent, alternative, conceptive, depurative, anti inflammatory, haemostatic, vulnerary, antidiarrhoeal and antibacterial.

307. Thevetia peruviana (Pers.) Merr.

Syn : *T. nerifolia* Juss ex Steud.

Family : Apocynaceae. **Vern. :** Pili kaner.

Sanskrit Name: Hapusha; **English Name:**Yellow Olender, Lucky Nut;

Regional Names :-

Hin.: Pili kaner;**Kan.:** Kadukasi;**Mal.:** Manja areli;**Tam.:** Pachaiyalari;

Tel.: Pachaganneru.

Distribution : India.

Description : A small tree with milky juice. Leaves numerous, alternate, close together, linear, acute. Flowers yellow, fragrant, in axillary or terminal cymes. Fruit a fleshy drupe, 4-angled, compressed with a ridges, seed 2 to 4.

Flowering : All months. **Fruiting :**All months.

Habitat Ecology : Cultivated as a garden plant..

Material Examined : NKO-191

Parts Used : Wholeplant, Flowers.

Folk Uses :-

- Flowers are collected in the early morning. The smell of the flower is inhaled seven times to cure a boil in the nostrils. ?
- Planted as a ornamental plants near house.

Chemical Constituents :- Plant contains latex. Seeds and roots contain thevetin, neriifolin, cerberin, ruvoside, peruvoside, thevenerііin, thevetoxin. Latex contain caochouc seeds contain oil.

Biological Activity :- Plant is emetic, purgative, antiseptic, antiphlosistic, febrifuge, abortifacient, cathartic.

308. Tinospora cordifolia Miers.

Syn: *T. palmnervis* Miers,*Manispermum cordifolium* Willd., *Cocculus cordifolius* DC., *C. convolvulaceus* DC., *C. verrucosus* Wall.

Family : Menispermaceae. **Vern.** : Galo.

Sanskrit Name : Amrita, Amritalata, Bhishaka, Chakrangi;

English Name : Heart-leaved Mvonseed.

Regional Names :-

Beng.: Gadancha, Giloe, Gulancha;**Bom.**: Ambarvel, Gharol, Guloe, Gulwel;

Hin.: Giloe, Gulancha, Gulbel, Gurach, Gurcha;**Kum.**: Amritaballi, Amruta Balli;**Mal**.:Amrytu, Peyamrytam, Sittamrytau;**Mar.**: Ambarvel, Gharol, Giroli, Gulavela, Guloe, Gulvel;**Oriya** : Gulancha, Gulochi;**Pb.**: Batindu, Garum, Gilo;**Tam.**: Amridavali, Amudam, Kunali;**Tel.**: Duyutige, Guduchi, Jivtika, Somida.

Distribution : Tropical Africa, India, Sri Lanka, Malysia, Australia.

Description : Glabrous climbing shrub with succulent stems and corky bark. Leaves membranous, cordate. Flowers unisexual : male fascicled, female solitary. Drupes very small, red.

Flowering : June-July. **Fruiting** : June-July.

Habitat Ecology : Common in hedges.

Material Examined : NKO-6

Parts Used : Stem.

Folk Uses :-

- 3-4 ml extract of stem is taken orally twice a day for a week to cure fever.
- For the cure of jaundice a necklace of small pieces of its stem is warn.

Chemical Constituents :- Active constituents in different parts of plants are giloin, giloinin, gilosterol and berberine (Stem-bark); and tinosporin, tinosporon, tinosporol, tinosporic acid, tinosporoside, cordifolide and a furanoid diterbene identical with columbin (plant) Dixit & Khosa, 1971; Qudra-i-Khuda *et al.*, 1966.

Biological Activity :- Stem is blood purifier, thermogenic, anodyne, anti-pyretic, cardminative.

309. Trachyispermum copticum (Linn.) Link.

Syn : *T. ammi* (Linn.) Sprague., *Carnum copticum* Benth & Hk.

Family : Apiaceae. **Vern.** : Ajama.

Sanskrit Name : Yavani, Dityak. **English Name** : The Bishop's Weed.

Regional Names :-

Ben.: Yoyan;**Hin.:**Ajvayan;**Mar.:**Ova;**Tel. :** Omamu.

Distribution : Europe, Abyssinia Soctra, India, Burma, China, Malysia, Java Sumtra & Sunda, Philipines, New Guinea.

Description : An annual herb. Leaves 2-3 pinnate or decompound dark green, segments wedge-shaped at the base, incised at the apex. Flowers white, in compound umbel. Fruit a cremocarp, ovoid.

Flowering : Dec.-Apr. **Fruiting** : Jan.-May.

Habitat Ecology : Cultivated as a winter crop.

Material Examined : NKO-157

Part Used : Fruits.

Folk Uses :-

- 1 teaspoonful of fruit ground, a little pure ghee and jaggery mixed with it. The mixture is cooked. Mixture is given orally 2 times a day in gastric trouble.

Chemical Constituents :- Fruit contain thymine, a volatile essential oil, searoptin and thymol.

Biological Activity :- Fruit are carminative, hot, antispasmodic, pungent, stimulant, aromatic, expectorant, stomachic and antiseptic.

310. Tragia cannabina Linn.

Syn : *T. involucrata Linn.*

Family : Euphorbiaceae. **Vern.** : Khajavani.

Sanskrit Name : Dusparsha. **English Name** : Indian Stinging Nettle.

Regional Names :-

Hin.: Barhanta;**Kan.:** Turaci;**Tam.:** Kancori;**Tel.:** Duradagantatige.

Distribution : India, Sri Lanka.

Description : A climbing shrub or herb, hispid with stinging hairs, stem stout, slender woody. Leaves palmately 3-partiate, lobes toothed or pinnatifid. Flowers yellow and green frequent, usually leaf-opposed, recems. Capsule 3 lobed hirsute.

Flowering : Aug.-Mar. **Fruiting** : Aug.-Apr.

Habitat Ecology : Common in hedge throughout the study area.

Material Examined : NKO-280

Part Used : Leaves.

Folk Uses :-

- The pests of leaves is applied on local swelling of hands and feet.

Chemical Constituents :- Plant contains febricula, fibers, organicacids.

Biological Activity :- Roots are acrid, diuretic, diaphoretic, antiperiodic, depurative, alterative. The hairs of plant are irritant.

311. Tribulus terrestris Linn.

Family: Zygophyliaceae. **Vern .**: Gokhru.

Sanskrit Name: Gokshura, Shvadamstra;

English Name: Land-Caltrops, Small Caltrops.

Regional Names:-

Hin.: Gokharu;**Kan**.: Nogalu, Sonnanegalu;**Mal.**: Nerinnil;**Tam**.: Nerinci;

Tel.: Palleru, Cinnapalleru.

Distribution : Arabia, Abyssinia & Soctra, Tropical Africa, Madagascar, India, SriLanka, Burma, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, W.Indies, C. America & Mexico Brazil.

Description: A prostrate or procumbent, annual, pilose herb, young branches silky-villous. Leaves opposite, unequal, leaflets 3-6 pairs, oblong, mucronate, sericeo-villous with densely addressed hairs beneath. Flowers yellow. Fruit cocci 5(-3). Each cocci with usually 2, lateral, divergent, acute spines that are inserted above the middle and 2 shorter spines, directed downwards.

Flowering: Aug.-Oct. **Fruiting**: Sep.-Nov.

Habitat Ecology: A common species found throughout the area.

Material Examined: NKO-45

Parts Used: Leaves, Fruits.

Folk Uses:-

- The fresh leaves are pounded or crushed into paste, add water and warm gently for 5 minutes. The patient drinks a tea cup daily for a week. It is used for the treatment of dysentery.
- Prepare a cup of decoction of fruits, taken orally for seven days; the kidney stone will be distintegrated.

Chemical Constituents:- The whole plant contains saponins, diosgenin, gitogenin, chlorogenin and ruscogenin, kaempferol-3, glucoside, kaempferol-3-rutinoside. New flavonoid tribuloside. Fruits contain resin, fixed oil, glycoside, nitrate, Harman, harmine, saponin.

Biological Activity:- The whole plant is aphrodisiac, emollient, appetizer, anthelmintic, expectorant, anodyne, alterant, cardiotonic, stypic, lithontriptic strengthening.

312. Trichodesma indicum Br.

Syn: *T. perfoliantum* Wall., *T. hirsutum* Edgew., *Borago spinulosa* Roxb., *B. indica* Linn.

Family: Boraginaceae. **Vern.** : Undha phuli.

Sanskrit Name: Adhapushpi, Adhomukha, Avakpushpi, Darvika, Dhenujivha, Gandhapushpika, Golomi, Romalu, Sarasa.

Regional Names:-

Hin.: Chhota-kulpha;**Hin.:**Chhota-kulpha,Ratmundiya;**Kas.:**Nilakrai, Ratisurkh;**Kum.:**Ratmandi;**Mar.:**Lahanakalpa;**Pb.:**Kallri-buti, Ratmandu;**Tam.:**Kazuthai-tumbal;**Tel.:** Guvva-gutti.

Distribution: Persia, Mesopot, Pakistan, India, Sri Lanka.

Description: A coarse, branched annual, 15-45 cm tall, rough with bulbous-based hairs. Leaves stem-clasping. Flowers pale-blue, in terminal few flowered cymes. Fruit pyramidal with the persistent style, 4-ribbed.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Common in dry areas.

Material Examined: NKO-209

Part Used: Whole plant.

Folk Uses:-

- Plant paste is applied on cattle wounds.

Chemical Constituents:- Constituents isolated are: hexacosane, ethylhexacosanoate, 21-24-hexacosadienoic acid ethylester (leaves); and linoleric, linolenic, oleic palmitic and steric acids (seed); (Chatterjee & Pakrashi, 1997).

Biological Activity:- The plant is acrid, thermogenic, emollient, abortifacient, and emmenagogue, alexeteric, anodyne, anti-inflammatory, carminative, constipating, depurative, ophthalmic, febrifuge, and pectoral.

313. Tridex procumbens Linn.

Family: Asteraceae. **Vern. :** Ghaburi .

English Name: Mexican Daisy, Coat Buttons.

Regional Names:-

Kan.: Gabbu sanna savanthi, Nettu gabbu savanthi;**Tam.**: Vettukkaaya-thalai;

Tel.: Raavanaa suruditalakaai, Kampu-chemanti.

Distribution: North America, India, Central America & Mexico, Brazil.

Description: A small, straggling, procumbent, perennial herb, hairy. Leaves opposite, ovate-elliptic, acute, deeply inciso-dentate, hairy glandular. Flowers pale-yellow in very long peduncled, solitary heads, hairy. Cypsela oblong densely covered with silky hairs, black.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Common in waste land.

Material Examined: NKO-172

Parts Used: Leaves.

Folk Uses:-

- Paste of leaves is applied over fresh cuts to check bleeding.

Chemical Constituents:- Plant contains nicotine and ediptine.

Biological Activity:- Leaves are styptic, haemostatic and antiseptic.

314. Trigonella foenum-graceum Linn.

Family: Fabaceae. **Vern. :** Methi.

Sanskrit Name: Methi, Methika; **English Name:** Fenugreek;

Regional Names:-

Beng.: Methi, Methika;**Hin.:** Methi, Muthi;**Kan.:** Menthya, Mente soffu;

Mal.: Uluva, Venthiam;**Pb.:** Methi, Methun;**Tam.:** Vendayam;**Tel.:** Mentulu.

Distribution: Europe, India.

Description: Strongly-scented annual. Leaflets three, stipules entire. Flowers yellow, sessile, axillary. Pod many seeded beaked.

Flowering: All months. **Fruiting:** All months.

Habitat Ecology: Cultivated.

Material Examined: NKO-94

Parts Used: Leaves, Aerial parts Seeds.

Folk Uses:-

- Fresh leaves and seeds mixed with fodder are fed to animal suffering from rheumatism.
- Seeds mixed with jaggery are fed to cows and buffaloes to enhance lactation.
- Green aerial part and seeds are used as vegetable.

Chemical Constituents:- Therapeutic properties of the seeds attributed to grecunins H-N, fenugrin B, sapogenins, trignonelloside C, trigonelline, Choline, 7-acetoxy-4-methyl cousmarin, kaempferol, luteolin and quercetin. Leaves contain diosgenin, graecunins A-C, gitogenin, tigogenin, kaempferol, quercetin and β-sitosterol (Chatterjee & Pakrashi, 1997)

Biological Activity:- Seeds (aq. ext.) exhibit antibiotic activity against *Micrococcus pyogenes* var. *aqureus* (Annon., 1972).

315. Triticum aestivum Linn.

Syn : *T. amyleum* Ser., *T. compactum* Host Gram., *T. compositium* Linn., *T. dicoccum* Schrank., *T. durum* Desf., *T. hybernum* Linn., *T. vulgare* Villars., *T. turgidum* Linn.

Family: Poaceae. **Vern.** : Ghav.

English Name: Wheat.

Regional Names:-

Beng.: Gam, Glum, Gom;**Bom.:** Gahu, Ghawn, Ghawut-ghum, Gium, Mar-Ghum;**Hin.:** Gehun, Giun, Kunak;**Kan.:** Godhi;**Mar.:** Gahung;**Pb.:** Do, Dro, Gehun, Kanak, Rozatt, Zud;**Tam.:** Godumai, Godumbay-arisi;**Tel.:** Godumulu.

Distribution: India.

Description: A small, tufted annual. Leaves long, linear, narrow, pointed, sheathing at base. Ligules small, loose, membranous. Flowers in terminal spikes with or without awns, spikelets distichous, glumes 5 or more.

Flowering: Feb.-Mar. **Fruiting**: Feb.-Mar.

Habitat Ecology: Extensively cultivated as a winter crop throughout the study area

Material Examined: NKO-333

Part Used: Leaves, Seeds.

Folk Uses:-

- 250 g leaves crushed and juice given to the patient for one month in Anaemia.
- The flour or *ata* are chiefly used for making *'Rotali'*.

Chemical Constituents:- Leaves contain minerals, iron, calcium, p – Aminobenzoic acid, biotin, carotene, choline, folic acid, inositol, nicotinic acid, pantothenic acid, riboflavin, thinamine and tocopheral. Grains contain starch, proteins, fibers, minerals.

Biological Activity:- The grains are nutritive, tonic, stomachic, emollient, rejuvenating, appetiser, vulnerary, demulcent, aphrodisiac. Leaves are antioxidant, astringent, and stomachic.

316. Triumfetta rhomboidea Jacq.

Syn: *T. bartramia* Roxb., *T. trilocularis* Roxb., *T. angulata* Lam., *T. angulata* Wall., *T.acuminata* Wall., *T. vestita* Wall.,

Family: Tiliaceae. **Vern. :** Jhipato.

Sanskrit Name: Jhingharita. **English Name:** Burbush Burweed.

Regional Names:-

Beng.: Bun-okra;**Hin.:** Chikti;**Kan.:** Kadubende;**Mar. :** Jhinijhira;

Oriya: Bojoramuti, Jotojuti;**Tam. :** Adai-otti;**Tel.:** Chirusitorika.

Distribution: Tropical Africa, India, China.

Description: Perennial, pubescent herb up to 90 cm tall with yellow flowers in dense cymes. Capsule globose, spine.

Flowering: Sept.-Oct. **Fruiting**: Sept.-Oct.

Habitat Ecology: Common along the grasslands and roads and canals.

Material Examined: NKO-43

Parts Used: Stem.

Folk Uses:-

- Twig is used as tooth brushes.
- Stem is used as brooms.
- The woody clump is preserved by the pipe smokers as a very efficient pipe cleaner. ?

Chemical Constituents:- Pharmacologically, the plant contains 4-hydroxyisoxazole and triumboidin.

Biological Activity :- Plant is antiseptic, astringent, and diuretic, styptic, demulcent.

317. Tylophora dalzellii Hk. f.

Family: Asclepidaceae. **Vern. :** Radarudi.

Distribution: India.

Description: A perennial twining, sparingly hairy or glabrous herb with milky sap. Leaves opposite. Inflorescence axillary or lateral umbellate cymes, flowers deep-purple. Fruit follicles. Seed flat.

Flowering: July-Aug. **Fruiting:** Aug.-Sept.

Habitat Ecology: Grows in bushes.

Material Examined: NKO-200

Parts Used: Flower.

Folk Uses:-

- Flowers are used to prepare *'Kari'*.

Chemical Constituents:- Tylophorine, cryptopleurine and septicine.

318. Urginea indica (Roxb.) Kunth

Syn: *Scilla Indica* Roxb.

Family: Liliaceae. **Vern. :** Pankando.

Sanskrit Name: Vanpalandu. **English Name:** Indian Squill.

Regional Names:-

Hin.: Jungli piyaz;**Mal.:** Adadurisulli;**Tam.:** Narivangayan; **Tel.:** Nakkavulligaddu.

Distribution: Tropical Africa, India, Burma.

Description: A small herb with white bulb. Leaves appear after the flowers, flat, linear, radical, acute. Flowers brown on a scape few-flowered raceme. Capsule ellipsoid. Seed flattened black.

Flowering: June-Oct. **Fruiting:** June-Oct.

Habitat Ecology: Very common on sandy places of Barda Hills.

Material Examined: NKO-307

Parts Used: Bulb.

Folk Uses:-

- Paste of bulb is warmed along with jaggery then applied on spine pains.

Chemical Constituents:- Fresh bulb oxalate yields at lest two glycosides scillarin-A and scillarin-B, sugars scillitoxin, muscilage, calcium, essential oil, minerals.

Biological Activity:- Bulb antiamoebic, anticancer, hypoglycemic.

319. Vallisneria spiralis Linn.

Syn: *V. spiraloides* Roxb.,

Family: Hydrocharitaceae. **Vern.** : Jalsarpolia.

Distribution : Europe, Arabia, Abyssinia & Soctra, Tropical Africa, Madagascar, India, SriLanka, Burma, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, W. Indies, C. America & Mexico, Brazil.

Description: A submerged, tugted stem less, stoloniferous herb. Leaves very long, linear, flat, tape-like, and radical, varying in length with the depth of water. Flower dioeciously, male flowers many, minute in an ovid, 3 lobed shortly pedunculate spathe, female flowers solitary in a tubular, 3-toothed, pinkish-white spathe, terminal on long, spirally coiled stalk. Berry globose included in the spathe.

Flowering: Apr.-Nov. **Fruiting**: Apr.-Nov.

Habitat Ecology: Common in tanks and rivers.

Material Examined: NKO-292

Part Used: Whole plant.

Folk Uses:-

- 10 gm powder of whole plant is taken orally with water once a day for three days to cure diarrhea.

Chemical Constituents:- Extracts of the plant yielded polysaccharides containing D-galactose, D-xylose, L-arabinose, L-rhamnose, uronic acid, acidic xylean and an arabinogalactan.

Biological Activity:- Plant is demulcent, stomachic, cooling and refrigerant.

320. Vernonia cinerea (Linn.) Less.

Syn: *Conyza cinerea* Linn.

Family: Asteraceae. **Vern.** : Sedradi.

Sanskrit Name: Sahadevi. **English Name**: Purple Fleabane.

Regional Names:-

Hin.: Sahadevi, Sadodi;**Mal.:** Pavvamkuruntila, Puvvamkurunnila;

Tam.: Puvamkuruntal, Naycitti;**Tel.:** Gharitikamini, Garitikamma.

Distribution : Arabia, Abyssinia & Soctra, Tropical Africa, Madagascar, India, SriLanka, Burma, Malaysia, Java Sumatra & Sunda, Philippines, New Guinea, W. Indies, Central America & Mexico, Brazil.

Description: A small annual herb, stem hairy. Leaves simple, alternate, ovate-elliptic or lanceolate, obtuse or acute, mucronate, irregularly dentate or crenate-serrate, hairy. Flowers pinkish-violet, in small heads forming divaricated terminal corymbs. Cypsela square, oblong, narrow at base, hairy.

Flowering: Aug.-Mar. **Fruiting**: Aug.-Mar.

Habitat Ecology: Common throughout in waste land.

Material Examined: NKO-173

Part Used: Whole plant, Leaves.

Folk Uses:-

- Leaf juice is applied on cuts and wounds to check bleeding and as an antiseptic also.

- Decoction of whole plant is given in the morning in empty stomach to cure fever.

Chemical Constituents:- Plant contains vernonine, β-amyrin acetate, β-amyrin benzoate, lupeol and its acetate, β-sitosterol, stigmaterol, a-spinasterol, and KCL. Seeds contain oil.

Biological Activity:- Whole plant alexiparmic, antibilious, diaphoretic, febrifuge, thermogenic, lithontriptic, anodyne, sudorific, stomachic, alexeteric, antibacterial, antifungal, antiviral and antiperiodic.

321. Vigna aconitifolia (Jacq.) Marechal

Syn: *Phaseolus aconitifolius* Jacq.

Family: Fabaceae. **Vern.** : Math.

Sanskrit Name: Makushtaka. **English Name**: Moth Bean.

Regional Names:-

Hin.: Math;**Tam.:** Tulkapyre;**Tel. :** Banmudga.

Distribution: India, SriLanka.

Description: A sub erects or diffuses annual twinning herbs with hispid branchlets & angular stems. Leaves alternate tri-foliate pinnately compound. Inflorescence axillary racemes with peduncle, flower pate-to bright-yellow. Fruit pods. Seeds brown.

Flowering: Sept.-Oct. **Fruiting**: Oct.-Nov.

Habitat Ecology: Cultivated.

Material Examined: NKO-95

Part Used: pods, Seeds.

Folk Uses:-

- Chapattis of seed flour smeared with edible oil are fed to cattle suffering from mouth sores.
- Pods are given to bullocks for strength or as a fattening food.
- The ripe seeds are used as a pulse.

Chemical Constituents:- Seeds contain carbohydrate, protein, lecithin, fibers and minerals.

Biological Activity:- Seeds are astringent, antipyretic, stomachic, stimulant, digestive, aphrodisiac, and antibillious cardiac.

322. Vitex negundo Linn.

Syn: V. bicolor Wild., *V. arborea* Desf., *V. Paniculata* Lamk.

Family: Verbenaceae. **Vern. :** Ngaol, Nigod.

Sanskrit Name: Indrani, Nilapushpa, Shephali.**English Name:** Indian Privet.

Regional Names:-

Beng.: Nirgundi, Nisinda, Samalu; **Bom.:** Katri, Lingur, Nirgur;

Hin.: Mewri, Ningori, Panikisambhalu, Sanbhalu, Shiwali, Sindhuca;

Mal.: Indrani, Nochi, Vennahi;**Oriya:** Begundia, Indrani;**Tam.:** Nirkkundi, Nochi, Vennochi;**Tel.:** Nallavavili, Vavili.

Distribution: Afghanistan, India, Sri Lanka, China, Philippines.

Description: A deciduous shrub with digitately compound leaves and bluish-purple flowers in pedunculate branched cymes. Fruits drupaceous, black when ripe.

Flowering: All months. **Fruiting:** All months.

Habitat Ecology: Edges of agricultural fields grow in riverbeds.

Material Examined: NKO-249

Parts Used: Leaves.

Folk Uses:-

- Water boiled with leaves is used for bath (7-8 days) in scabies.
- Smoke of leaves is used as a Insect replent.

Chemical Constituents:- Irioid glycosides, cucubin, agnuside, nishindaside and negundoside have been reported to occur in leaves. Seeds contain vanitin and a mixture of unidentified alkaloids. Stem-bark yields p-hydroxy benxoic and vanillic acids, luteolin, 6, 8-di-o-methyl-lecucodelphinidin and 3'-4'-di-o-methyl-leucocyanidin-7-0-rhamnoglucoside (Annon., 1972; Chatterjee & Pakrashi, 1997).

Biological Activity:- Leaves exhibit anticancer activity against *Ehrlich ascites* tumor cells.

323.Wattakaka voluble (Linn.f.) Stapf.

Syn: *Dregea Volubilis* (Linn.f.) Bth. ex. Hk., *Asclepias volubilis* Linn.f. *Marsdenia volubilis* Cooke.

Family: Asclepiadaceae. **Vern. :** Moti-dodi.

Sanskrit Name: Madhumalti.

Regional Names:-

Hin. : Nakchhikni;**Mar.:** Hirandori.

Distribution: India, Burma, Malaysia, Java Sumatra & Sunda.

Description: A stout woody pubescent twiner. Leaves broadly ovate to suborbicular, cordate. Flowers green, in dense. drooping umbels. Follicles paired, divaricated, tapering from base. Seeds ovoid, glabrous.

Flowering: Aug.-Sept. **Fruiting:** Sept.-Oct.

Habitat Ecology: Common in hedges and bushes.

Material Examined: NKO-201

Parts Used: Stem, Fruit, Latex.

Folk Uses:-

- Stem used instead of rope for tying bundles of firewood.
- Unripe fruits are edible.
- Fresh tender branch is taken and 2-3 drops latex is poured in nose to cause sneezing to cure headache.

Chemical Constituents:- Contains glucoside dregein and alkaloid. Chloroform extract of seeds on hydrolysis revealed presence of drevogenin A, drevogenin B, drevogenin P and drevogenin D, and unknown genin O, along with sugars D-cymarose (+)-methyl-pachybiose, pachybiose, digitoxose, oleandrose, asclepibiose and an unknown sugar. A new glycoside, dregoside A isolated along with drevogenin A and drebbysogenin G.

Biological Activity:- Anti cancer activity and CNS-depressant activity positive.

324.Withania somnifera (Linn.) Dunal

Syn: *Physalis somnifera* Linn.

Family: Solanaceae. **Vern.** : Ghodhakun.

Sanskrit Name: Ashwagandha, Varahakarni.**English Name**: Winter Cherry.

Regional Names:-

Hin.: Asagandh, Punir;**Kan.:** Viremaddinagaddi, Kiremallingagida;

Mal.: Amukkuram;**Tam.:** Amukkira, Amukkirakkilangu;**Tel. :**Vajigandha, Pannirugadda, Pulivendramu.

Distribution: Mediterranean, Pakistan, Madagascar, India, Sri Lanka.

Description: A small, hairy under shrub. Leaves ovate, acute, entire, and hairy. Flowers yellowish-green about 5 together in umbellate cyme. Berry red, enclosed in the inflated calyx. Seeds yellow.

Flowering: All months. **Fruiting**: All months.

Habitat Ecology: Grows in waste lands.

Material Examined: NKO-231

Part Used: Leaves.

Folk Uses:-

- One teaspoonful of leaf powder is mixed with equal quantity of root powder and taken with glass of milk twice a day on full stomach for one month for treatment of male sterility.

Chemical Constituents:- Roots contain several alkaloids, somniferin, starch, withasomnine, anaferine, steroidal, lactones, withanial, protein, withaferin A withanolides.

Biological Activity:- Tuberous roots are anthelmintic, antiphlogistic, expectorant, galactagogue, and sedative, somniferous. Leaves are antiphogistic, narcotic.

325. Woodfordia fruticosa Kurz.

Syn: *W. floribunda* Salisb., *W. tomentosa* Bedd., *Grislea tomentosa* Roxb., *G. punctat*a Ham., *Lythrum fruticosum* Linn.

Family: Lythraceae. **Vern.** : Dhawdi.

Sanskrit Name: Agnijvala, Dhataki. **English Name**: Fire-flame Bush, Shiranjitea.

Regional Names:-

Beng.: Dawa, Dhadki, Dhan;**Bom.:** Dhauri, Dhavri;**Hin.:** Dawi, Thawi;
Kang. : Dhai, Guldaur;**Kas.:** Thai, Thawi;**Kum.:** Dhai, Dhaula, Thawa;
Mal.: Tatire;**Mar.:** Dhazatichi, Phulsatti; **Oriya:**Dhatubiphula,Dhodo, Horibadi, Patalabeluri;**Pb.:** Gulbahar, Khurd;**Tel.:** Gaji-godari, Kusumamu.

Distribution: Japan, Pakistan, Tropical Africa, Madagascar, India, Sri Lanka, China, Java Sumatra & Sunda.

Description: A small much-branched shrub. Flowers red, in short panicle cymes. Capsule included.

Flowering: Mar.-Apr. **Fruiting**: Apr.-May.

Habitat Ecology: Common in open forests, waste lands.

Material Examined: NKO-131

Part Used: Flowers.

Folk Uses:-

- 1 teaspoonful in fusion of flower is given 2 times a day in dysentery.

Chemical Constituents:- Flowers contain mainly cyaniding-3, 5-diglucoside, pelargonidin-3, 5-diglucosdie, myricetin-3, diglucoside, polystachoside, quercetin-3-rhamnoside, naringenin-7-glucoside, kaempferol-3-glucoside, chrysophanol-8-0-β-glucopyranoside. A new C-glucoside-norbergenin has been charactrised from the stems. (Chauhan *et al.*, 1979 a, b, Kalidhar *et al.* 1981).

Biological Activity:- Flowers abortifacient and CNS depressant.

326. Wrightia tinctoria Br.

Syn: *Nerium tinctorium* Roxb.

Family: Apocynaceae. **Vern. :** Dudhalo, Mitho indrajav.

Sanskrit Name: Hyamaraka. **English Name:** Sweet Indrajav.

Regional Names:-

Beng.: Indrajav;**Bom.:** Bhurkuri, Kabkado, Kala-kuda, Kalakura-khirni, Kuda;
Hin.: Indarjou, Mitha indarjou;**Kan.:** Beppalli, Kodmurki;**Mar.:** Indrojou, Kala-kudu;**Tam.:** Pala, Palak, Palavey-ravnu, Pila, Veypall;**Tel.:** Amkudu, Tedlapal, Tell-pal.

Distribution: India, Sri Lanka, Java Sumatra& Sunda.

Description: A deciduous tree of moderate size, with an irregularly-shaped trunk. Leaves opposite, variable, elliptic-lanceolate, shortly acuminate. Flowers white or pale yellow, scented in terminal cymes, bracts small. Fruit a pair of follicles, drooping, united at the tips only in the earlier stages.

Flowering: Mar.-Aug. **Fruiting:** Apr.-Sept.

Habitat Ecology: Common in Barda Hills.

Material Examined: NKO-192

Parts Used: Stem bark.

Folk Uses:-

- 10 ml of stem bark juice is taken internally two times a day for 3 days against dysentery.

Chemical Constituents:- Seeds contain 30-49% fixed oil, β-sitosterol, β-amyrin and its acentate and lupeol benzoate from the bark.

Biological Activity:- Leaves are acrid, febrifuge, anodyne, hypotensive. Barks are thermogenic, carminative, stomachic, constipating, depurative

327. Xathium strumarium Linn.

Syn: *X. indicum* Dc., *X. roxburghii* Discolor, *X. orientale* Blume

Family: Asteraceae. **Vern. :** Gadriyu.

Sanskrit Name: Arishta, Chanda, Itara, Pitapushpi.

English Name: Bur-weed, Cockle bur.

Regional Names:-

Ass.: Agara;**Beng.:** Banokra;**Bom.:** Shankeshvara;**Hin.:** Banokra, Chotgokhru;

Kash. : Lanetsuru;**Mal.:** Buah aniang;**Mar.:** Dumundi, Sankeshwara;

Pb.: Chirru, Gudal;**Tam.:** Marlumutta;**Tel.:** Marulamatangi, Parsvapu.

Distribution: Afghanistan, Pakistan, India, Sri Lanka.

Description: A coarse annual, unarmed herb with 3-lobed leaves and greenish-white heads in terminal and axillary racemes. Achenes clothed with strong hooked spines.

Flowering: Aug.-Jan. **Fruiting:** Aug.-Jan.

Habitat Ecology: Open slopes, waste lands, roadsides.

Material Examined: NKO-174

Parts Used: Seeds.

Folk Uses:-

- 3-4 drope of leaves extract is pored in ear to cure earache.

Chemical Constituents:- Fruits yield β-D glucoside of β-sitosterol. From aerial plant parts, sesquiterpene lactones-xanthinin, its stereoisomers-xanthinim and xanthatin have been isolated (Chatterjee & Pakrashi, 1997; Chauhan, 1999).

Biological Activity:- Root hypoglycaemec.

328.Xeromphis spinosa (Thunb.) Keay

Syn: *Randia dumetorum* (Var.) *Longispina* Lam. *R. spinosa* (Thunb.) Blume., *R. Brandisii* Gamble. *Gardenia spinosa* Thunb., *G. dumetorum* Retz.

Family: Rubiaceae **Vern. :** Laso mindhol.

Sanskrit Name: Madana fal. **English Name:** Common Emetic Nut.

Regional Names:-

Kan.: Kare, Banegara, Mangri;**Hin.:** Mainphal;**Ben.:** Mainphal;**Mar.:** Ghela, Peralu, Waghtta, Mindhal;**Mal.:** Kara;**Tel.:** Manga;**U.P.:** Mendol, Mendula;

Tam.: Marukkallankay, Mad Karai;**Oriya :** Patava.

Distribution: India, Sri Lanka.

Description: A large shrub, armed with stout and sharp spines. Leaves fascicled on suppressed branches, obovate or spathulate. Flowers solitary or 2-3 together, white turning to yellow when old, fragrant about inch across. Fruit a berry, yellow, ovoid, crowned with large calyx-lobes, seeds many

Flowering: Mar.-Apr. **Fruiting:** Apr.-May.

Habitat Ecology: Abundance in Barda Hills.

Material Examined: NKO-164

Parts Used: Fruits.

Folk Uses:-

- Aid of athread passing through the fruit is tied around on bride groom hand at time of marriage ceremonies.
- Green fruit is rubbed between two palms for impotency. ?

Chemical Constituents:- Saponins-Dunetoronins A, B, C, D, E and F.

Biological Activity:- Fruits are emetic, expectorant, diaphoretic. The bark is astringent, abortifacient, sedative and anodyne.

329. Xeromphis uliginosa (Retz.) Maheshwari

Syn: *Randia uliginosa* DC.

Family: Rubiaceae. **Vern.** : Gangeda.

Distribution: Tropical Africa, India, SriLanka, China, Java Sumatra & Sunda.

Description: A small tree, bark reddish-brown scaly. Leaves fascicled or crowded at ends of branches. Inflorescence solitary, flower white, at length pale yellow. Fruit berries. Seed numerous, compressed.

Flowering: Mar.-Apr. **Fruiting**: Apr.-May.

Habitat Ecology: Common in Barda Hills.

Material Examined: NKO-165

Part Used: Fruits, Leaves.

Folk Uses:-

- Unripe fruits are used as a vegetable.
- Leaves are used as a fodder.

330. *Zea* mays Linn.

Syn: *Z. alba* Mill. Gard., *Z. americana* Mill. Gard., *Z. segetalis* Salisb., *Z. vulgaris* Mill. Gard. *Mays zea* Gaertn.

Family: Poaceae. **Vern. :** Makai.

Sanskrit Name: Yavanala. **English Name:** Indian-Corn, Maize, Makkai.

Regional Names :-

Beng.: Bhutta, Janar, Jonar;**Bom.:** Buta, Makai;**Hin.:** Barajuar, Bhutta, Junri, Kukri, Makka, Makkai;**Kan.:** Goin-jol, Mekkejola, Musuku-zula;**Mar.:** Maka; **Oriya :** Buta, Maka;**Pb.:** Bara-juar, Chale, Kukri, Kuthi, Makkei, Makki;

Tam. : Mukka-Sholam;**Tel.:** Makka-Zonnalu, Mokka-Jonna.

Distribution: America, India.

Description: A tall, annual monoecious grass with erect, solid stem. The roots fibrous and stilt. Leaves distichous, long, strap shaped with wavy margin and base with two auricles, sheathing staminate tassel at the apex consisting of spikelets, which are two-flowered. Female inflorescence called the ear is thick and axillary, spiklets in many vertical rows.

Flowering: Sept.-Oct. **Fruiting:** Sept.-Oct.

Habitat Ecology: Cultivated as a fodder crop everywhere.

Material Examined: NKO-334

Parts Used: Stem, Leaves.

Folk Uses:-

- Stem and leaves are used as a fodder.

Chemical Constituents:- Grains contain starch, sugars, protein, fixed oil, fibers, and vitamins, mineral. The styles contain potassium salts.

Biological Activity:- The grains are astringent, sweet, expectorant, antibilious, mild laxative, tonic, appetiser, roborant, resolvent, nutrtiuos and diuretic.

331. Zingiber officinale Rosc.

Family: Zingiberaceae. **Vern.** : Adu.

Sanskrit Name: Ardrakam. **English Name**: Ginger.

Regional Names:-

Mar.: Ala;**Mal.:** Ingi;**Tam.:** Ingi;**Tel.:** Allamu.

Distribution: India.

Description: A small herb with horizontal, fleshy rhizomes. Leaves distichous linear, lanceolate. Flowers in long spikes, bracts, one-flowered, purple.

Flowering: Mar.-Apr. **Fruiting**: -

Habitat Ecology: Rarely cultivated in study area.

Material Examined: NKO-295

Part Used: Rhizome.

Folk Uses:-

- About 15g of the rhizome is cooked with 20-25g jaggery and given against cough.
- Rhizome is used as flavoring agent in food preparations.

Chemical Constituents:-

Essential oil with camphene, β-philandrene, zingiberine, volatile oil containg comphene, phillandrene, cincol, citral, borneol, gingerol shogaol.

Biological Activity:- The raw ginger is acrid, thermogenic, carminative, laxative and digestive. The dry ginger is thermogenic, emollient, appetizer, laxative, stomachic, and rubefacient, anodyne aphrodisiac, expectorant, anthelmintic and carminative.

332.Zizyphus mauritiana Lamk.

Syn: *Z. jujuba* Herb. – Ham., *Z. jororia* Schult., *Z. trinervius* Roth., *Z. sativa* Gaertn. Dc., *Z. vulgaris* Lamk., *Rhamnus jujuba* Linn.

Family: Rhamnaceae. **Vern. :** Ber, Bordi, Boyedi.

Sanskrit Name: Ajapriya, Badari, Dridhabija, Koli.

English Name: Chinese Date, Indian Cherry, Indian Jujuba, Indian Plum.

Regional Names:-

Ass.: Makkho;**Beng.:** Bogri;**Bom. :** Bhor, Bhurmi, Bor, Bordi, Bur;**Hin.:** Baer, Beri;**Kan.:** Ber, Guter, Khalis;**Mal.:** Badaram, Badari, Lanta;**Mar.:** Baher, Ber, Bhor, Boru;**Oriya:** Barkoli, Bodori, Koli;**Pb.:** Bor, Beri, Unab; **Tam.:**Adidaram, Iradikullari; **Tel.:** Badaramu, Gangaregu;**Urdu:** Ber.

Distribution: India.

Description: A small, glabrous, deciduous tree with deeply furrowed bark and prickly branches. Flowers greenish yellow, in axillary clusters. Drupe reddish brown, shining.

Flowering: Mar.-Apr. **Fruiting:** Apr.-May.

Habitat Ecology: Wastelands, along field borders.

Material Examined: NKO-61

Parts Used: Fruit, Leaves, Stem.

Folk Uses:-

- Dried leaves are collected and are mixed with some other fodder in adverse condition.
- Ripe fruit are eaten.
- Stem used in agricultural implements *'Sati'*, Plough, *'Data'* and is an excellent fuel.
- Stem is used for making churning rod (*'Ravai'*).

Chemical Constituents:- Active principles isolated are terephthalic acid and its methyl esters (leaves & stem); cyclopeptide alkaloids, satavanines C, D, E, F and G (bark); and fatty acids, phytosterol, organic acids, reducing sugars, pectic mucilage, catechols, tannin, catechins, p-coumaroylates of alphitolic acid, guanosine-3'-5'-monophosphate, saponins I, II, III and jujubuside B (fruits) (Cyong & Takahashi, 1982; Istratescu-Guti & Cristea, 1972; Thakur *et al.*, 1975;).

Biological Activity:- Aerial parts hypotensive.

333.Zizyphus nummularia (Burm.f.) Wt. & Arn.

Syn: *Z. rotundifolia* Lamk., *Rhamnus nummularia* Burm.

Family: Rhamnaceae. **Vern.** : Palera, Chania bor.

Sanskrit Name: Balakapriya. **English Name:** Wild Jujuba.

Regional Names:-

Hin.: Ber;**Tam.:** Parpalli-gidda.

Distribution: Persia, Mesopot, India.

Description: A small much branched shrub, armed leaves orbicular, dentate or serrate, hairy on sides, stipular spines one long straight and the other short hooked. Flowers in axillary cyme. Drupe globose, red when ripe.

Flowering: Mar.-Apr. **Fruiting:** Apr.-May.

Habitat Ecology: Very common in throughout the area on open, grassland, fields and waste lands.

Material Examined: NKO-62

Parts Used: - Branches, Fruits.

Folk Uses:-

- Dry branches are used as field fencing.
- Twig is cut with axe into small pieces and fed to live stock.
- Fresh ripe fruits cherished.

Chemical Constituents:- Bark and leaves contain tannin. Fruits contain organic acids, sugars, minerals.

Biological Activity:- Leaves are astringent, antiseptic, demulcent, styptic. Fruits are sweet, nutritive, antivilious, carminative.

334. Zizyphus xylopyra Willd.

Family: Rhamnaceae. **Vern. :** Ghoot boradi.

Sanskrit Name: Ghota. **English Name:** Wild Jujube.

Regional Names:-

Hindi: Goth-ber; **Mar:** Guti.

Distribution: Pakistan, India, Sri Lanka.

Description: An erect, often unarmed tree or a straggling shrub, branches covered with grey tomentum when young. Leaves elliptic. Oblong or suborbicular, crenate-serrate, often, mucronate, glabrous above, covered with white or yellowish tomentum, beneath. Flowers in small, dense, pubescent, panicualte cymes. Fruit globose, covered with close, dense, grey tomentum, woody, hard.

Flowering: Apr.-June. **Fruiting:** June.-Dec.

Habitat Ecology: Common in Barda Hills.

Material Examined : NKO-63

Parts Used:- Stem.

Folk Uses:-

- Dried stem is used as fuel.
- Stem is used for making bed legs for long lasting.

Chemical Constituents:- Bark contains tannin. Ripe fruits contain sugars and mucilage.

Biological Activity:- Unripe fruits are astringent. Ripe fruits are sweet and tonic.

CHAPTER V RESULTS AND DISCUSSION

5.1 The Problem

Conservation of biological resources and of the indigenous traditional knowledge is essential for sustainable development and managing of natural resources the world over. The history of indigenous knowledge as an old as the human race. This knowledge has always been very important for the people who generate it. It is a matter of survival for them. Many scientists, researchers and environmentalists all over the world are now striving to explore, know, document and use the resource base knowledge for the welfare of the wider human race. Documentation of ethnic groups' knowledge related to plant resources is known as 'Ethnobotany'. The study deals with the relationships of man to the plant he used or uses.

Even in remote places where modern science has not reached nor taught, people know much about diseases, medicines and so many things about diseases, the life , health and the welfare of humans and the universe. This has been going on years and years together and generation to generation through traditional teaching. They do selfless service to the humanity. Due to traditional medicines many diseases are cured and people in remote places are benefited. But the traditional people can not give a scientific base of it and hence modern science and society reject it calling it blind faith.

Taking in to account all the above stated determinants the aim of the present studies has been justified in making assessment the traditionally used biological resources and also conserving and revitalizing the traditional beliefs, so that age old cultures are not lost and to provide base for Pharmacological and Phytochemical studies. The studies have been made in order to record the shift and change in the ethnobotanical uses in the last ten decades. In order to study it the various sites of the Porbandar district were regularly visited every fortnight over the period of three years.

A great deal of meticulateness has been observed in recording the ethnobotanical uses and extreme caution has been borne in the identification of even the minor variations in the plant species. These studies have been made

with the postulation that in the last ten decades the forest vegetation has been eroded, owing to the proliferation of human activities.

5.2 The Site Characteristic and The Eco climatic Variable

The climate of the Porbandar district is dry to sub humid, with a few months of precipitation, which is followed by long periods of low to high temperatures. Further, this span also incorporates within it self moderate amounts of relative humidity with regard to the edaphic factors, the soils on the hill tops and slopes are comparatively poor and unproductive because of the large percentage of sand which cannot retain soil moisture. The soils in the hills and the valleys are better off in humus which in turn promote the aggregation of soil particles and probably also increases its water holding capacity, further, the soil is either neutral or slightly acidic and support better vegetation, consisting of tree and shrub species .On the other hand, the soils of the plains are again sandy with a low percentage of humus and consequently of low water holding capacity. These are therefore, less favorable for the growth of trees and favor the growth of grasses and other herbs. Thus, the corollary that the vegetation is an index of its environment is well justified. Moreover, the presence of sparse ground cover during the summer and the winter months; the presence of an abundant ground cover during the rainy season; the deciduous nature of the forest tree species and xerophytic adaptations like development of thorns, thickening of leaves, development of tomentum, white bark, etc., are indicators of the semi-arid climate of the area.

5.3 The Floristic Catalogue

Analysis of information presented in appendix-I indicates that Maher tribe inhabitant of Porbandar district possess rich knowledge about plant resource around them. This is evident form the following fact.

- ¶ A total of 334 angiosperm plant species belonging to 273 genera of 88 families have been identified and recorded for ethnobotanical uses.
- ¶ The ratio of monocotyledons to dicotyledons is 1:5.28 of families, 1:5.82 for genera and 1: 6.59 of species.
- ¶ The ratio of family to genera and species is 1:3.10:3.79.

- ¶ Among dicotylendons 233 genera, 290 species and 74 families belongs to polypetalae. 97 genera, 126 species and 23 families belongs to gamopetalae, while 39 genera, 45 species and 12 families belongs to apetalae.
- ¶ Among monocotyledons 40 genera and 44 species belongs to 14 families.

It is evident from the appendix-I that Poaceae is the largest family among monocotyledons, where as Fabaceae and Cucurbitaceae are the largest families among the dicotyledons. The monocotyledons a part from Poaceae and Cyperaceae has been poorly represented.

Table 5.1 Distribution of angiosperm plant species of the Porbandar district among families (f) and genera (g) and genera/family (g/f) and species/family (s/f).

Anigiosperms	**Families**		**Species**		**Genera**		**g/f**	**s/f**
	No.	%	No.	%	No.	%		
Dicotyledons	74	84.1	290	86.33	233	85.35	3.15	3.92
Monocotyledons	14	15.9	44	13.17	40	14.65	2.86	3.14
Total	**88**	**100**	**334**	**100**	**273**	**100**	**3.10**	**3.79**

Table 5.2 Gives a comparative account of the dominant ten families of the Porbandar district, Saurashtra, Gujarat and West Rajasthan. While taking into account the existing researches and records it is commonly observed that Poaceae family headed the floral list in all the floras of the country. The next in order is the family of Laguminoseae (Fabaceae) and Cyperaceae. However, in the present investigations which is restricted to Porbandar district only Fabaceae has been observed as the dominant family, which in turn is followed by Poaceae and Cucurbitaceae (Probably on account of the intensive overgrazing in the area.) remaining family shows conformity with Saurashtra and Western Rajasthan. This is an important diversion from the usual dominant/ categorical list of families with the rest of the country.

Table 5.2 Comparative analysis of ten dominant families in descending order of their occurrence in the Porbandar district in context of the country and state.

Sr. No.	Porbandar district (Present study-2008)	Barda Hills and their surroundings (Nagar 2000)	Saurashtra (Bole and Pathak 1996-1999)	Gujarat (Shah 1978)	W. Rajasthan (Bhandari 1978)
1	Fabaceae	Leguminoseae	Poaceae	Poaceae	Poaceae
2	Poaceae	Poaceae	Leguminoseae	Leguminoseae	Leguminoseae
3	Cucurbitaceae	Asteraceae	Asteraceae	Cyperaceae	Asteraceae
4	Euphorbiaceae	Euphorbiaceae	Malvaceae	Asteraceae	Cyperaceae
5	Caesalpinaceae	Convolvulaceae	Convolvulaceae	Acanthaceae	Convolvulaceae
6	Mimosaceae	Malvaceae	Acanthaceae	Euphorbiaceae	Malvaceae
7	Convolvulaceae	Acanthaceae	Euphorbiaceae	Malveceae	Euphorbiaceae
8	Solanaceae	Cyperaceae	Cyperaceae	Convolvulaceae	Acanthaceae
9	Asteraceae	Cucurbitaceae	Scrophulariaceae	Lamiaceae	Cucurbitaceae
10	Asclepiadaceae	Rubiaceae	Lamiaceae	Scrophuariaceae	Amaranthaceae

Maximum flowering and fruiting is observed during Sept.-Oct. and minimum during June-July, (Table 5.3) while 47 plant species remain throughout the year in flowering and 44 species in fruiting.

Table 5.3 Flowering and fruiting seasons of plants in Porbandar district.

Month	Flowering in plants	Fruiting in plants
January	76	77
February	80	81
March	79	72
April	76	75
May	39	62

June	26	47
July	41	45
August	109	83
September	149	131
October	141	161
November	108	141
December	79	103
All Months	47	44

5.4 Physiognomic Classification

5.4.1 Habit

Out of the total 334 flowering species, 32.33% are trees, 18.86% shrubs, 35.62% herbs, 3.29%Twiner,9.88% are climber. (Table 5.3, Appendix-I). This study shows that herbaceous plant (ephemeral plants) are dominating the forest. This is probably owing to the semi-arid conditions and erratic rainfall. Further, the scrubby plant species (small trees and shrubs) can be observed as the dominant perennial vegetation of the area.

Table 5.4 Habit of the plant species occurring in the Porbandar district.

Sr. No.	Habit	No. of Species	Percentage (%)
1	Tree	108	32.33
2	Shrub	63	18.86
3	Herb	119	35.62
4	Twiner	11	3.29
5	Climber	33	9.88
v	**Total**	**334**	**100**

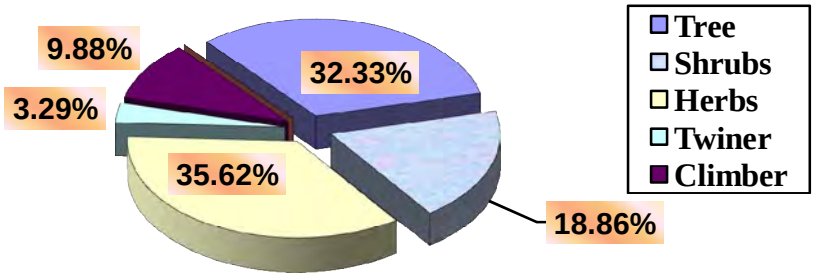
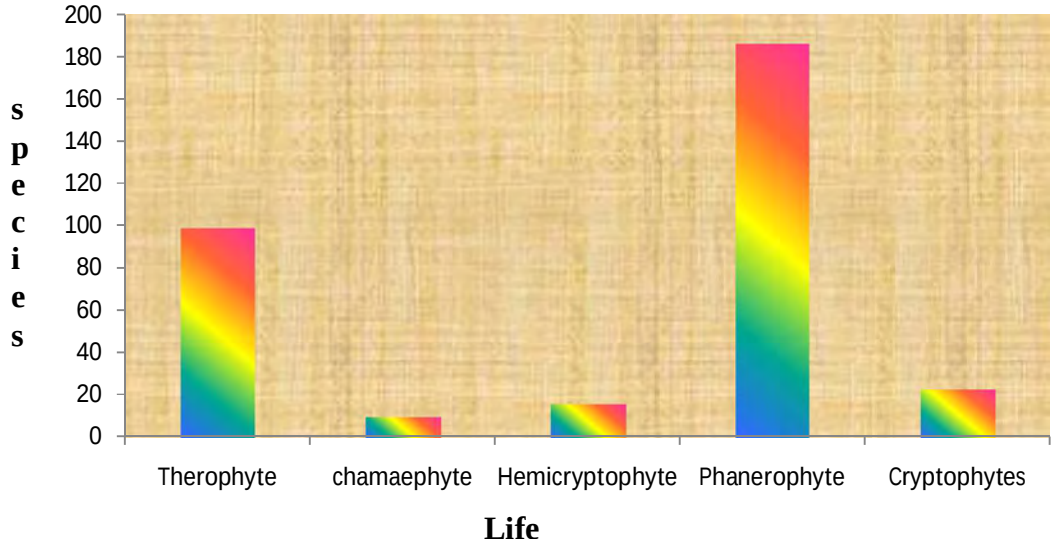


Fig 5.1: Habit of the flora of the Porbandar district.

5.4.2 Life Form

The various life form classes (Raunkiar, 1934) as phanerophytes (nano, micro, meso, mega, epi) are represented by 55.69% species while chamaeophytes account for 2.99% species, hemicryptophytes 4.74% species, cryptophyte (geo,helo,hydro) by 6.89% and therophytes are represented by 29.65% of the total number of species. The phanerophytes and therophytes dominate in all the parts (Appendix –I, Fig. 5.1). The biological spectrum reflects the adaptation of plants to environment and primary climate (Smith 1980). Geographically widely separated plant communities can be very usefully compared with one another on the basis of biological spectrum. Since life forms are related to the environment, biological spectrum is also an indicator of prevailing environment (Meher-Homji 1981).

Fig. 5.2:Life form spectrum of the ethnobotanical useful flora of the Porbandar district. (In general)



5.5 Medicine

In the Porbandar district the Maher tribe has been using the indigenous plant species in a crude form or as syrup. The present study accounts for **224** plant species, which are of medicinal value. As there is no medical pharmacy the medicinal plants are an instantly available form of medication for the indigenous/aboriginal people. These plants are presently receiving an enormous amount of attention. They utilize singly or in combination for the treatment of **57** ailments (Appendix–III). The frequent health problems are skin disorders (Abscess, Boils, Cracked skin, Eczema, Itch, Psoriasis: 19 spp) (Table 5.5)

The maximum number of plants used for a particular aliment can possibly show the prevalence of the ailment in the area.

The study revealed that at least 7 methods of application of medicine or usage are included in the prescription. The maximum number of prescriptions are orally administered which are followed by topical or local applications. Smoking, taking bath, snuffs, typing to the body parts etc. are also applied some times.

Table 5.5: Medicinal utility of the plant species occurring in the Porbandar district by Maher.

Uses	**Number of species**	**Percentage (%)**	**Uses**	**Number of species**	**Percentage (%)**
Abortifacient	01	0.45	Impotency	01	0.45
Anaemia	01	0.45	Insecticidal	01	0.45
Antiseptic	02	0.89	Intoxication	06	2.68
Appendix	01	0.45	Joint Diseases	11	4.38
Appetiser	01	0.45	Kidney Problem	05	2.32
Asthma	01	0.45	Liver Complaints	06	2.68

Bites	10	4.46	Memory Improvement	02	0.89
Blood Pressure	01	0.45	Menstrual Complaints	03	1.34
Blood Purifier	01	0.45	Mental Disorders	01	0.45
Blood Sugar	03	1.34	Mumps	01	0.45
Bone Fracture	01	0.45	Nasal Problems	02	0.89
Bronchitis	01	0.45	Pain & Ache	06	2.68
Bubo	01	0.45	Paronychia	02	0.89
Cold	03	1.34	Piles	02	0.89
Constipation	04	1.79	Sexual Diseases	01	0.45
Coolant	03	1.34	Skin Diseases	19	8.48
Corn	01	0.45	Sprain	01	0.45
Cough	09	4.02	Stomach Disorders	10	4.46
Dental Problems	07	3.13	Swellings	04	1.79
Diarrhoea	11	4.91	Throat Complaints	03	1.39
Dyspepsia	02	0.89	Tonic	02	0.89
Ear Complaints	04	1.79	Typhoid	01	0.45
Eye Complaints	06	2.68	Ulcer	03	1.39
Febrifuge	18	8.04	Urinary Complaints	06	2.68

Fertility	01	0.45	Urticaria	01	0.45
Galactagogue	05	2.32	Vermifuge	03	1.39
Hair care	11	4.91	Veterinary	17	7.59
Hiccough	01	0.45	Vomiting	02	0.89
Hydrocele	01	0.45	-------	----	----

As far as the techniques of preparation of medicine are concerned, these do not appear to resemble those specified in present-day organized Pharmaceutical practices. In some preparations household utensils are naturally available materials were used. In all cases, medicines are prepared manually, while most preparations do not specify the quantities of ingredients to be included; those that indicate are only the use of rough measurements. In some cases, physical observations and the use of cups, teaspoons are also indicated.

The study provides the following information with particular reference to plant.

i. Same plant is often used for treating a number of different ailments.
ii. Same part of the plant is used for treating different, even unrelated ailments.
iii. Different parts of plant are used for treating different ailments and
iv. Different parts of a plant are used for treating the same ailment.

Use of different parts of the plant for treating the same ailment indicates the possibility of some active principal useful for the disease. The choice of a particular plant for medicines by the inhabitants could be due to several reasons, such as effectiveness, availability and abundance in the surrounding area etc.

Various plant parts, such as roots (15 spp), stem (8 spp) leaves (62 spp), flowers (12 spp), seeds (24 spp), stem bark (11 spp), root bark (2 spp) entire plant (14 spp), aerial parts (7 spp), rhizome (9 spp), Gum & latex (11 spp) are used for the treatment of the above ailments generally through oral administration.

The survey also reveals the following facts:

a) Women, elderly people and '*vaids*' are well acquainted with the therapeutic value of plant species though they are not willing to share it with outsiders.
b) By the large, fresh plants are used for alleviating complaints.
c) People in this area show preference for traditional plant therapy, as it is believed to be safe and without side effects. Of late, the importance of ethnotherapeutics has been realized all over the globe, including the developed countries. Even the 'World Health Organisation' is advocating its use in meeting primary health – care to achieve the goal of 'health for all'. Therefore all possible effort should be made to polularise and preserve this age old culture about folk medicine before it is lost for ever. In fact, this data has to be screened on scientific line for the welfare of humanity.

5.6 Food

Although pearl millet, wheat and jowar constituents the staple cereal of the Maher tribe of the region, a large number of wild edible plants also supplement their diet, which became helpful to overcome the deficiency of nutritional constituents, such as vitamins, minerals and carbohydrates. Overall a total of **137** plant species are used for edible purpose have been documented. Amongst these **48** spp. of plants is cultivated and **89** spp. of wild plants. Most of these wild plants used for food are eaten in raw state or are utilized in cooked form. As far as consumption in raw form is concerned, the fruits/seeds are preferred more than the leaves, underground parts, shoots and flowers. (Appendix-III)

Vegetables for domestic consumption grow leaning on house boundaries, field fencings or in the backyard. At times especially Maher tribe a section of the crop field is secluded for vegetables.

A number of species are used as substitutes for staple food. Although many of these foods are used as minor items in the normal daily diet, yet these are important as major foods during lean months or at the time of scarcity. Of

the estimated 800 species of food plants in India (Singh and Arora, 1978), most of the species covered in the present study are new to man kind and can exploited commercially as a substitute for food in times of crisis. There is a good probability to establish canning or Jam industries near by the area.

5.7 Agricultural Crops

1. Cereals & Millets:

   Ø Kharif :

   Sorghum bicolar, Pennisetum typhoides.

   Ø Rabi :

   Triticum aestivum, Pennisteum typhoides.

2. Pulses:

   Ø Kharif :

   Cajanus cajan, Phaseolus mungo, Lablab purpureus, Vigna aconitifolia, Phaseolus radiatus.

   Ø Rabi :

   Cicer arietinum, Trigonella foenum-graceum.

   Ø Summer :

   Phaseolus mungo.

3. Vegetables:

   Ø Kharif :

   Abelmoschus esculentus, Capsicum annum, Cymopsis tetragonoloba, Lablab purpureus, Cucumis sativus, Cucurbita pepo,Lagenaria siceraria, momordica dioica, Momordica Charantia, Lycopersicon lycopersicum, Solanum melongena.

   Ø Rabi :

   Allium cepa, Lycopersicon lycopersicum, Raphanus sativus, Daucus carota, Trigonella foenum-graceum, Ipomoea batatas.

   Ø Summer :

   Lagenaria siceraria, Momordica charantia.

4. Condiments & Spices:

   Ø Kharif :

Capsicum annuum

Ø Rabi :

Alluim sativum, Coriandrum sativum, Cuminum cyminium, Foeniculum Vulgare, Trachyispermum copticum, Anethum gravedens, Trigonella foenym - graceum.

5. Oil:

Ø Kharif :

Arachis hypogea, Sesamum indicum

Ø Rabi :

Brassica juncea, Arachis hypogea.

Ø Summer :

Sesamum indicum.

6. Sugar:

Ø Rabi :

Saccharum Officinarum.

7. Narcotics:

Ø Kharif :

Nicotiana tabacum.

8. Fibers :

Ø Kharif :

Gossypium herbaceum.

9. Fodder:

Ø Kharif :

Sorghum bicolar, Zea mays.

Ø Rabi :

Medicago sativa, Daucas carota, Raphnus sativus, Zea mays, Trigonella foenum-graceum.

5.8 Agricultural Implements:

In Porbandar district **24911** plough, **33233** multipurpose implements (leveler, payar, 'Kariyu', etc.), **12489** carts and **21491** other agricultural implements are used by Maher community*(Source:District development officer*

Porbandar). Maher use various tools for agricultural activities, e.g. plough, cart, Samar, axe, iron-scraper, seed drill, kharapiyo, ada, Leveller, payer and sickles. It is used in extensive agriculture and used for, sowing, cutting, winnowing and harvesting plant stalks and also digging soil. They also use simple country ploughs for turning soil. Total **31** plant species are used in preparation of tools like 'tripod', tool handles and to prepare instruments used in agriculture. All most, in each village and in each farm or field species such as bamboo, *Acacia spp, Mangifera indica* and teak are implements. It is a Characteristics feature of this area. (Appendix -III).

Table 5.6: List of the plants used in preparation of agricultural implements.

Sr. No.	Botanical Name	Local Name	Part Used	Agricultural Implements
1	*Acacia nilotica Subsp. indica*	Baval	Stem	Plough (*hal*), *Sati*
2	*Acacia catechu*	Kher	Stem	Cart wheel, *Data*
3	*Adina cordifolia*	Hardarvo	Stem	Handle of *Khapari, Modari*
4	*Anogeissus latifolia*	Bhutghavdo	Stem	Axel of cart
5	*Azadirachta indica*	Limdo	Stem	Leveler, *Dhosari*
6	*Bambusa arundinaceae*	Vans	Stem	*Dandva*
7	*Balanites aegyptica*	Ingoriyo	Stem	Handle of *Pavda, Kodadi, Trikam*
8	*Bauhinia racemosa*	Kanchanar	Stem	*Ada, Dhosari*
9	*Butea monosperma*	Khakhro	Stem	Seed drill
10	*Casuarina equisetifolia*	Zuri	Stem	*Ada,* Poles of leveller (*sambida) Dhosari*
11	*Cordia dichotoma.*	Gunda	Stem	Handle of Sickle
12	*Cordia gharaf*	Gundi	Stem	*Kadhamanu,Orni*(seed

				drill),*Khapari*, Hanlde of *Kodadi*
13	*Dalbergia sissoo*	Sissam	Stem	Cart, Plough, Cart, *Data*, Seed drill
14	*Denadrocalamus strictus*	Nakor wans	Stem	*Kharapio*
15	*Eucalyptus citriodora*	Nilgiri	Stem	*Dhosari, Khapari,* poles of *sati* and leveler
16	*Ficus amplissima*	Pipar	Stem	*Kadhamana*, leveler
17	*Ficus bengalenssis*	Vad	Stem	Leveler
18	*Gmelina arborea*	Savan	Stem	Plough, *Dhosari*
19	*Manilkara hexandra*	Rayan	Stem	*Orani* (seed drill)
20	*Mangifera indica*	Ambo	Stem	*Nipyu*
21	*Mimusops elengi*	Borsali	Stem	*Sati*
22	*Mitragyna parvifolia*	Kalam	Stem	*Sati*
23	*Pithecellobium dulce*	Goras ambli	Stem	leveler, *Ada*
24	*Prosopis chilensis*	Gando baval	Stem	*Ada*
25	*Sapindus laurifolius*	Arithi	Stem	*Modari, Khapari*
26	*Syzygium cumini*	Jambu	Stem	*Sati*
27	*Tamarindus indica*	Ambali	Stem	handle of Sickle
28	*Tamarix ericoides*	Prans	Stem	*Ada*
29	*Tectona grandis*	Sag	Stem	Poles of *sati* and leveler(*Sambida*), *Data*
30	*Terminalia crenulata*	Sajad	Stem	Plough, *Sati*
31	*Zizyphus maruritiana*	Bordi	Stem	*Sati*, Plough, *Data*

5.9 Field Fences

Fencing the boundaries of their fields is primary effort of tribal farmers towards protecting the crop. Even through improved techniques are available the tribal "still uses brush wood and thorny branches, as a safeguard against cattle intrusion in his farm" (Jadeja *et al*., 2007) for obvious reasons.

Some of the basic considerations for selection of the materials for this purpose are:

- Impenetrability.
  - By simple mechanical obstruction
  - By presence of deterring devices e.g. thorns
- Unpalatably to cattle.
- Barrier to sight.
- Wind breaker.
- Soil protector.
- Dense foliage.
- Easy propagation.
- Other economic benefits or utility.

Yielding product which may fetch cash returns. Capability of supporting other plants. The fencing may comprise of live plants or branches of single species or two or more. The more important plant is a numerated in Table: 5.7

Besides, these, logs of *Prosopis chilensis* and *Pithocellobium dulce* were observed forming fencings, such fencings of stout wooden logs are common in areas with ample timber resources. Live fencings of *Jatropha gossypifolia* were found inter spread with *Delonix elata* shrub and branches of *Ziziphus nummularia* (in Kutiyana and Porbandar taluka)

More over to protect the crop plants such as capsicum from coastal air current hedges prepared with *Ricinus* shrubs with which is a climber. The hedge prepared this way is very thick and covers the crop field and protects it the plant from oceanic win current.

Table:5.7 List of plants used in field fencing						
Sr.No.	**Botanical Name**	**Local Name**	**Region**	**Property**	**Condition**	**Comments**
1	*Acacia farnesiana*	Tal baval	All regions	a small thorny tree	Dried	plant having spines, act as field fence
2	*Acacia leucophloea*	Harmo baval	Katwana, Godhana villages	an extensive armed tree	Dried	act as a field fence
3	*Acacia nilotica Subsp. Indica*.	Baval	Porbandar and Kutiyana regions	a spiny tree	Dried	act as a field fence
4	*Acacia Senegal*	Gorad	surrounding Rana Barda hills	an extensive armed tree	live/dried	prevent entry
5	*Adhatoda zeylanica* medic	Ardusi	All regions	evergreen gushy shrub	Live	act as a house fence
6	*Agave americana*	Ketki		Perennial herb.	Live	prevent entry and soil erosion
7	*Alangium salvifolium*	Anko	surrounding Rana Barda hills	thorny tree	live/dried	prevent entry

8	*Aloe barbadens*is	Kuwar	All regions	unpalatable	Live	grown close together, act as field fence and prevents soil erosion
9	*Balanites aegyptiaca*	Ingoriyo	degam, kuchhadi villages	a small tree	Live	Offers obstruction to sight, mechanical barrier, and wind breaker.
10	*Bambusa arundinaceae*	Vans	Porbandar and Kutiyana regions	mature clumps	Live	Prevents entry, soil binder, and wind breaker.
11	*Breynia retusa*	Keda Kamboi	All regions	an erect tall shrub	Live	grown together, act as a wind breaker, offers obstruction to sight
12	*Cadaba fruiticosa*	Kalo katkiyo	All regions	a straggling much branched shrub	Live	prevent entry, act as a wind breaker, offers obstruction in sight
13	*Caesalpinea bonduc*	Kakchiyo	Khambhodar, Bileshwar villages	Large prickly scandent climbing shrub	Live	act as a field fence
14	*Calotropis procera* Subsp. Hamiltonii	Ankdo	All regions	unpalatable	Live	act as a soil binder and unpalatibility taste to animal
15	*Capparis decidua*	Kerda	All regions	spiny, bushy shrub	live/dried	act as a field fence

16	*Capparis sepiria*	Kanther	Ratanpar, Shrinagar villages	stout, armed shrubs	live/dried	offers mechanical barrier
17	*Casuarina equisetifolia* Linn.	Zuri	Coastal Region	a large tree with drooping branches	Live	prevent salty wind
18	*Clerodendron multiflorum*	Arni	All regions	large shrub	Live	grown close together, foliage offers obstruction to sight
19	*Delonix elata*	Sidhasaro	Jambu, Bhodadar villages	Tree	Live	act as a house fence
20	*Dendrocalamus* strictus	Vans	surrounding Rana Barda hills	mature clumps	Live	act as a field fence and prevents soil erosion
21	*Dichrostachys cinerea.*	Mordhundiyu	surrounding Rana Barda hills	much branched thorny shrub	live/dried	act as a field fence
22	*Euphorbia nerifolia*	Bhungro Thor	All regions	much branched spiny shrub, unpalatable	Live	dendroid, stiff and closely adpressed vertical spine branches act as a barrier prevents entry
23	*Euphorbia tirucalli*	Dandliyo Thor	All regions	a small much branched tree, unpalatable	Live	act as a field fence

24	*Gossypium herbaceum*	Kapas	Ghed region	An erect hairy herb	Dried	act as a field fence
25	*Ipomoea carnea*	Alpavardhini	All region	a large stout straggly shrub	Live	act as a field fence and prevent soil erosion
26	*Jatropha curcas*	Ratanjyot	All region	a small deciduous tree	Live	act as a field fence
27	*Jatropha gossypifolia*	Nepalo	All regions	a small much branched tree, unpalatable	Live	prevents soil erosion and foliage offers obstruction to sight
28	*Lantana camara*	Dhanidariya	Ranavav region.	stem with recurved prickles, unpalatable	Live	act as a field fence
29	*Lawsonia inermis*	Mahendi	All regions	Bushy Shrub branches with a sharp point	Live	offers obstruction to sight and mechanical barrier
30	*Maerua oblongifolia*	Dholo Katkiyo	All regions	a large scabrous woody climbing shrub	Live	act as a field fence

31	*Maytenus emarginata*	Vikro	All regions	thorny bushy shrub	live/dried	act as a field fence and having spine like projection
32	*Opuntia elatior*	Phaphas Thor	All regions	spines 1"-2" long in groups on aerials	Live	Provides impenetrability and prevent soil erosion.
33	*Parkinsonia aculeata*	Pardesi Baval	All regions	a small tree with sharp, woody spines	Live	act as a field fence
34	*Phoenix sylvestris*	Khajuri	Coastal area (Ratdi, Bhavpara)	closely growing trunks	Live	act as a field fence and prevents soil erosion
35	*Pithcellobium dulce*	Goras Ambli	All regions	Spiny	live/dried	act as a field fence
36	*Prosopis chilensis*	Gando Baval	All regions	Spiny	live/dried	twigs after leaf shedding used for making fences
37	*Prosopis cinerania*	Khijdo	All regions	thorny tree	live/dried	act as a filed fence
38	*Ricinus communis*	Arandi	All regions	tall evergreen shrub with palmately lobed leaves	Live	wind breaker

39	*Saccharum bengalense*	Muni	Coastal area (Near Barda Sagar)	A tall, erect, stout grass	Live	Sand binder making top barrier on sandy field boundaries.
40	*Sorghum halepense*	Baru	Barda region	A tall perennial grass	Live	act as a field fence and prevents soil erosion
41	*Zizyphus nummularia*	Palera	All regions	spiny, much branches shrub	live/dried	Most common dried fencing material.

5.10 Weather Indicator

The Farmers of Maher Community of this region give good weightage for Predictions of onset of monsoon because the choice of cropping pattern depends on That. Early showers ensures the farmer to go for long duration crops such as ground-Nut (spreading type), cotton and *sesamum.* On the other hand delayed monsoon could mean restricting the choice to pluses, pearl millet, castor and bunch type of ground-nut.

The farmer's beliefs are quite strong the local exports use methods and principles evolved by eminent Astronomers and Astrologers. Maher community of this region have also been used to the behavior of specific birds, animals, Bhadlis couplets, wind direction (on *Akhatrij*, Holi) as indicators of rain.(Table:5.8)

Table: 5.8 Flowering & Foliage of plant spices as indicators of rain.

No.	Name of species	Indicator	Expected outcome
1.	*Azadirachta indica*	Heavy flush of fruits	Good monsoon
2.	*Cassia fistula*	Flowering	Within 45 days raining starts
3.	*Dioscorea bulbifera*	Bulbils germinates	Within 15 days raining starts
4.	*Echinops echinatus*	Flowering in monsoon	Average monsoon
5.	*Euphorbia neriifolia*	Good foliage	Good monsoon
6.	*Ficus bengalensis*	Aerial root grows fast and bands in south west direction	Raining starts within 2-3 days

5.11 Fodder

The fodder value of the plant species, occurring in the Barda Hills and Porbandar district is of great importance, as a majority of the Mahers is cowherds who tend their animals for improving the quality and quantity of milk and other products. Although the forest of Barda Hills has been declared sanctuary it till continues to be utilized for fodder. Thus most of the grasslands are used for grazing purposes. Both monocotyledons as well as dicotyledons are used as

fodder. Mostly in hr monsoonal and post-monsoonal months the free grazing of grass and non grass species is a common practice. After the monsoons the culms, leaves etc. of almost all the crop species are collected and stored after they are harvested. Thus, if one hand the grasses (*Apluda mutica* etc.) Provide the bulk forage for animal consumption some of the arboreal species catering to the fodder need (viz. *Zizyphus nummularia, Acacia spp. Prosopis chilensis* etc.) Provide foliage and young pod to cattle, sheep, goats and camels during the odd periods. Though not wide spread, cultivation of some crops especially for fodder (Viz. *Zea mays, Medicago sativa, sorghum bicolor, pennisetum typhoides, Daucus carota*) is carried out at a minor scale.

Appendix-III gives a list of **43** Fodder plants of the most prominent dicotyledons.

These plants are fed to cattle either singly or in combination of other plant parts. Interestingly, some of these species are not enumerated in the list of fodder plants (400 species) of India (Annon., 1994). At the same time, their wisdom regarding forage utilization should be essentially incorporated in the modern management practices. The present finding indicates that this region holds rich diversity in forages.

5.12 Fuel

In this region **35** plant species of families like Mimosaceae, Malvaceae, Euphorbiaceae, and Tiliaceae etc. are used as fuel. People collect the fuel by collecting dry plants parts, crop plant residue and dry fencing branches of trees. Some time unwanted and obstacle creating branches of ornamental plants are also cut, dried and used as a fuel for their household purpose. Maher never used some plant as fuel like *Ficus religiosa, Gmelina arborea* and *Prosopis cineraria* because they believed that these are the holy trees.

5.13 Ethnoveterinary

Animal husbandry is one of the major activities, next to agriculture, which contributes significantly to the economy of Maher of district Porbandar. According to the census of 2003, live stock in district is **232833** viz. Cow **84575,** Buffalo **83334,** Sheep **33908**, Goat **24989** etc. **13** veterinary dispensaries are

located in district and **6** veterinary officers and **7** veterinary inspectors are working in it. Setting up of veterinary centers at few selected locations restricted the accessibility of veterinary facilities for common man. Thus on average each veterinary dispensary has to take care of about **17910** animals, as against standard norms of about **10,000** animals in the region.

As the economy is animal based, well being of their animals is paramount importance to them. For their treatment, they use as many as **17**plant species (Appendix-III). They use there for loss of appetite, flatulence, stomach disorders, promoting lactation, Constipation, improving rumination body swelling, to expel placenta, prolapsed uterus, foot-hoof rot infection. By and large, the plant drug is administered orally. Root and leaves are widely used for the treatments of veterinary diseases. It is clear that the Maher are conscious about the health of their livestock and this data, if screened in scientific lines, will hopefully be useful in the formulation of new drug for veterinary ailments.

5.14 Domestic Implement

21 species of plants used in preparation of domestic implements. These kinds of implements are interwoven in Maher life style. The various plant parts are utilizing for broom, churning rod, head rest etc…

5.15 House Building

21 species of plants used in house building to make furniture, shelters, doors, and windows, frame work, teaching etc…

5.16 Magico-religious Beliefs and Offerings

Like other tribes of India, a majority of the Maher populace of Porbandar district follows the traditional superstitious botanical folklore. For example, the plant *Areca catechu* is concerned as sacred one for performing marriage in the family for the symbol of Lord Ganesha, There is the superstitious practice of extending and invitation to the plant first and then to the relatives and friends. Later, with all the reverence of the command, a twig of *Bambusa arundinaceae* is planted to in front of house of the bridegroom, for performing the marriage rituals. Various religious ceremonies, Smoke *(Dhup)* of *Comiphora weightii* are generally used as an incense to ward off ill effects of black magic, a

necklace of beads made from the seeds of *Cardiospermum halicacabum* is worn on Saturday. Fruits and flower of *Datura metal* and *Nerium indicum* are offered specifically to appease Lord Shiva. Flowers of *Calotropis species* are offered to Hanuman. On eclipse they throw all the prepared food and take bath, spray the cow urine in house and prey to *Ocimum sanctum* plant. From leaves of *Canabis sativa* they prepare an intoxication drinks (Bhang) to which are added sugar. To please Lord Shiva this drink is first offered to him and then consumes them to enjoy its effect during Holi and Shivartri. **47** species of plants are used in magico-religious beliefs and offering this region. Most of these conservation-oriented cultural and religious practices are new ones of their kind and help in conserving the biodiversity.

5.17 Masticatories:

In the area of investigation, three of the known hallucinogens vil. *Cannabis sativa* and tobacco, *Datura stramonium*. Of these, the former is important in the social context, especially during festivals like Holi during which in form of bhang it is largely consumed. Throughout the Maher population the in tobacco smoking habit is rampant. Tobacco smoking is exceedingly popular in this tribal region.(Table:5.9)

Table: 5.9 List of plants used as masticatories

Sr. No.	**Botanical Name**	**English Name**	**Sources**	**Group**
1	*Acacia catechu*	Catechu	Heartwood	Masticators(mild Narcotic)
2	*Areca catechu*	Beta nut	Seed	Masticators(mild Narcotic)
3	*Cannabis sativa*	Hemp (1)Bhang (2)Ganja	Leaves Unfertilized female flowers	Masticator(mild Narcotic)

4	*Datura stramonium*	Thorn apple	Leaves & seeds	Masticators(mild Narcotic)
5	*Nicotiana tabacum*	Tobacco	Leaves	Fumitory & Masticators (mild Major)
6	*Temrindus indica*	Tamarind	Seeds	Masticator (-)

5.18 Miscellaneous

Analysis of information indicates that rural inhabitant of study area possesses rich knowledge about plant resource around them. This is evident the following fact.

∨ **Fiber**

10 species of plants used as fiber for preparation of strings, ropes and stuffing.

∨ **Toothbrush**

09 species of plants used as toothbrush.

∨ **Dye**

05 species of plants used as dye

∨ **Musical Instrument & Toys**

17 species of plants used as musical instrument & toys. These people have few but unique musical instruments. The important among these is drum. Boys make a small flute called '*pipudi*'.

5.19 Unreported Uses of Plants

The data collected in the present survey and its subsequent comparison with data available in Vedic literature and the available modern literature on ethnobotany (Agrwal , 1986 ; Jain , 1991; Kirtikar & Basu, 1984 ; Thakar, 1910) has brought to light similar uses of 163 plants, additional uses of already known 184 plants and hitherto unreported uses of **64** plants,(Marked with (?)sign under the observation) Viz. *Agave americana(*To remove spine*)*,

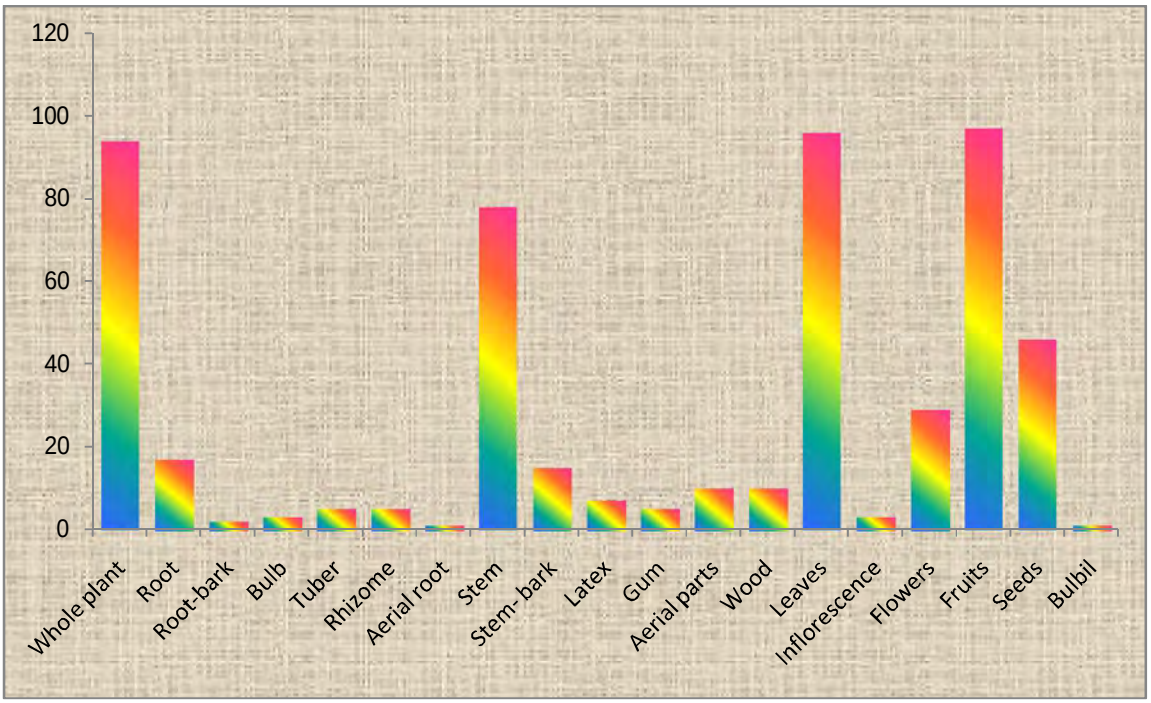
Alhagi pseudalhagi(Fodder), *Allium cepa*(Corn), *Arachis hypogaea(*Shock absorber),*Areca catechu*(Vomiting, as a Lord ganesha), *Argyreia nervosa* (Abscess), *Azadirachta indica(*Detection of poison*)*, *Balanities aegyptiaca(*Fire crackers*)*,*Bambusa arundinaceae(*As a hanger, *nari),* Barleria *prionitis* (Fracture-veterinary), *Biophytum sensitivum*(Urination-veterinary), *Breynia retusa*(Rims of Dholak), *Butea monosperma* (Megico religious),*Caesalpinia bonduc(*As a tools of game*)*, *Calotropis procera*(To remove spine, magico), *Capparis deciduas (*Domestic Implement*)*, *Capsicum annum(*Magico religious*)*, *Carica papaya(*Famine fodder*)*, *Cassia auriculata* (Toy, muscular pain), *Cissampelos pareira(*Domestic implement*)*, *Clerodendrum multiflorum* (Smoking pipe), *Coccinia grandis*(Tatto, magico religoius*)*, *Commelina bengalensis*(Irritation, stay), *Cordia dichotoma*(Glue, Domestic implement), *Cucumis callosus* (As a toy), *Dalbergia sisso*(Anthrax-veterinary), *Datura stamonium(*Diarrhoea-veternary*)*, *Delonix regia*(Food), *Derris indica*(As a toy), *Dioscorea bulbifera*(Weather indicator), *Echinops echinatus* (Weather indicator), *Euphorbia neriifolia* (Weather indicator), *Euphorbia triucalli* (Ear ache), *Ficus bengalensis(*Bubo, Weather indicator),*Gossypium herbaceum* (Religious),*Helicteris isora*(Magico religious), *Hydrilla verticillata(*Irritation*)*, *Indigofera oblongifolia*(Neck sore-veterinary), *Ipomea pes-caprae(*Live roof*)*, *Jasminum sambac(*Magico religious*)*, *Lawsonia inermis* (Medicinal), *Lepidium sativum(*Eye complaint*)*, *Mangifera indica* (Magico religious), *Medicago sativa* (Miscellaneous), *Mimosa hamata*(Diarrhoea), *Mirabilis jalapa* (Hydrocele), *Momordica balsmina* (Food), *Moringa oleifera* (Toothache), *Mucuna pruriens(*To keep away mouse*)*, *Nicotiana tabacum(*Miscellaneous*)*, *Opuntia dillenii*(Blood purifier), *Pavonia ceratocarpa(*Miscellaneous*)*, *Pennisetum typhoides(*Preparation of granairy*)*, *Pentatropis spirialis*(Galactagogue-veterinary*)*, *Pergularia daemia*(Cough), *Peristrophe paniculata(*Magico religious*)*, *Phaseolus radiates(*Leak proof paste*)*,*Prosopis cineraria(*Magico riliouse*)* *Ricinus communis* (Headache), *Rivea hypocrateriformis*(Abscess), *Taverniera cuneifolia* (Broom), *Thevetia peruviana*(Nasal problem), *Triumfeta rhomboidea(*Miscellaneous*)*, *Xeromphis spinosa*(Impotency). It has been

observed that the inhabitants of Porbandar district have good knowledge about the bioresources in their area and are using these resources very carefully since time immemorial. On account of their intimate association and dependence on their mother nature right from birth to death, they hold it in high esteem.

Table 5.10:Uses of various parts of plant species in Porbandar district by Maher tribe.

Sr. No.	Part used	Species	
		Number	Percentage (%)
1	Whole plant	94	17.94
2	Root	17	3.24
3	Root-bark	02	0.38
4	Bulb	03	0.57
5	Tuber	05	0.95
6	Rhizome	05	0.95
7	Aerial root	01	0.19
8	Stem	78	14.89
9	Stem- bark	15	2.86
10	Latex	07	1.34
11	Gum	05	0.95
12	Aerial parts	10	1.91
13	Wood	10	1.91
14	Leaves	96	18.32
15	Inflorescence	03	0.57
16	Flowers	29	5.53
17	Fruits	97	18.51
18	Seeds	46	8.78
19	Bulbil	01	0.19

Fig.5.3: Uses of various parts of plants species in Porbandar district by Maher tribe.



CHAPTER VI CONCLUSION

From the foregoing discussion, it is clear that Maher tribe is basically wise, eco-friendly, and have a self-sufficient and self –reliant subsistence system. By and large, the Maher who live in the rural areas are dependent fully on plants.

Basically, Maher is a very special, very peculiar tribe of Porbandar district. As all other tribes have, this tribe has their own special feature, specialties. Deep study of their life, their daily routine, their houses, their occupation, their interest etc. reveals the fact that Mahers are nature loving. They love nature and they are used to use natural sources in their daily routine. Agriculture and cattle-breeding are their main occupations. Plants are well incriminated with their life and looking in their annual agricultural calendar and daily routine proves the same facts.

The results of a study of Ethnobotany among the Maher of Porbandar district gives the salient features of their plant utilization and management strategies. They have a rich Ethnobotanic heritage that is however disappearing due to the rapid pace of acculturation, modernization and technological developments. No exhaustive Ethnobotanic study has been done on the Maher. Some Ethnobotanic studies have already been done one Rabari tribe who live in Barda hills. But no systematic Ethnobotanic study was available on the Maher and their habitat, there fore, it was considered important to make such a study.

Chapter IV delineates the fact that the Maher life is clearly related to plants. **334** species of plants of Ethnobotanic importance are described in this chapter. The usefulness of this work for the scientific fraternity as well as the common people was kept in mind while describing them. So, the description of each plant is grouped under ten categories: botanical name, family; local name, short morphological description flowering, fruiting, habitat Ecology, ethonobotanic uses, chemical constituent and biological activity.

Efforts are made to give the detailed ethnomedical uses of plants among the Maher, hoping that in the face of rapid economic liberalization and the consequent rise in prices of medicines they can ménage their ordinary health problems with medicines available at hand.

During data collection on the medicinal uses a survey on the most common diseases prevalent in the area and their remedies was also conducted. It was found that skin diseases, fever, diarrhoea, joint diseases and stomach disorders are the five most common diseases occurring in this area. Comparative study done on these five diseases for a maximum **69** plants for treatment showed that these plants are mostly preventive in effect.

One interesting aspect of their veterinary medical care is the role assigned to some superstitious practices in treating the animals. For example, the manner in which *Annoa squamosa* seeds are employed for curing veterinary wound maggots and plant decoction of *Biophytum sensitivum* is given to cattle for start urination. Without administering the medicine is interesting.

In preparing fencing around their field, in house construction, in fodder for their cattle, in minor disease and ailments, in domestic uses, in their customs and religious beliefs, these people use plants very frequently. In short in each and every aspect of their life the strong relationship with plants is very clear.

They understand the importance of this nature's wealth. E.g. for fuel purpose they use dry weeds grown in their field and on their hedges, or remaining west of their fields.

With their religious beliefs they are protecting and preserving some valuable and endangered species of plants such as *Adansonia digitata*, *Ficus religiosa and Prisopis cinerania* etc.

We people, literate people may not know the plants around us but these people, constantly using plants they are well acquainted with the plants around them. The know them (off course by their vernacular name!) and their properties very well.

While wandering in the fields if a spine or a piece of broken glass penetrates in their feet they don't use forceps or needle but they remove it with other spine getting from near by thorny shrubs(Babul tree).

As described in earlier chapter **35** plant species are used by these people for fuel, **43** plant species are used for cattle food.

Findings are to a great extent relevant also to the tribals like the Rabaris, Satvara, Sagars, Kumbhars, Brahmins who live intermixed with the Maher in the same area therefore this study will be a contribution to the ethnobotany of the region as a whole.

As more and more Maher gate educated and trained in various trades, they tend to migrate to the near by town and cities in search of jobs. Though they carry among with them their traditional knowledge, gradually it gets lost in the din of city life, being isolated from their original surroundings.

It is a humble suggestion that one should encourage them; give them the information regarding the recent development in the field of agriculture and cattle breeding science.

One can conclude that:

(1) Maher community is rich in ethnobotanical knowledge.

(2) Several little known uses of plants exist among the folk.

(3) What are known about ethnobotany of this region today is perhaps much less than what still remains to be explored and understood.

Suggestions :

As we know that the forest provides habitat for wild animal unpolluted rivers for fishing, fertile soil, wide variety of foods, medicines, construction materials and many other resources of larger market economics. Thus, it is possible to utilize forest ecosystem as they are slightly modified by silviculturist, logging, cattle of wild life manage, or special agriculture techniques such as shifting cultivation , may be used or they may be completely trams formed in to ecosystem.

The proper management of Porbandar District, the study requires of Ecology. Biology and physiology of the species to be introduced, genetic

improvement of planting stocks or seed, silviculture practices, pests and diseases and economic aspects.This research in to ethnobotany is complementary and may be link up with paralled studies on plantations and food crop agro-ecosystem on adjacent aera so that the various force stand used can be adequately compared, cross cultural ethnobotany can be studied with Adivasi of Dang forests.

01. Through study of the plant species not observed for ethnobotanical uses during the present investigation are to be searched for the necessary correction.
02. Conservation strategies must be prepared and implemented for the different habitants.
03. Sustainable uses of biological resources must be organized for the area.
04. Management programme for the local communities with effective conservation method and resource utilization.
05. Restoration of native plant species richness and diversity to maintain stable productivity in ecosystem of the area to be considered for the conservation programme.
06. Cultivation of useful medicinal plant which are native of this region is required.
07. Grazing and tree cutting may be prevented.
08. Soil erosion may be checked and soil conservation required.

SUMMARY

1. **For Abiotic Variables** :

Ø The hottest month during the last ten years is May. The average maximum temperature of month May during last ten years is **29.25**˚C. The coldest month during the last ten years is January. The average temperature of month January during last ten years is **22.03**˚C.

Ø The average total rainfall in last ten years is **584.83**mm. The maximum rainfall recorded was **1160**mm in years 2007 and lowest rainfall recorded was **208.1**mm in year 1999. The average rainy days during the 1998 -2007 is **25** days.

Ø The relative humidity begins to increase from the month of January and this tendency is continue up to month of August. The highest relative human humidity is **83.26** % recorded in month of August during 2004.

Ø The mean daily wind speed was more than **15** km/h. During April,May, June and July more than **10**% km/h during the month of January, February and March and it remained less than **10** km/h in the remaining months during the years.

Ø The mean sunshine hrs/day were higher during all the months except the four monsoon months i.e. June, July, Aug and Sept.

Ø The highest average of bright Sun shine is **9.59** hrs/day is recorded in the month of April during 1998-2007.

2. For Floristic Studies :

Ø In the present studies, a total of **334** species of angiosperms constitutes plant species of **290** dicots belonging to **233** genera of **74** families, **44** monocots belonging to **40** genera of **14** families the ratio of dicots to monocots species is worked out to **1:5.28**.

Ø The ratio of family to genera and species is **1:3.10:3.79**. The ratio of monocotyledons to dicotyledons is **1.5.28** of families, **1.5.28** for genera and **1:6.59** of species.

- Ø In the comparison to the rest of the country ratio of genera to species of study site is **1:6.59**.
- Ø Fabaceae Poaceae and Cucurbitaceae are the most dominant family in the study site which has **24, 18,** and **15** species respectively.
- Ø The habit revealed that out of **334** flowering plants. Herbs (**119** species) contributed **35.62**% of plant species, followed by trees, shrub, climber, twiner respectively.
- Ø The maximum flowering and fruiting is observation in the month of **Sept.-Oct.** It is followed by Aug., Nov., Dec. and Feb.

3. **For Ethnobotanical Studies :**

- Ø A Total if **334** angiosperms plant species belonging to **273** genera of **88** families have been identified and recorded for ethnobotanical uses.
- Ø **224** plant species are recorded for medicinal value. They utilize singly or in combination for the treatment of **57** ailments. Amongst these **17** plants species are used in ethnoveterinary.
- Ø **137** plant species are used for edible purpose have been documented. Amongst these **48** plant species are cultivated and **89** plant species of wild.
- Ø **6** plant species are used as weather indicator.
- Ø **31** plants species are recorded for the use or preparation of agriculture Implements, **17** plants are used in musical instruments and toys, **21** plants are used in shelter and housing, **35** plants are used for fuel, **10** plants are used for fibre.
- Ø **21** plants species are in the domesticated use are recorded, **47** megico religious plant species, **6** plant species are intoxicants.
- Ø Gum are prepared from **5** plant species, **9** plant species used as toothbrush and various oil are prepared from.
- Ø **41** plant species are used as live/dried field fences.

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APPENDIX-I-LIST OF THE ETHNOBOTANICAL PLANT USED BY MAHER TRIBE IN THE PORBANDAR DISTRICT.

- **Note :** Arranged as per Bentham and Hooker (1901 – 1903)

F.	G.	BOTANICAL NAME	LOCAL NAME	HABIT (D)	LIFE FORM	FLOWERING	FRUITING	NKO SP. NO.
1		**ANNONACEAE**						
	1	*Annona squamosa.* Linn.	Sitaphal	t	Ph-meso	Apr.-Aug.	June-Sept.	1
	2	*Polyalthia longifolia* Benth.	Asopalav	T	Ph-mega	Apr.-May	May-June	2
2		**MENISPERMACEAE**						
	3	*Cissampelos pareira* Linn.	Venivel	S-cl	Ph-micro	Sept.-Oct.	Sept.-Oct.	3
	4	*Cocculus hirsutus* (Linn.) Diels	Vaghi	US-Sc-tw	Ph-nano	Feb.-Mar.	Mar.-Apr.	4
		Cocculus pendulus (Forst.) Diels.	Orap	US-Sc-tw	Ph-nano	Feb.-Mar.	Mar.-Apr.	5
	5	*Tinospora cordifolia* Miers	Galo	S-cl	Ph-micro	June-July	June-July	6
3		**NYMPHAECEAE**						
	6	*Nelumbo nucifera Gaertn.*	Surya kamal	H-aq-rhi	C-hydro	All months	All months	7
	7	*Nymphaea pubescens* Willd.	Kumbhna	H-aq	C-hydro	sAug.-Oct.	Sept.-Nov.	8
4		**FUMARIACEAE**						
	8	*Fumaria indica (Haussk.)Pugsley.*	Pitpapdo	H-e	Th	Aug.-Sept.	Sept.-Oct.	9
5		**PAPVARACEAE**						
	9	*Argemone mexicana* Linn.	Darudi	H-e-spiny	Th	All months	All months	10
6		**BRASSICACEAE**						
	10	*Brassica juncea* (Linn.) Czernajew	Rai	H-e	Th	Nov.-Jan.	Dec.-Feb.	11
	11	*Lepidium sativum* Linn.	Aselio	H-e	Th	Jan.-Mar.	Feb.-Apr.	12
	12	*Raphanus sativus* Linn.	Mula	H-e-tub	C-geo	Nov.-Jan.	Dec.-Fab.	13

7		**CAPPARACEAE**						
	13	*Cadaba fruticosa* (Linn.) Druce	Kalo katikiyo	S-sc	Ph-micro	Oct.-Apr.	Nov.-May	14
	14	*Capparis deciduas* (Forsk.) Edgew.	Kerda	S-spiny	Ph-micro	Nov.- Dec. & May-June	Dec.-Feb. & June-Aug.	15
		Capparis sepiaria Linn.	Kanther	S-spiny	Ph-micro	Oct.-Apr.	Nov.-May	16
	15	*Cleome gynandra* Linn.	Gandhatur	H-e	Th	Aug.-Oct.	Sept.-Nov.	17
		Cleome viscosa Linn.	Pili talvani	H-e	Th	Aug.-Sept.	Sept.-Oct.	18
	16	*Crateava tapia* Linn.	Vayvarno	T	Ph-meso	Feb.-Mar.	Mar.-Apr.	19
	17	*Maerua oblongifolia* (Forsk.)A.Rich.	Dholo katkiyo	S-sc	Ph-micro	Nov.-Dec.	Dec.-Feb.	20
8		**FLACOURTIACEAE**						
	18	*Flacourtia indica* (Burm.f.) Merr.	Lodari	S-thorny	Ph-micro	Mar.-Apr.	Apr.-May.	21
9		**PORTULACACEAE**						
	19	*Portulaca oleracea* Linn.	Luni	H-P-fl	Ch	All months	All months	22
10		**TAMARICACEAE**						
	20	*Tamarix ericoides* Rottl.	Prans	T	Ph-meso	Oct.-Nov.	Nov.-Dec.	23
11		**MALVACEAE**						
	21	*Abelmoschus esculentus* Moench.	Bhindo	S	Ph-micro	Sept.-Nov.	Oct.-Jan.	24
	22	*Abutilon indicum* (Linn.) Sw.	Khapat	S	Ph-micro	Oct.-May	Nov.-June	25
	23	*Gossypium herbaceum* Linn.	Kapas	S	Ph-micro	Sept.-Feb.	Oct.-Mar.	26
	24	*Hibiscus cannabinus* Linn.	Bhindi	S-pricky	Ph-micro	Sept.-Nov.	Oct.-Dec.	27
		Hibiscus rosa-sinensis Linn.	Jasud	US-se	Ph-nano	All months	All monts	28
	25	*Pavonia ceratocarpa* Mast.	Khati chhas	Us-se	Ph-nano	Aug.-Oct.	Sept.-Nov.	29
	26	*Sida cordifolia* Linn.	Bala	US-e	Th	Sept.-Oct.	Oct.-Nov.	30
	27	*Thespesia populnea* Corr.	Parspiplo	t	Ph-meso	All months	All months	31

12		**BOMBACACEAE**						
	28	*Adansonia digitata* Linn.	Rukhdo	T	Ph-mega	Mar.-Apr.	May-June	32
	29	*Bombax ceiba* Linn.	Shimlo	T-pricky	Ph-mega	Feb.-Mar.	Mar.-May	33
	30	*Cieba Pentandra (Linn.)Gaertn.*	Dholo Shimlo	T	Ph-mega	Feb.-Mar.	Mar.-May	34
13		**STERCULIACEAE**						
	31	*Firmiana colorata (* Roxb.) R.Brown	Kodaro	t	Ph-meso	Apr.-May	May-June	35
	32	*Helicteres isora* Linn.	Mardasing	t	Ph-meso	July-Sept.	Oct.-Dec.	36
	33	*Sterculia urens* Roxb.	Kadayo	t	Ph-meso	Mar.-Apr.	Apr.-May	37
14		**TILIACEAE**						
	34	*Corchorus capsularis* Linn.	Motischhunchh	H-e	Th	Sept.-Oct.	Oct.-Nov.	38
		Corchorus depressus (Linn.) Stocks.	Bahufali	H-p	Th	May-Dec.	Sept.-Apr.	39
	35	*Grewia damine Gaertn.*	Sisoti	S	Ph-micro	Apr.-May	May-June	40
		Grewia tenax (Forsk) Fiori.	Gangeti	S	Ph-micro	June-Nov.	Sept.-Dec.	41
		Grewia villosa Willd.	Padekhada	S	Ph-micro	Aug.-Sept.	Oct.-Nov.	42
	36	*Triumfetta rhomboidea* Jacq.	Jhipato	US	Ph-nano	Sept.-Oct.	Sept.-Oct.	43
15		**ZYGOPHYLLACEAE**						
	37	*Fagonia cretica* Linn.	Dhamaso	US-spiny	Ph-nano	Sept.-Feb.	Oct.-Mar.	44
	38	*Tribulus terrestris* Linn.	Gokhru	H-p	Th	Aug.-Oct.	Sept.-Nov.	45
16		**BALSAMINACEAE**						
	39	*Impatiens balsamina* Linn.	Galmendi	H-e	Th	July-Aug.	Sept-Oct.	46
17		**OXALIDACEAE**						
	40	*Biophytum sensitivum* (Linn.) DC.	Zarer	H-se-r	Th	Aug.-Sept.	Sept.-Oct.	47
18		**RUTACEAE**						
	41	*Aegle marmelos* (Linn). Corr.	Billi	t-throny	Ph-meso	Mar.-Apr.	Apr.-June	48
	42	*Citrus limon* (Linn). Burm.	Limbu	T	Ph-meso	All Months	All Months	49

		Citrus medica Linn.	Bijoru	T	Ph-meso	All months	All months	50
	43	*Feronia limonia* (Linn.) Swingle	Kothu	T	Ph-mega	Jan.-May.	Mar.-June	51
	44	*Murraya koenigii* Spreng.	Mitho limbdo	T	Ph-meso	Mar.-Apr.	Apr.-June	52
19		**SIMAROUBACEAE**						
	45	*Ailanthus excelsa* Roxb.	Arduso	T	Ph-mega	Jan.-Feb.	Feb.-Mar.	53
20		**BALANITACEAE**						
	46	*Balanites aegyptica (* Linn.) Del.	Engorio	t-thorny	Ph-meso	Mar.-Apr.	Apr.-Feb.	54
21		**BURSERACEAE**						
	47	*Commiphora wightii* (Arn.) Bhandari	Gugal	S-thorny	Ph-micro	Jan.-Apr.	Feb.-May.	55
22		**MELIACEAE**						
	48	*Azadirachta indica* A. Juss.	Limbado	T	Ph-mega	Mar.-Apr.	Apr.-Jun.	56
	49	*Melia azedarach* Linn.	Bakanlimdo	T	Ph-mega	Mar.-Apr.	Apr.-May.	57
	50	*Soymida febrifuga* A. Juss.	Rohan	T	Ph-mega	Feb.-Mar.	Mar.-Apr.	58
23		**CELASTERACEAE**						
	51	*Celastrus paniculatus* Willd.	Malkankna	S-sc-tw	Ph-micro	Dec.-Apr.	Jan.-May	59
	52	*Maytenus emarginata* (Willd.) Ding.	Vikro	S-thorny	Ph-micro	Oct.- Dec.	Nov.-Jan.	60
24		**RHAMNACEAE**						
	53	*Zizyphus mauritiana* Lamk.	Bordi	t-spiny	Ph-meso	Mar.-Apr.	Apr.-May	61
		Zizyphus nummularia (Burm.f.)Wt. & Arn.	Palera	s-spiny	Ph-micro	Mar.-Apr.	Apr.-May	62
		Zizyphus xylopyra Willd.	Ghoot bordi	t-spiny	Ph-meso	Apr.-June	June-Dec.	63
25		**AMPELIDEAE**						
	54	*Ampelocissus latifolia* (Roxb.) Planch.	Jangli draksh	S-cl-tend	Ph-micro	Aug.-Sept.	Sept.-Oct.	64
	55	*Cayratia trifolia (*Linn.)Domin.	Khat khatumbo	H-cl-sc	Th	Aug.-Sept.	Sept.-Oct.	65
	56	*Cissus quadrangulare* Linn.	Hadsankar	S-cl-tend-	Ph-micro	Aug.-Sept.	Sept.-Oct.	66

				succ				
26		**SAPINDACEAE**						
	57	*Cardiospermum halicacabum* Linn.	Kagdoliyo	H-cl	Th	Sept.-Oct.	Oct.-Nov.	67
	58	*Sapindus laurifolius* Vahl.	Arithi	T	Ph-mega	Oct.-Dec.	Nov.-Jan.	68
27		**ANACARDIACEAE**						
	59	*Lannea coromandelica* (Houtt.) Merr.	Mavedo	T	Ph-mega	Feb.-Mar.	Mar.-Apr.	69
	60	*Mangifera indica* Linn.	Ambo	T	Ph-mega	Jan.-Feb.	Feb.-May	70
28		**MORINGACEAE**						
	61	*Moringa oleifera* Lamk.	Sargvo	T	Ph-meso	Sept.-Oct.	Nov.-Dec	71
29		**FABACEAE**						
	62	*Abrus precatorius* Linn.	Chanothi	S-tw	Ph-micro	Sept.-Oct.	Oct.-Nov.	72
	63	*Alhagi pseudalhagi* Desv.	Javaso	S	Ph-micro	Mar.-May	Apr.-June	73
	64	*Arachis hypogea* Linn.	Mandvi	H-se-p	H	Aug.-Oct.	Sept.-Nov.	74
	65	*Butea monosperma* (Lam.) Kuntze	Khakhro	T	Ph-mega	Feb.-Mar.	Mar.-Apr.	75
	66	*Cajanus cajan* (Linn.) Millsp.	Tuver	S	Ph-micro	Oct.-Des.	Nov.-Jan.	76
	67	*Cicer arietinum* Linn.	Chana	H-se/p	Th	Jan.-Feb.	Feb.-Mars.	77
	68	*Clitoria ternatea* Linn.	Garani	H-tw	Th	Aug.-Nov.	Aug.-Jan.	78
	69	Cyamopsis tetragonoloba (Linn.) Taub.	Guwar	H-e	Th	Sept.-Nov.	Sept.-Dec.	79
	70	*Dalbergia sissoo* Roxb.	Sissam	T	Ph-mega	Mar.-Apr.	Apr.-June	80
	71	*Derris indica* (Lam.) Bennet	Karanj	T	Ph-mega	Apr.-May	May-June	81
	72	*Erythrina suberosa* Roxb.	Panervo	t-pricky	Ph-meso	Feb.-Mar.	Mar.-May	82
	73	*Indigofera oblongifolia* Forsk.	Jhil	US-e	Ph-nano	Aug.-Nov.	Sept.-Dec.	83
	74	*Lablab purpureus* (Linn.) Sweet.	Valor	H-tw	Th	Sept-Oct.	Oct.-Nov.	84
	75	*Medicago sativa* Linn.	Gadab	H-e	Th	All Months	All Months	85
	76	*Mucuna pruriens* Bak.	Bhiraw singi	H-tw	Th	Sep.-Oct.	Oct.-Nov.	86
	77	*Phaseolus mungo* Linn.	Mag	H-Se	Th	Aug.-Oct.	Sept.-Nov.	87
		Phaseolus radiates Linn.	Adad	H-Se	Th	Sept.-Oct.	Sept.-Oct.	88

	78	*Petrocarpus marsupium* Prain.	Biyo	T	Ph-mega	May-June	June-July	89
	79	*Sesbania grandiflora* Pers.	Agathio	T	Ph-meso	Dec.-Mar.	Jan.-Apr.	90
		Sesbania sesban Sant.	Resumadi	S-e	Ph-micro	Sept.-Oct.	Oct.-Nov.	91
	80	*Taverniera cuneifolia* Arn.	Jethimadh	Us-Se	Ph-neno	Sept.-Jan.	Oct.-Feb.	92
	81	*Teramnus labialis* Spr.	Valiya-velo	H-Cl	Th	Aug.-Oct.	Sept.-Nov.	93
	82	*Trigonella foenum-graecum* Linn.	Methi	H-e	Th	All Months	All Months	94
	83	*Vigna aconitifolia* (Jacq.) Marechal	Math	H-cl	Th	Sept.-Oct.	Oct.-Nov.	95
30		**CAESALPINIACEAE**						
	84	*Bauhina racemosa* Lam.	Kanchanar	T	Ph-mega	Nov.-Jan.	Dec.-Feb.s	*96*
	85	*Caesalpinia bonduc (*Linn.) Roxb.	Kakchiyo	S-pricky	Ph-micro	Aug.-Oct.	Sept.-Nov.	97
		Caesalpinia pulcherrima (Linn.) Swartz.	Galtoro	S	Ph-micro	All Months	All Months	98
	86	*Cassia absus* Linn.	Chamed	H-e	Th	Aug.-Sept.	Sept.-Oct.	99
		Cassia auriculata Linn.	Aval	S	Ph-micro	All Months	All Months	100
		Cassia fistula Linn.	Garmalo	T	Ph-mega	Apr.-May	May-June	101
		Cassia occidentalis Linn.	Kasundro	S	Ph-micro	Aug.-Nov.	Sept.-Dec.	102
		Cassia tora Linn.	Kuvadio	H-e	Th	Aug.-Sept.	Sept.-Nov.	103
	87	*Delonix elata* (Linn.) Gamble	Sidhasaro	T	Ph-mega	Sept.-Nov.	Oct.-Dec.	104
		Delonix regia (Boj.)Raf.	Gul-mahor	T	Ph-mega	Apr.-July	May-Aug	105
	88	*Parkinsonia aculeata* Linn.	Pardesi baval	t-spiny	Ph-meso	Feb.-Apr.	Mar.-May.	106
	89	*Tamarindus indica* Linn.	Ambali	T	Ph-mega	May-July	June-Aug.	107
31		**MIMOSACEAE**						
	90	*Acacia catechu* (Linn.f) Willd.	Kher	T-spiny	Ph-mega	Apr.-Aug.	May-Oct.	108
		Acacia farnesiana (Linn.) Willd.	Tal baval	t-spiny	Ph-meso	Nov.-Dec.	Dec.-Jan.	109
		Acacia leucophloea (Roxb.) Willd	Harmo baval	t-spainy	Ph-meso	Sept.-Nov.	Nov.-Mar.	110
		*Acacia nilotica (*Linn.) Del.	Desi baval	T-spainy	Ph-mega	May-Oct.	June-Nov.	111
		Acacia senegal Willd.	Gordiyo	t-spiny	Ph-meso	Sept.-Nov.	Oct.-Dec.	112
	91	*Albizzia lebbek* (Linn.) Benth.	Kalo sirish	T	Ph-mega	Mar.-Apr.	All months	113
	92	*Dichrostachys cinerea* (Linn.) Wt. & Arn.	Mor dhundhiy	t-thorny	Ph-meso	Aug.-Sept.& Feb.-Mar.	Oct.-Nov. & Mar.-Apr.	114

	93	*Mimosa hamata* Willd.	Kasedi	S-pricky	Ph-micro	Aug.-Nov.	Sept.-Dec.	115
		Mimosa pudica Linn.	Lajamani	H-e-spiny	Th	Aug.-Sept.	Sept.-Oct.	116
	94	*Pithecelobium dulce* (Roxb.) Benth.	Goras ambli	T-pricky	Ph-mega	Nov.-Feb.	Dec.-Mar.	117
	95	*Prosopis cineraria* (Linn.) Druce	Khijado	T-pricky	Ph-mega	Dec.-Feb.	Jan.-Mar.	118
		Prosopis chilensis (Molina) Stuntz	Gando baval	T-sc-throny	Ph-meso	All Months	All months	119
32		**CRASSULACEAE**						
	96	*Kalanchoe pinnata* (Lam.) Merr.	Panphuti	H-e-succ.	H	Nov.-Dec.	Dec.-Jan.	120
33		**COMBRETACEAE**						
	97	*Anogeissus latifolia* (Roxb.ex Dc.) Wall.ex Guill & per.	Bhut Ghavdo	t	Ph-meso	May-June	June-July	121
	98	*Terminalia bellirica* Roxb.	Baheda	T	Ph-mega	Apr.-May	May-June.	122
		Terminalia cattapa Linn.	Badam	T	Ph-mega	All months	All months	123
		Terminalia chebula Retz.	Harde	T	Ph-mega	Apr.-May	May-June	124
		Terminalia crenulata Roth.	Sajad	T	Ph-mega	Sept.-Oct.	Oct.-Nov.	125
34		**MYRTACEAE**						
	99	*Eucalyptus citriodora* Hk.	Nilgiri	T	Ph-mega	Feb.-Mar.	Mar.-Apr.	126
	100	*Psidium guajava* Linn.	Per	t	Ph-meso	Mar.-May	Apr.-July	127
	101	*Syzygium cumini* (Linn.) Skeels	Jambu	T	Ph-mega	Mar.-May	Apr.-Oct.	128
35		**LYTHRACEAE**						
	102	*Ammania baccifera* Linn.	Jal-Agiyo	H-e	C-helo	Aug.-Nov.	Sept.-Dec.	129
	103	*Lawsonia inermis* Linn.	Mahendi	S	Ph-micro	Apr.-Sept.	May-Dec.	130
	104	*Woodfordia fruticosa* Kurz.	Dhawdi	S-sc	Ph-micro	Mar.-Apr.	Apr.-May	131
37		**PUNICACEAE**						
	105	*Punica granatum* Linn.	Dadam	t-Thorny	Ph-meso	Apr.-July	Apr.-July	132

38		**CARICACEAE**						
	106	*Carica papaya* Linn.	Papaya	t	Ph-meso	All Months	All Months	133
39		**PASSIFLORACEAE**						
	107	*Passiflora edulis* Sims.	Pandav kaurav vel.	H-cl-tend	Th	Aug.-Oct.	Sept.-Nov.	134
40		**CUCURBITACEAE**						
	108	*Citrullus colocynthis* (Linn.) schard.	Indravarna	H-p-tend	Ch	Sep.-Oct.	Oct.-Nov.	135
	109	*Coccinia grandis* (Linn) J.O. voigt	Kadvi gholi	H-cl-tend	Th	All months	All msonths	136
	110	*Corallocarpus epigaeus* (Rottl. & Willd.) Clarke	Kadvi-nai	H-cl-tend	Th	Aug.-Sept.	Sept.-Oct.	137
	111	*Ctenolepis cerasiformis* (Stocks.) Hk.	Aankh phutamani	H-cl	Th	Aug.-Oct.	Aug.-Oct.	138
	112	*Cucumis callosus* (Rottl.) Cogn. & Harms.	Gai-vasukada	H-p/cl-tend	Th	Aug.-Oct.	Aug.-Oct.	139
		Cucumis prophetarum Linn.	Katala-indrana	H-p	Th	Aug.-Oct.	Aug.-Oct.	140
		Cucumis sativus Linn.	Kakadi	H-p	Th	Aug.-Oct.	Aug.-Oct.	141
		Cucurbita pepo Dc.	Patkolu	H-cl	Th	Aug.-Nov.	Aug.-Nov.	142
	113	*Lagenaria siceraria*(Molina)Standl	Dudhi	H-cl	Th	Aug.-Oct.	Aug.-Oct.	143
	114	*Luffa acutangula Var. amara* Clarke	Kadva Turiya	H-cl	Th	Aug.-Sept.	Aug.-Sept.	144
		Luffa echinata Roxb.	Kukadvela	H-cl-tend	Th	Sept.-Oct.	Sept.-Oct.	145
	115	*Momordica balsamina* Linn.	Chhochhinda	H-cl-tend	Th	Aug.-Oct.	Aug.-Oct.	146
	116	*Momordica charantia* Linn.	Karela	H-cl-tend	Th	July-Sept.	July-Sept.	147
		Momordica dioica Roxb. ex Willd.	Kantola	H-cl-tend	Th	Aug.-Oct.	Aug.-Oct.	148
	117	*Mukia maderaspatana* (Linn) M. Roem.	Chadaka chibhdi	H-cl-tend	Th	Aug.-Sept.	Aug.-Sept.	149
41		**CACTACEAE**						
	118	*Opuntia dillenii* Haw.	Hathlo thuar	S-spiny-succ.	Ph-micro	Feb.-Apr.	Feb.-May	150
42		**APIACEAE**						
	119	*Anethum graveolens* Linn.	Suva	H-e	Th	Oct.-Dec.	Nov.-Jan.	151

	120	*Centella asiatica* (Linn.) Urban	Brahmi	H-p	H	Oct.-Nov.	Oct.-Nov.	152
	121	*Corindrum sativum* Linn.	Dhana	H-e	Th	All months	All months	153
	122	*Cuminum cyminum* Linn.	Jiru	H-e	Th	Jan.-Mar.	Feb.-Apr.	154
	123	*Daucus carota* Linn. *var. sativa* DC.	Gajar	H-tub	C-geo	Jan.-Mar.	Feb.-Mar.	155
	124	*Foeniculum vulgare* Gaertn.	Valiyari	H-e	Th	Jan.-Mar.	Feb.-Apr.	156
	125	*Trachyispermum copticum* (Linn.) Link.	Ajama	H-e	H	Dec.-Apr.	Jan.-May	157
42		**ALANGIACEAE**						
	126	*Alangium salvifolium* (Linn.f.) Wang.	Ankol	t-spiny	Ph-meso	Oct.-Nov.	Nov.-Dec.	158
43		**RUBIACEAE**						
	127	*Adina cordifolia* Hook. f. ex Brandis.	Hardarvo	T	Ph-mega	Aug.-Sept.	Sept.-Oct.	159
	128	*Gardenia turgida* Roxb.	Malan	S	Ph-micro	Aug.-Oct.	Sept.-Nov.	160
	129	*Mitragyna parvifolia* (Roxb.) Korth.	Kalam	T	Ph-mega	Apr.-May	May-July	161
	130	*Morinda tomentosa* Heyne ex Roth.	Aal	T	Ph-mega	May-June	July-Oct.	162
	131	*Oldenlandia corymbosa* Linn.	Parpat	H-se	Th	Sept.-Nov.	Oct.-Dec.	163
	132	*Xeromphis spinosa* (Thunb.) Keay.	Laso mindhod	t-spiny	Ph-meso	Mar.-Apr.	Apr.-May.	164
		Xeromphis uliginosa (Retz.) Maheshwari	Gangeda	t-thorny	Ph-meso	Mar.-Apr.	Apr.-May	165
44		**ASTERACEAE**						
	133	*Ageratun conyzoides* Linn.	Gandhari sedardi	H-e	Th	Sept.-Nov.	Oct.-Dec.	166
	134	*Centratherum anthelminticum* (Linn.) Kuntze	Kalijiri	H-e	Th	Sept.-Oct.	Oct.-Nov.	167
	135	*Echinops echinatus* Roxb.	Utkanto	H-e-spiny	Th	Jan.-June	Jan.-June	168
	136	*Eclipta alba* Linn.	Bhangra	H-se/p	Th	All Months	All Months	169
	137	*Helianthus annus* Linn.	Surajmukhi	H-e	Th	All Months	All Months	170
	138	*Parthenium hysterophorus* Linn.	Congress ghas	H-e	Th	Aug.-Nov.	Sept.-Dec.	171
	139	*Tridax procumbens* Linn.	Ghaburi	H-Sc	Ch	All Months	All Months	172
	140	*Vernonia cinerea* (Linn.) Less.	Sedardi	H-e	Th	Aug.-Mar.	Aug.-Mar.	173
	141	*Xanthium strumarium* Linn.	Gadriyu	H-e-spiny	Th	Aug.-Jan.	Aug.-Jan.	174

45		**PLUMBAGINACEAE**						
	142	*Plumbago zeylanica* Linn.	Chitrak	US-Sc	Ph-nano	Sept.-Nov.	Sept.-Nov.	175
46		**SAPOTACEAE**						
	143	*Madhuca indica Gmelin.*	Mahudo	T	Ph-mega	Feb.-Mar.	Mar.-Apr.	176
	144	*Manilkara hexandra* (Roxb.) Dubard.	Rayan	T	Ph-mega	Nov.-Feb.	Dec.-Mar.	177
		Manilkara zapota (Linn.) P. Royen.	Chiku	t	Ph-meso	Apr.-Oct.	May-Nov.	178
	145	*Mimusops elengi* Linn.	Borasali	T	Ph-mega	Jan.-Feb.	Mar.-Apr.	179
47		**EBENACEAE**						
	146	*Diospyros melanoxylon* Roxb.	Timbru	T	Ph-mega	Mar.-May	Apr.-Aug.	180
48		**OLEACEAE**						
	147	*Jasminum sambac* Ait.	Dolar	S-Se	Ph-micro	All months	---	181
	148	*Nyctanthes arbor-tristis* Linn.	Parijat	t	Ph-meso	Aug.-Oct.	Sept.- Nov.	182
49		**SALVADORACEAE**						
	149	*Salvadora oleoides* Decne.	Mithi jar	t	Ph-meso	Dec.-Jan.	Jan.-Feb.	183
		Salvadora persica Linn.	Khari jar, Piludi	t	Ph-meso	Nov.-Dec.	Dec.-Jan.	184
50		**APOCYNACEAE**						
	150	*Alstonia scholaris* R. Br.	Saptparni	T	Ph-meso	Jan.-Mar.	Feb.-Apr.	185
	151	*Carissa congesta* Wight.	Karmda	S-Sc-thorny	Ph-micro	Jan.-Mar.	Feb.-Apr.	186
	152	*Catharanthus roseus* (Linn.) G. Don,	Barmasi	US-e-w	Th	All Months	All Months	187
	153	*Holarrhena antidysentrica* (Buch.-Ham.) Wall	Kalo indrajav	S-e	Ph-micro	July-Oct.	Sept.-Jan.	188
	154	*Nerium indicum* Mill.	Lal karen	S	Ph-micro	All Months	All Months	189
	155	*Plumeria rubra* Linn.	Champo	T	Ph-meso	All Months	Rarely found	190
	156	*Thevetia peruviana* (Pers.) Merr.	Pili karen	T	Ph-meso	All Months	All months	191
	157	*Wrightia tinctoria* Br.	Dudhalo	T	Ph-meso	Mar.-Aug.	Apr.-Sept.	192

51		**ASCLEPIADACEAE**						
	158	*Calotropis gigantea* (Linn.) R. Br.	Moto ankado	S-e	Ph-micro	All Months	All months	193
		Calotropis procera, (Ait.) Ait. f.	Akado	S-e	Ph-micro	All Montshs	All months	194
	159	*Ceropegia bulbous* Roxb.	Kundher	H-cl-tub	c-geo	Sept.-Oct.	Oct.-Sept.	195
	160	*Leptadenia reticulata* (Retz.) Wt. & Arn.	Kharkhodi	S-cl	Ph-micro	Apr.-Sept.	May.-Oct.	196
	161	*Pentatropis spiralis* (Forsk.) Decne.	Shingroti	US-cl	Ph-nano	May.-Oct.	July-Nov.	197
	162	*Pergularia daemia* (Forsk) Chiov.	Chamar dudhali	US-cl	Ph-nano	July-Feb.	July-Feb.	198
	163	*Sarcostemma acidum* (Roxb.)Voigt	Sandhiyavel	S	Ph-micro	Apr.-Sept.	May-Oct.	199
	164	*Tylophora dulzelli* Hk.f.	Radarudi	US-cl	Ph-nano	July-Aug.	Aug.-Sept.	200
	165	*Wattakaka volubilis* (Linn.f.) Stapf.	Moti-dodi	S-cl	Ph-nano	Aug.-Sept.	Sept.-Oct.	201
52		**PERIPLOCACEAE**						
	166	*Hemindesmus indicus* (Linn.) Br.	Kapuri,Madhuri	US-p/cl	Ph-nano	July-Jan.	July-Jan.	202
53		**GENTIANACEAE**						
	167	*Enicostema hyssopifolium* (Willd.) I.C.verd.	Mamejavo	H-e	Th	July-Feb.	July-Feb.	203
54		**EHRETIACEAE**						
	168	*Cordia dichotoma* Forst.	Gunda	T	Ph-meso	Mar.-Apr.	May-June	204
		Cordia gharaf (Forsk) Ehrenb-ex Asch.	Gundi	t	Ph-meso	Mar.-Apr	May-June	205
		Cordia sebestena Linn.	------	T	Ph-meso	All months	All months	206
	169	*Ehretia laevis* Roxb.	Vadhvardi	t	Ph-meso	Feb.-Apr.	Mar.-May	207
55		**BORAGINACEAE**						
	170	*Heliotropium supinum* Linn.	Ghediyo-okhrad	H-p	Th	Sept.-Oct.	Oct.-Nov.	208
	171	*Trichodesma indicum* Br.	Undhafuli	H-e	Th	All Months	All Months	209
56		**CONVOLVULACEAE**						
	172	*Argyreia nervosa* (Burm f.) Boj.	Samundrasosh	S-cl	Ph-micro	Aug.-Oct.	Aug.-Oct.	210
	173	*Convolvulus arvensis* Linn.	Khetrau-fadardi	H-tw	Ch	Aug.-Oct.	Aug.-Oct.	211
	174	*Cressa cretica Linn.*	Pariyo	H-Se/p	Ch	Jan-Mar.	Feb.-Apr.	212

	175	*Evolvulus alsinoides* Linn.	Kalishankhavali	H-p	Ch	Aug.-Nov.	Aug.-Nov.	213
	176	*Ipomoea aquatica* Forsk.	Nasotar.	H-p-aq	C-helo	Oct.-Apr.	Oct.-Apr.	214
		Ipomoea batatas (Linn.) Lam.Tab.	Ratalu	H-p-tub	Th	All Months	All Months	215
		Ipomoea carnea Facq.	Alpvardhini	S-Sc	Ph-micro	All Months	All Months	216
		Ipomoea nil (Linn.) Roth.	Kalakupa	H-tw	Th	Aug.-Oct.	Aug.-Jan.	217
		Ipomoea pes-caprae (Linn.) Sweet.	Dipad vel	H-tw/p	Th	Sept.-Dec.	Sept.-Dec.	218
	177	*Merremia gangetica* (Linn.) Cufod.	Undarkani	H-p	H	Aug.-Nov.	Aug.-Dec.	219
	178	*Rivea hypocrateriformis* (Desr) Choisy	Fang.	S-tw	Ph-micro	Sept.-Nov.	Sept.-Feb.	220
57		**SOLANACEAE**						
	179	*Capsicum annum.* Linn.	Marchi	H-e	Th	Aug.-Dec.	Aug.-Feb.	221
	180	*Cestrum nocturnum* Linn.	Ratrani	T	Ph-meso	July-Jan.	Aug.-Feb.	222
	181	*Datura innoxia* Mill.	Dhaturo	US	Ph-nano	July-Feb.	July-Feb.	223
		Datura stramonium Linn.	Kalo-dhaturo	US	Ph-nano	July-Feb.	July-Feb.	224
	182	*Lycoporsicon lycopersicum* (Linn.) Airy-Shaw.	TametU	H-Se	Th	All Months	All Months	225
	183	*Nicotiana tabacum* Linn.	Tamaku	H-e	Th	Oct.-Dec.	Oct.-Dec.	226
	184	*Physalis minima* Linn.	Sarpopati	H-e	Th	Aug.-Nov.	Aug.-Nov.	227
	185	*Solanum melongena* Linn.	Ringana	US-pricky	Ph-nano	All Months	All Months	228
		Solanum nigrum Linn.	Piludi	H-e	Th	Nov.-Jan.	Nov.-Jan.	229
		Solanum surattense Burm.	Bhoyaringani	H-e-pricky	Ch	Sept.-May	Sept.-May	230
	186	*Withania somnifera* (Linn.) Dunal.	Ghodakun	US	Ph-nano	All Months	All Months	231
58		**SCROPHULARIACEAE**						
	187	*Bacopa monnieri* (Linn.) Pennell	Jalnevri	H-p-succ	Ch	All Months	All Months	232
59		**BIGNONIACEAE**						
	188	*Millingtonia hortensis* Linn.	Akash-limdo	T	Ph-mega	Dec.-Feb.	Feb.-Mar.	233
	189	*Oroxylum indicum* (Linn.) Vent.	Tetu	T	Ph-mega	May-Aug.	May-Aug.	234
	190	*Tecomella undulata* (Sm.) Seem.	Ragat- rohido	T	Ph-mega	Feb.-Apr.	Feb.-May	235

60		**PEDALIACEAE**						
	191	*Pedalium murex* Linn.	Motu gokharu	H-Se/p	Ch	July-Nov.	July-Nov.	236
	192	*Sesamum orientale* Linn.	Tal	H-e	Th	Aug.-Oct.	Aug.-Oct.	237
61		**MARTYNIACEAE**						
	193	*Martynia annua* Linn.	Vichhudo	H-e	Ph-nano	Aug.-Dec.	Aug.-Dec.	238
62		**ACANTHACEAE**						
	194	*Adhatoda zeylanica Medic*.	Ardushi	S	Ph-micro	Dec.-Feb.	Dec.-Feb.	239
	195	*Andrographis paniculata (*Burm.f.) Wall.ex.Nees in Wall.	Kriyatu	H-e	Th	Aug.-Dec.	Aug.-Jan.	240
	196	*Barleria prionitis* Linn.	Pilo kantashelio	H-spiny	Ph-nano	Sept.-Jan.	Sept.-Jan.	241
	197	*Peristrophe paniculata* (Forsk.) Burm	Kali aghedi	H-e	Th	Oct.-Jan.	Oct.-Jan.	242
63		**AVICENNIACEAE**						
	198	*Avicennia officinalis* Linn.	Tavariya	T	Ph-meso	Sept.-Oct.	Oct.-Nov.	243
64		**VERBENACEAE**						
	199	*Clerodendrun multiflorum* (Burm.f.) O.Ktze.	Arani	S	Ph-micro	Sept.-Oct.	Oct.-Nov.	244
	200	*Gmelina arborea* Roxb.	Savan	T	Ph-mega	Feb.-Apr.	Feb.-Apr.	245
	201	*Lantana camara* Linn.	Dhanidaria	S-sc-pricky	Ph-micro	All months	All months	246
	202	*Premna herbacea* Roxb.	Ghiti	S	Ph-micro	July-Nov.	July-Dec.	247
	203	*Tectona grandis (*Linn.) f.	Sag	T	Ph-mega	Sept.-Nov.	Sept.-Nov.	248
	204	*Vitex negundo* Linn.	Nagod	T	Ph-meso	All Months	All Months	249
65		**LAMIACEAE**						
	205	*Leucas cephalotes* Spreng	kubo	H-e	Th	Aug.-Nov.	Aug.-Nov.	250
	206	*Mentha longifolia (* Linn.) Huds.	Fudino	H-Se	H	Rarely found	-	251
	207	*Ocimum basilicum* Linn.	Marvo	H-e	Th	July-Oct.	July-Dec.	252
		Ocimum canum Sims.	Takmaria	H-e	Th	July-Dec.	July-sDec.	253

		Ocimum sanctum Linn.	Tulsi	H-e	Th	Sept.-Mar.	Sept.-Mar.	254
66		**NYCTAGINACEAE**						
	208	*Boerhavia diffusa* Linn.	Satodo	H-p	Ch	Aug.-Feb.	Sept.-Mar.	255
	209	*Mirabillis jalapa* Linn.	Gal	H-e	Th	Aug.-Feb.	Aug.-Feb.	256
67		**AMARANTHACEAE**						
	210	*Achyranthes aspera* Linn.	Aghedo	H-e	Th	Sept.-Dec.	Sept.-Jan.	257
	211	*Aerva lanata* (Linn.)Juss.ex.Schultes	Gorakh ganjo	H-e-se	Th	Sept.-Jan.	Sept.-Feb.	258
	212	*Amaranthus hybridus* (Linn.)	Rajgaro	H-se	Th	Aug.-Oct.	Aug.-Oct.	259
		Amaranthus lividus Linn.	Tandaljo	H-e-succ	Th	Sept.-Feb.	Sept.-Feb.	260
		Amaranthus viridis Linn.	Dhimdo	H-e	Th	Sept.-Mar.	Sept.-Mar.	261
	213	*Celosia argentea* Linn.	Lapadi	H-e	Th	Aug.-Dec.	Aug.-Dec.	262
	214	*Digera muricata* (Linn.) Mart.	Kanejaro	H-e	Th	July-Oct.	July-Nov.	263
68		**CHENOPODIACEAE**						
	215	*Chenopodium album* Linn.	Chil	H-e	Th	Nov.-Mar.	Nov.-Mar.	264
		Chenopodium murale Linn.	Balelo	H-e	Th	Dec.-Mar.	Dec.-Mar.	265
	216	*Spinacia oleracea* Linn.	Palakh	H-se	Th	Dec.-Feb.	Jan.-Mar.	266
69		**ARISTOLOCHIACEAE**						
	217	*Aristolochia bracteolata* Lam.	Kidamari	H-p	Th	Aug.-Nov.	Aug.-Nov.	267
70		**EUPHORBIACEAE**						
	218	*Breynia retusa* (Dennst.) Alst.	Keda kamboi	S	Ph-micro	All months	All months	268
	219	*Bridelia retusa (Linn.) Spr.*	Akel kanto	T	Ph-meso	Aug.-Oct.	Aug.-Feb.	269
	220	*Cicca acida (Linn.*) Merrill.	Khata amla	T	Ph-meso	Apr.-July	Apr.-July	270
	221	*Emblica officinalis* Gaertn.	Amala	T	Ph-meso	Mar.-May	Mar.-May	271
	222	*Euphorbia neriifolia* Linn.	Kataro	S-succ-spiny	Ph-micro	Feb.-Apr.	Feb.-Apr.	272
		Euphorbia tirucalli Linn.	Dandilyo thor	S-scucc	Ph-micro	Nov.-Feb.	Nov.-Feb.	273
	223	*Jatropha curcas* Linn.	Ratanjyot	S	Ph-micro	Sept.-Nov.	Oct.-Nov.	274
		Jatropha gossypifolia Linn.	Nepalo	S	Ph-micro	July-Mar.	July-Mar.	275

	224	*Phyllanthus fraternus* Webster.	BhoyA ambali	H-e	Th	All Months	All Months	276
		Phyllanthus maderaspatensis Linn.	Bakrato	H-e	Th	Aug.-Nov.	Aug.-Dec.	277
	225	*Ricinus communis* Linn.	Arandi	S	Ph-micro	All Months	All Months	278
	226	S*ecurinega leucopyrus* (Willd.)Muell.	Shinvi	S-se	Ph-micro	July-Oct.	July-Nov.	279
	227	Tragia cannabina Linn.	Khajvani	H-Cl	Th	Aug.-Mar.	Aug.-Apr.	280
71		**MORACEAE**						
	228	*Artocarpus heterophyllus* Lamk.	Fanas	T	Ph-mega	Dec.-Mar.	Dec.-Mar.	281
	229	*Ficus amplissima* Sm.	Pipar	T	Ph-mega	Nov.-Feb.	Nov.-May	282
		Ficus benghalensis Linn.	Vad	T	Ph-mega	Nov.-Jan.	Nov.-Jan.	283
		Ficus carica Linn.	Anjir	T	Ph-mega	Nov.-Jan.	Nov.-Jan.	284
		Ficus glomerata Roxb.	Umbaro	T	Ph-mega	All months	All Months	285
		Ficus religiosa Linn.	Piplo	T	Ph-mega	Nov.-Jan.	Nov.-Jan.	286
	230	*Morus alba* Linn.	Shetur	T	Ph-meso	Jan.-Mar.	Feb.-Mar.	287
72		**ULMACEAE**						
	231	*Heloptelea integrifolia* (Roxb.) Planch.	Charal	T	Ph-mega	Jan.-Mar.	Jan.-Mar.	288
73		**CANABINACEAE**						
	232	*Cannabis sativa* Linn.	Bhang	S	Ph-micro	Nov.-Dec.	Nov.-Feb.	289
74		**CASUARINACEAE**						
	233	*Casuarina equisetifolia* Linn.	Zuri	T	Ph-mega	Aug.-Nov.	Oct.-June	290
75		**HYDROCHARITACEAE**						
	234	*Hydrilla verticillata* (Linn.f.) Royle	Bam	H-aq	C-hydro	Aug.-Dec.	Aug.-Dec.	291
	235	*Vallisneria spiralis* Linn.	Jalsarpolia	H-aq	C-hydro	Apr.-Nov.	Apr.-Nov.	292
76		**CANNACEAE**						
	236	*Canna indica* Linn.	Kena	H-tub	C-geo	All months	All monhs	293

77		**ZINGIBERACEAE**						
	237	*Curcuma longa Linn.*	Haldar	H-tub	C-geo	Aug.-Oct.	Aug.-Oct.	294
	238	*Zingiber officinale* Rosc.	Adu	H-rhi	C-geo	Mar.-Apr.	-	295
78		**MUSACEAE**						
	239	*Musa sapientum* Linn.	Kela	T	Ph-meso	All Months	----------	296
79		**HYPOXIDACEAE**						
	240	*Curculigo orchioides* Gaertn.	Kali-smusali	H-tub	C- geo	Aug.-Sept.	Aug.-Oct.	297
80		**AGAVACEAE**						
	241	*Agave americana* Linn.	Ketki	S-r-pricky	H	Jan.-June	Jan.-June	298
81		**DIOSCOREACEAE**						
	242	*Dioscorea bulbifera* Linn.	Kanak	H-tub-bulb-cl	C-geo	July-Oct.	July-Mar.	299
82		**LILIACEAE**						
	243	*Allium cepa* Linn.	Dungali	H-bulb	C-geo	Jan.-Feb.	Jan.-Feb.	300
		Allium sativum Linn.	Lasan	H-bulb	C-geo	Jan.-Feb.	Jan.-Feb.	301
	244	*Aloe barbadensis* Mill.	Kuwar	S-sto-Pricky	H	Aug.-Feb.	Aug.-Feb.	302
	245	*Asparagus racemosus* Willd. Med.	Shatavari	S-cl-spiny - tub	Ph-micro	Oct.-Jan.	Oct.-Jan.	303
	246	*Asphodelus tenuifolius Cav.*	Dungaro	H-e	Th	Jan.-Mar.	Jan.-Mar.	304
	247	*Chlorophytum tuberosum* (Roxb.) Bak.	Karli ni bhaji.	H-tub.	C-geo	July-Aug.	July-Aug.	305
	248	*Glorisa superba* Linn.	Vachnag	H-cl-tub	C-geo	Aug.-Oct.	Aug.-Oct.	306
	249	*Urginea indica* (Roxb.) Kunth.	Pankando	H-bulb.	C-geo	June-Oct.	June-Oct.	307
		COMMELINACEAE						
83	*250*	*Commelina benghalensis* Linn.	Motu sismuliu	H-p	Th	Aug.-Oct.	Sept.-Nov.	308
		ARECACEAE						

84	*251*	*Areca catechu Linn.*	Sopari	T	Ph-mega	Dec.-Apr.	Mar.-May	309
	252	*Cocous nucifera* Linn.	Naliyeri	T	Ph-mega	All Months	All Months	310
	253	*Hyphaene indica Becc.*	Ravan-tad	T	Ph-mega	Jan.-Apr.	Feb.-May	311
	254	*Phoenix sylvestris* Roxb.	Tadi	T	Ph-mega	Jan.-Mar.	Jan.-June	312
		PANDANACEAE						
85	*255*	*Pandanus odoratissimus* Willd.	Kevada	S-spiny	Ph-micro	July-Sept.	July-Sept.	313
		ARACEAE						
86	*256*	*Colocasia esculenta* (Linn.) Schott	Alavi	H-tub	C-geo	July-Sept.	July-Oct.	314
		CYPERACEAE						
87	*257*	*Cyperus rotundus* Linn.	Chiyo	H-rhi	C-geo	Aug.-Oct.	Aug.-Nov.	315
	258	*Fimbristylis bisumbellata* (Forsk.) Bub.	Saj (Bid)	H-e-tf	C-helo	Sept.-Feb.	Sept.-Feb.	316
		POACEAE						
88	*259*	*Apluda mutica* Linn.	Bhangoru	H-e-tf	H	Sept.-Dec.	Sept.-Dec.	317
	260	*Arundinella pumila* (Hochst.)Steud.	Bajariyu	H-e	Th	Aug.-Nov.	Aug.-Nov.	318
	261	*Bambusa arundinaceae* (Retz.) Roxb.	Wans	T	Ph-meso	Jan.-Mar.	Jan.-Mar.	319
	262	*Bothrichloa intermedia* (R.Br.) A. Camus.	Dhrafo	H-e	Th	Aug.-Feb.	Aug.-Feb.	320
		Bothrichloa pertusa (Linn.)A.Camus.	Jinjvo	H-e-tf	H	All months	All month	321
	263	*Cynodon dactylon* (Linn.) pers.	Dhrokhad	H-P-tf	H	All Months	All Months	322
	264	*Dendrocalamus strictus* (Roxb.) Nees.	Nakor vans	t	Ph-meso	Nov.-Dec.	Nov.-Dec.	323
	265	*Desmostachya bipinnata* (Linn.) Stapf.	Dabh	H-e-sto	H	All months	All months	324
	266	*Echinochola colonum* (Linn.) Link.	Samo	H-Se-p	H	Aug.-Jan.	Aug.-Jan.	325
	267	*Oryza sativa* Linn.	Chokha	H-e	C-helo	Oct.-Nov.	Oct.-Nov.	326
	268	*Panicum antidotale Retz.*	Dhusado	H-e	H	Aug.-Oct.	Aug.-Nov.	327
	269	*Pennisetum typhoides* (Burn.)Stapf &C.E.Hubb.	Bajaro	H-e	Th	Sept.-Dec.	Sept.-Dec.	328
	270	*Saccharrum bengalense* Retz.	Munj	H-e	H	Feb.-Mar.	Feb.-Mar.	329

		Saccharum officinarum Linn.	Serdi	H-e	H	Nov.-Dec.	Nov.-Dec.	330
	271	*Sorghum bicolor* (Linn.)Moench.	Jovar	H-e	Th	Oct.-Nov.	Oct.-Nov.	331
		Sorghum halepense (Linn.)Pers.	Baru	H-e	Th	Sept.-Nov.	Sept.Nov.	332
	272	*Triticum aestivum* Linn.	Ghav	H-e	Th	Feb.-Mar.	Feb.Mar.	333
	273	*Zea mays* Linn.	Makai	H-e	Th	Sept.Oct.	Sept.-Oct.	334

Abbreviations of appendix-I

HABIT

H = Herb
Se = Suberect
tf = tufted
fl = fleshy
r = radiculor rosette
T = Medium to Tall tree
S = Shrub
e = erect
cl = Climber
tw = twiner
Spin = Spiny
L = Liana
p = Prostrate
aq = aquatic
Succ = Succulent
pr = Pseudo rosette
Sto = Stolon
w = woody
US = Undershrub
rhi = Rhizomatus
tub = Tuberous
Cre = Creeping
t = Small tree
Sc = Scandent

LIFEFORM

Ph = Phanerophytes
mega
meso
micro
nano
epi = epiphyte
Ch = Chamaephyte
H = Hemicryptophyte
C = Cryptophyte
geo = geophyte
helo = helophyte
hydro = hydrophyte
Th = Therophyte

APPENDIX-II-INDEX TO FAMILIES

Sr.No.	Name of the family	Total Number of Genera an Spp.	Total Number of Spp. In the Genus
1	Acanthaceae	4/4	Adhatoda (1)
			Andrographis (1)
			Barleria (1)
			Peristrophe (1)
2	Agavaceae	1/1	Agave (1)
3	Alangiaceae	1/1	Alangium (1)
4	Amaranthaceae	5/7	Achyranthas (1)
			Aerva (1)
			Amaranthus (3)
			Celosia (1)
			Digera (1)
5	Ampelideae	3/3	Ampelocissus (1)
			Cayratia (1)
			Cissus (1)
6	Anacardiaceae	2/2	Lannea (1)
			Mangifera (1)
7	Annonaceae	2/2	Anona (1)
			Polyalthia (1)
8	Apiaceae	7/7	Anethum (1)
			Centella (1)
			Coriandrum (1)
			Cuminum (1)
			Daucus (1)
			Foeniculum (1)
			Trachyispermum (1)
9	Apocynaceae	8/8	Alstonia (1)
			Carissa (1)
			Catharanthus (1)
			Holarrhena (1)
			Nerium (1)

			Plumeria (1)
			Thevetia (1)
			Wrightia (1)
10	Arecaceae	4/4	Areca (1)
			Cocos (1)
			Hyphaene (1)
			Phoenix (1)
11	Aristolochiaceae	1/1	Aristolochia (1)
12	Asclepiadaceae	8/9	Calotropis (2)
			Ceropegia (1)
			Leptadenia (1)
			Pentatropis (1)
			Pergularia (1)
			Sarcostemma (1)
			Tylophora (1)
			Wattakaka (1)
13	Asteraceae	9/9	Ageratum (1)
			Centratherum (1)
			Echinops (1)
			Eclipta (1)
			Helianthus (1)
			Parthenium (1)
			Tridex (1)
			Vernonia (1)
			Xanthium (1)
14	Araceae	1/1	Colocasia (1)
15	Avicenniaceae	1/1	Avicennia (1)
16	Balanitaceae	1/1	Balanites (1)
17	Balsaminaceae	1/1	Impatiens(1)
18	Bignoniaceae	3/3	Milingtonia (1)
			Oroxylum(1)
			Tecomella (1)

19	Bombacaceae	3/3	Adansonia (1)
			Bombax (1)
			Cieba (1)
20	Boraginaceae	2/2	Heliotropium (1)
			Trichodesma (1)
21	Brassicaceae	3/3	Brassica (1)
			Lepidium (1)
			Raphanus (1)
22	Burseraceae	1/1	Commiphora (1)
23	Cactaceae	1/1	Opuntia (1)
24	Caesalpiniaceae	6/12	Bauhinia (1)
			Caesalpinia (2)
			Cassia (5)
			Delonix (2)
			Parkinsonia (1)
			Tamarindus (1)
25	Canabinaceae	1/1	Cannabis (1)
26	Cannaceae	1/1	Canna (1)
27	Cappariaceae	5/7	Cadaba (1)
			Capparis (2)
			Cleome (2)
			Crataeva (1)
			Maerua (1)
28	Caricaceae	1/1	Carica (1)
29	Casuarinaceae	1/1	Casuarina (1)
30	Celasteraceae	2/2	Celastrus (1)
			Maytenus (1)
31	Chenopodiaceae	2/3	Chenopodium (2)
			Spinacia (1)

32	Combretaceae	2/5	Anogeissus (1)
			Terminalia (4)
33	Commelinaceae	1/1	Commelina (1)
34	Convolvulaceae	7/11	Argyreia (1)
			Convolvulus (1)
			Cressa (1)
			Evolvulus (1)
			Ipomoea (5)
			Merremia (1)
			Rivea (1)
35	Crassulaceae	1/1	Kalanchoe (1)
36	Cucurbitaceae	10/15	Citrullus (1)
			Coccinia (1)
			Corallocarpus (1)
			Ctenolepis (1)
			Cucumis (3)
			Cucurbita (1)
			Lagenaria (1)
			Luffa (2)
			Momordica (3)
			Mukia (1)
37	Cyperaceae	2/2	Cyperus (1)
			Fimbristylis (1)
38	Dioscoreaceae	1/1	Dioscorea (1)
39	Ebenaceae	1/1	Diospyros (1)
40	Ehretiaceae	2/4	Cordia (3)
			Ehretia (1)
41	Euphorbiaceae	10/13	Breynia (1)
			Bridelia (1)
			Cicca (1)
			Emblica (1)
			Euphorbia (2)
			Jatropha (2)

			Phyllanthus (2)
			Ricinus (1)
			Securinega (1)
			Tragia (1)
42	Fabaceae	22/24	Abrus (1)
			Alhagi (1)
			Arachis (1)
			Butea (1)
			Cajanus (1)
			Cicer (1)
			Clitorea (1)
			Cyamopsis (1)
			Dalbergia (1)
			Derris (1)
			Erythrina (1)
			Indigofera (1)
			Lablab (1)
			Medicago (1)
			Mucuna (1)
			Phaseolus (2)
			Pterocarpus (1)
			Sesbania (2)
			Taverniera (1)
			Teramnus (1)
			Trigonella (1)
			Vigna (1)
43	Flacourtiaceae	1/1	Flacourtia (1)
44	Fumariaceae	1/1	Fumaria (1)
45	Gentianaceae	1/1	Enicostema (1)
46	Hydrocharitaceae	2/2	Hydrilla (1)
			Vallisneria (1)
47	Hypoxidaceae	1/1	Curculigo (1)
48	Lamiaceae	3/5	Leucas (1)
			Mentha (1)
			Ocimum (3)

49	Liliaceae	7/8	Allium (2)
			Aloe (1)
			Asphodelus (1)
			Asparagus (1)
			Chlorophytum (1)
			Gloriosa (1)
			Urginea (1)
50	Lythraceae	3/3	Ammannia (1)
			Lawsonia (1)
			Woodfordia (1)
51	Malvaceae	7/8	Abelmoschus (1)
			Gossypium (1)
			Hibiscus (2)
			Pavonia (1)
			Sida (1)
			Thespesia (1)
			Abutilon (1)
52	Martyniaceae	1/1	Martynia (1)
53	Meliaceae	3/3	Azadirachta (1)
			Melia (1)
			Soymida (1)
54	Menispermaceae	3/4	Cissampelos (1)
			Cocculus (2)
			Tinospora (1)
55	Mimosaceae	6/12	Acacia (5)
			Albizzia (1)
			Dichrostachys (1)
			Mimosa (2)
			Pithecellobium (1)
			Prosopis (2)
56	Moraceae	3/7	Artocarpus (1)
			Ficus (5)
			Morus (1)

57	Moringaceae	1/1	Moringa (1)
58	Musaceae	1/1	Musa (1)
59	Myrtaceae	3/3	Eucalyptus (1)
			Psidium (1)
			Syzygium (1)
60	Nyctaginaceae	2/2	Boerhavia (1)
			Mirabilis (1)
61	Nymphaeceae	2/2	Nelumbo (1)
			Nymphaea (1)
62	Oleaceae	2/2	Jasminum (1)
			Nyctanthes (1)
63	Oxalidaceae	1/1	Biophytum (1)
64	Pandanaceae	1/1	Pandanus (1)
65	Papavaraceae	1/1	Argemone (1)
66	Passifloraceae	1/1	Passiflora (1)
67	Pedaliaceae	2/2	Pedalium (1)
			Sesamum (1)
68	Periplocaceae	1/1	Hemidesmus (1)
69	Plumbaginaceae	1/1	Plumbago (1)
70	Poaceae	15/18	Apluda (1)
			Arundinella (1)
			Bambusa (1)
			Bothrichloa (2)
			Cynodon (1)
			Dendrocalamus (1)
			Desmostachya (1)
			Echinochola (1)
			Oryza (1)
			Penicum (1)

			Pennisetum (1)
			Saccharum (2)
			Sorghum (2)
			Triticum (1)
			Zea (1)
71	Portulacaceae	1/1	Portulaca (1)
72	Punicaceae	1/1	Punica (1)
73	Rhamnaceae	1/3	Zizyphus (3)
74	Rubiaceae	6/7	Adina (1)
			Gardenia (1)
			Mitragyna (1)
			Morinda (1)
			Oldenlandia (1)
			Xeromphis (2)
75	Rutaceae	4/5	Aegle (1)
			Citrus (2)
			Feronia (1)
			Murraya (1)
76	Salvadoraceae	1/2	Salvadora (2)
77	Sapindaceae	2/2	Cardiospermum (1)
			Sapindus (1)
78	Sapotaceae	3/4	Madhuca (1)
			Manilkara (2)
			Mimusops (1)
79	Scrophulariaceae	1/1	Bacopa (1)
80	Simaroubaceae	1/1	Ailanthus (1)
81	Solanaceae	8/11	Capsicum (1)
			Cestrum (1)
			Datura (2)
			Lycopersicon (1)
			Nicotiana (1)

			Physalis (1)
			Solanum (3)
			Withania (1)
82	Sterculiacea	3/3	Firmiana (1)
			Helicteres (1)
			Sterculia (1)
83	Tamaricaceae	1/1	Tamarix (1)
84	Tiliaceae	3/6	Corchorus (2)
			Grewia (3)
			Triumfetta (1)
85	Verbenaceae	6/6	Clerodendrum (1)
			Gmelina (1)
			Lantana (1)
			Premna (1)
			Tectona (1)
			Vitex (1)
86	Ulmaceae	1/1	Holoptelea (1)
87	Zingiberaceae	2/2	Curcuma (1)
			Zingiber (1)
88	Zygophyllaceae	2/2	Fagonia (1)
			Tribulus (1)

APPENDIX-III-INDEX TO USES

Abortifacient	*Acacia leucophloea*
Agriculture implement	*Acacia catechu, Acacia nilotica, Adina cordifolia, Anogeissus latifolia, Azadirachta indica, Balanities aegyptica, Bambusa arundinaceae, Bauhinia racemosa, Butea monosperma, Casuarina equisetifolia, Cordia dichotoma, Cordia gharaf, Dalbergia sissoo, Dendrocalamus strictus, Eucalyptus citriodora,Ficus amplissima, Ficus bengalensis, Gmelina arborea, Mangifera indica, Manilkara hexandra,Mimusops elengi, Mitragyna parvifolia, Pithecellobium dulce, Prosopis chilensis, Sapindus laurifolius, Syzygium cumini, Tamarindus indica, Tamarix ericoides, Tectona grandis, Terminalia crenulata, Ziziphus mauritiana*
Anaemia	*Triticum aestivum*
Antiseptic	*Tridex procumbance, Vernonia cinerea*
Appendix	*Lagenaria siceraria*
Appetiser	*Oroxylum indicum*
Ashthma	*Achyranthes aspera*
Bites	*Albizia lebbek, Azadirachta indica, Capsicum annuum, Cayratia trifolia, Cucumis callosus, Luffa acutangula,Mangifera indica, Martynia annua, Soymida febrifuga,Tamarindies indica*
Blood pressure	*Passiflora edulis*
Blood purifier	*Opuntie dillenii*
Blood sugar	*Catharanthus roseus,Momordica charnatia, Mukia maderaspatana*
Bone fraeture	*Ampelocissus latifolia*
Bronchitis	*Solanum serattense*
Bubo	*Ficus benghalensis*
Cold	*Andrographis paniculata, Eucalyptus citriodora, Ocimum sanctum*
Constipation (laxative)	*Cuminum cyminum,Nymphaea pubescens, Psidium guajava, Ricinus communis*
Coolant (Refrigerant)	*Lawsonia inermis,Nymphaea pubescens, Ocimum canum*
Corn	*Allium cepa*
Cough	*Adhatoda zeylanica, Balanties aegyptica, Calotropis procera, Cleome gynandra, Curcuma longa, Eucalyptus citridora, Ocimum sanctum, Pergularia daemia, Zingiber officinale*
Dental problems (Pyorrhoea toothache)	*Cassia occidentalis,Commiphora wightii, Desmostachya bipinnata,Lantana camara,Moringa oleifera, Parthenium hysterophorus,Sterculia urens*
Detergent	*Sapindus laurifolius*

Diarrhoea (Dysentery)	*Abutilon indicum, Bauhinia racemosa, Corchorus depressus, Feronia limonia, Mimosa hamata, Musa sapientum, Punica granatum, Tribulus terrestris, Vallisneria spirallis, Woodfordia fruticosa, Wrightia tinctoria*
Domestic Implements	*Bambusa arundinacea, Capparis deciduas, Cissampelos pareira, Cocos nucifera, Cordia dichotoma,cordia gharaf Dendrocalamus strictus, Desmostachya cinerea, Ficus bengalensis, Grewia damine, Indigofera oblongifolia, Lagenaria siceraria, Manilkara hexandra,Mimusops elengi, Pennisetum typhoides, Phoenic sylvestris, Saccharum bengalense, Taverniera cuneifolia, Trimfetta rhomboidea, Zizyphus mauritiana, Zizyphys xylophyra*
Dye	*Breynia retusa, Butea monosperma, Curcuma longa, Impatiens balsamina, Lawsonia inermis*
Dyspersia	*Cicer arietinum,cyperus rotundus*
Ear complaints	*Euphorbia tirucalli, Morinda tomentosa, Ocimum basilicum,Xanthium strumarium.*
Edible	*Abelmoschus esculentus,Acacia nilotica, Aegle marmelos, Agave Americana, Alangium salvifolium, Allium cepa, Allium Sativum, Aloe barbadensis, Amaranthus hybridus, Amaranthus lividus, Amaranthus viridis,Anethum gravelones, Anogeissus latifolia, Anona squamosa, Arachis hypogaea, Artocarpus heterophyllus, Asparagus racemosus, Azadirachta indica, , Bombax cieba, Breynia retusa,Butea monosperma, Caesalpinia bonduc, Cajanus cajan, Capparis deciduas, Capsicum annuum, Carica papaya, Carissa congesta, Cassia tora, Ceropegia bulbousa, Chenopodium album, Chenopodium murale, Chlorophytum tuberosum,Cicca acida, Cicer arietinum, Cleome viscosa,Cocculus hirstas, Colocasia esculenta, Cordia dichotoma, Cordia gharaf,Coriandrum sativum, Cucumis sativus, Cucurbita pepo, Cuminum cyminum, Curculigo orchioides,Curcuma longa, Cyamopsis tetragonoloba, Cynodon dactylon, Daucas carota, Delonix regia, Digera muricata, Dioscorea bulbifera, Diospyros melanoxylon, Echinochola colonum, Empblica officinalis, Feronia limonia, Ficus amplissima, Ficus bengalensis, Ficus carica, Ficus glomerata, Ficus religiosa,Flacourtia indica,Foeniculum vulgare, Fumaria indica, Gmelina arborea, Gossypium herbaceum, Grewia damine, Grewia tenax, Grewia villosa, Hibiscus cannabinus, Holoptelea intergrifolia, Hyphaene indica, Ipomoea aquatica, Ipomoea batatas,*

	Lablab purpureus, Lagenaria siceraria, Lantana camara, Lepidium sativum, Leptadenia reticulata, Lycopersicon lycopersicum, Madhuca indica, Mangifera indica, Manilkara hexandra, Manilkara zapota, Mentha longiolia, Mimusops elengi, Momordica balsamina, Momordica charantia, Momordica dioica, Moringa oleifera, Morus alba, Mukia maderaspatana, Murrauya koenigii, Musa sapientum, Nymphaea pubescens, Opuntia dillenii, Oryza sativa, Parkinsonia aculeate, Passiflora edulis,Pavonia ceratocarpa,Pennisetum typhoides, Pentatropis spirialis, Phaselous mungo,Phaselous radiatus, Phoenix sylvestris, Physalis minima, Pithecellobium dulce, Portulaca oleracea, Premna herbacea, Prosobis cinerania, Prosopis chilensis, Psidium guajava, Punica granatum, Raphanus sativus, Rivea hypocratri formis, Saccarum officinarum, Salvadora oleoides, Salvadora persica, Securine leucopyrus, Sesamum orientale, Sesbania grandiflora, Solanum melongena, Solanum nigrum, Soraghum bicolor, Spinacia oleracea, Syzygium cumini, Tamarindus indica, Terminalia catapa, Trigonelia foenum-graceum, Triticum Aestivum, Tylophora dalzellii,Vigna aconitifolia, Wattakaka volubilis, Xeromphis uliginosa, Zea mays,Zingider officinale, Zizyphus mauritiana, Zizyphus nummularia
Eye complaints	*Cajanus cajan, Cassia absus, Clerodendrum multiforum, Cocculus hirsutus,Commelina benghalensis, Lepidium sativum*
Febrifuge	*Adhatoda zeylanica, Ageratum conyzoides, Alstonia scholaris, Andrographis paniculata, Argemone maxicana, Cissampelos pareira, Convolvulus arvensis, Enicostemma hyssopifolium, Firmiana colorata, Fumaria indica, Helianthus annus, Holarrhena antidysenterica, Luffa echinata,Phyllanthus fraternus, Plumbago zeylanica, Ricinus communis, Tinospora cordifolis, Vornonia cinerea*
Fencing	*Acacia farnesiana ,Acacia leucophloea, Acacia nilotica, Acacia senegal, Adhatoda zeylanica, Agave americana, Alangium salvifolium, Aloe barbadensis, Balanities aegyptiaea, Bambusa arundinaceae, Breynia retusa, Cadaba fruticosa, Caesalpinia bonduc, Calotropis proceraCapparis deciduas, Capparis sepiaria, Casuarina equisetifolia, Clerodendrum multiflorum,Dendrocalamus strictus, Delonix elata, Dochrostachys cinerea, Euphorbia neriifolia, Euphorbia tirucalli, Ipomoea carnea,Gossypium herbaceum,*

	Jatropha curcas, Jatropha gossipifolia, Lantana camara, Lawsonia inermis, Maerua oblogifolia, Maytenus emarginata, Opuntia dillenii, Parkinsonia aculente, Phoenix sylvestris, Pithecellobium dulce, Prosopis cinerania, Prosopis chilensis, Ricinus communis, Saccharum bengalense, Sorghum halepense, Ziziphus nummuilaria,
Fertility	*Withania somnifera*
Fibre (Stuffing, Rope, String)	*Agave americana, Bombax cieba, Cieba pentandra,Cissampelos pareira, Desmostachya bipinnata, Gossypium harbaceum, Hibiscus cannabinus, Leptadenia reticulata, Rivea hypocrateriformis, Wattakaka volubilis*
Fodder	*Ageratum conyzoides, Alhagi pseudalhagi, Amaranthus lividus, Amaranthus viridis, Apluda mutica,Arachis hypogaea, Arundinella pumila, Avicennia offcinalis, Boerhavia diffusa, Bothrichloa intermedia, Bothrichloa pertusa,Cajanus cajan, Carica papaya, Cicer arietinum, Convolvulus arvensis, Cressa cretica, Cynodon dacylon, Daucus carota, Digera muricata, Echinochola colonum, Echinops echinatus,Ehretia laevis, Fimbristylis bisumbellata, Flacourtia indica, Grewia damine, Heliotropium supinum, Indigofera oblongifolia, Ipomoea batatas, Medicago sativa, Merremia gangetica, Oryza sativa, Panicum antidotale, Pennisetum typhoides, Phyllanthus maderaspatensis, Prosopis chilensis, Sorghum bicolar, Sorbhum halepense, Teramnus labialis, Vigna aconitifolia, Xeromphis uliginosaa, Zea mays, Zizyphus mauritiana, Zizyphus nummularia*
Fuel	*Acacia farnesiana, Acacia nilotica, Acacia senegal, Avicennia officinalis, Azadirachta indica, Balanities aegyptica, Butea monosperma, Cassia auriculata, Casuarina equiseti folia, Cordia dichotoma, Cordia gharaf, Derris indica, Ehretia laevis, Erythrina suberosa,Eucalyptus citriodora, Euphorbia neriifolia, Ficus amplissima, Ficus bengalensis, Gossypium herbaceum, Grewia tenax, Grewia villosa,Jatropha curcas, Manilkara hexandra, Melia azedarach, Parkinsonia aculeate, Pithecellobium dulce, Premna herbacea, Prosopis chilensis, Salvadora persica, Syzygium cumini, Tamarindus indica, Tamrix ericoides, Terminalia catapa, Zizyphus mauritiana, Zizyphus xylopyra*
Galactagogue	*Asparagus racemosus, Bothrichola pertusa, Cressa cretica, Pentatrolis spirialis, Trigonelia foenum-*

	graceum
Hair care (Dandruff)	*Abelmoschus esculents, Citrus limoun, Citrus medica, Cocculus hirsutus, Coriandrum sativum, Daucus carota, Eclipta alba, Heliotropium supinum, Hibiscus rosa-siensis, Ipomoea nil, Melia azedarach*
Hiccough	*Diospyros melanoxylon*
House Building (Cattleshed)	*Agave Americana, Bambusa arundinaceae, Casuarina equisetifolia, Cocos nucifera, Cyperus rotundus, Desmostachya bipinnata, Ecalyptus citriodora, Fimbristylis bisumbellata, Gossypium, herbaceum, Holoptelea intergrifolia, Ipomoea pes-caprae, Mangifera indica, Oryza sativa, Pennisetum typhoides, Phoenix sylvestris, Pterocorpus marsupium, Sorghum bicolor, Sorghum halepense, Tamrix ericoides, Tectona grundis, Terminalia crenulata*
Hydrocele	*Mirabilis jalapa*
Impotency	*Xeromphis spinosa*
Insecticidal	*Azadirachta indica*
Intoxication (Intoxicants)	*Acacia catechu, Areca catechu, Cannabis sativa, Datura innoxia, Nicotiana tabacum*
Joint Diseases (Knee pain, Rheumatism)	*Cissus quadrangulare, Corallocarpus epigaeus, Ctenolepis cerasiformis,Gloriosa superb, Merremia gangetica, Mitragyna parvifolia, Plumeria rubra, Salvadora persica, Sarcostemma acidum, Teramnus labialis,Trigonella foenum-graceum*
Kidney Problems (Calculi, Kidney stone)	*Crataeva tapia, Kalanchoe pinnata, Sesamum orientale, Syzygium cumini, Tribulus terrestris*
Liver complaints (Hepatic Complaints, Jaundice)	*Aerva lanata, Hemidesmus indicus,Maytenus emarginata Oldenlandia corymbosa, Thespesia populnea, Tinospera cordifolia*
Liquor	*Madhuca indica, Saccarum officinarum*
Magico-Religious beliefs and offerings	*Adansonia digitata, Aegle mormelos, Allium cepa, Allium sativum, Amaranthus hybridus, Areca catechu,Bambusa arundinaceae, Brassica juncea, Butea monosperma, Calotropis gigantea, Cannabis sativa, Capsicum annuum, Citrus limon, Clitoria ternatea, Coccinia grandis, Cocos nucifera, Corchorus capsularis, Cucurbita pepo, Curcuma longa, Cynodon dactylon, Datura innoxia, Dendrocalamus strictus, Desmostachya bipinata, Echinochola colonum, Eheretia laevis, Ficus religiosa, Gmelina arboria, Gossypium herbaceum, Helicteres isora, Jasminum sambac,Mangifera indica, Martynia annua, Musa sapientum, Nelumbo nucifera, Ocimum basilicum,*

	Ocimum sanctum, Oryza sativa, Pandanus odoratissimus, Pennisetum typhoides, Peristophe paniculata, Phaseolus mungo, Phaseolus radiatus, Plumeria rubra, Polyalthia longifolia,Prosopis cinerania, Saccharum officinarum, Tricodesma indicum, Xerombis spinosa
Memory Improvement	*Bacopa monnieri, Centella asiatica*
Menstrual complaints	*Aristolochia bracteolate, Celosia argentea,Curculigo orchioides*
Mental Disorders (Hysteria)	*Allium cepa*
Miscellaneous	*Agave americana, Arachis hypogaea, Balanities aegyptiaca, Bambusa arundinaceae, Caesalpinia bounduc, Calotropis procera, Citrus limon, Clerodendrum multiflorum, Coccinia grandis,Commelina benghalensis, Cordia dichotoma, Cyamopsis tetragonoloba, Dendrocalamus strictus, Diospyros melanoxylon, Echinochola colonum, Ficus bengalensis , Gossypium herbaceum, Medicago sativa, Mucuna pruriens, Nicotiana tabacum,Nymphae pubescens, Ocimum sanctum, Pavonia ceratocarpa, Pennisetum typhoides, Phaseolus radiatus, Phoenix sylvestris, Prosopis chilensis, Saccharum officinarum, Soraghum bicolor, Triumfetta rhomboidea, Urginea indica*
Mouth freshner	*Adansonia digitata, Anethum graveolens,Areca catechu, Cicca acida, Foeniculum vulgare, Mangifera indica*
Mumps	*Ceintratherum anthelminticum*
Musical instruments	*Allanthus excelsa, Breynia retusa, Cassia auriculata, Crataeva tapia, Erythrina suberosa, Ficus amplissima , Lagenaria siceraria,*
Nasal problems	*Allium cepa, Thevetia peruviana*
Ornamental	*Caesalpinia pulcherrima, Canna indica, Catharanthus roseus, Cestrum nocturnum, Cieba pentandra, Cordia sebestena, Delonix regia, Erythrina suberosa, Helianthus annus, Hibiscus rosa-sinensis, Millingtonia hortensis, Nyctanthes arbor-tristis, Pandanus odoratissimus, Plumeria rubra, Polyalthia longifalia, Thevetia peruviana*
Pain & Ache	*Brassica juncea, Cassia auriculata, Leucas cephalotes, Premna herbacea, Ricinus communis,Sterculia urens, Wattakaka volubilis*
Paronychia	*Citrullus colocynthis, Cucumis prophetarum*
Piles	*Mimusops elengi, Jatropha curcas*
Sexual diseases	*Ammannia baccifera*

Skin diseases	*Achyranthes aspera, Aloe barbadensis, Argyreia nervosa, Boerhavia diffusa, Bridelia retusa, Cardiospermum helicacabum, Cassia auriculata, Cassia tora, Celastrus paniculatus, Eclipta alba, Fagonia cretica, Ficus bengalensis, Momordica charantia, Nerium indicum, Portulaca oleracea, Rivea hypocrateriformis, Solanum surattense, Terminalia chebula, Vitex negundo*
Sprain	*Euphorbia neriifolia*
Stomach disorders	*Anethum graveolens, Cassia fistula, Centratherum anthelminticum, Cyperus rotundus, Helicteres isora, Sida cordifolia, Terminalia bellirica, Termiralia chebula, Terminalia crenulata, Trachyispermum copticum*
Swellings	*Lannea coromandelica, Mimosa pudica, Mimusops elengi, Solanum nigrum, Tragia cannabina*
Throat complaints	*Cassia occidentalis,Oroxylum indicum, Salvadora persica*
Tonic	*Evolvulus alsinoides, Feronia limonia*
Tooth brush	*Acacia niloica, Azadirachta indica, Commiphora wightii, Derris indica,Ficus bengalensis, Indigofera oblongifolia, Salvadora oleoides, Sterulia urens, Triumfetta rhomboidea*
Toys	*Ailanthus excelsa, Azadirachta indica, Bambusa arundinaceae, Cassia auriculata, Cucumis callous, Dendrocalamus strictus, Derris indica, Grewia damine, Mitragyna porvifolia, Sorghum bicolor*
Typhoid	*Ampelocissus latifolia*
Ulcer	*Abrus precatorius,Acacia nilotica, Asphodelus tenuifolius*
Urinary complaints	*Cleome viscosa, Morus alba, Pedalium murex, Prosopis cinernaria, Sida cordifolia, Tectona grandis*
Urticaria	*Commiphora wightii*
Vermifuge	*Caesalpinia bonduc, Gardenia turgida, Maytenus emarginata*
Veterinary	*Abrus precatorius, Allium sativum, Anona squamosa, Barleria Prionitis, Biophytum sensitivum,Bombax cieba, Bothrichloa pertusa, Cleome viscose, Cordia gharat, Dalbergia sisso, Datura stramonium , Flacourtia indica, Indigofera oblongifolia, Pennisetum typhoides, Trigonella foenum-graceum, Vigna aconitifolia*
Vomiting	*Areca catechu, Bauhinia rasemosa*
Weather indicator	*Azadirachta indica, Cassia fistula, Dioscorea bulbifera,Echinops echinatus, Euphorbia neriifolia, Ficus bengalensis*

Appendix-IV Questionnaire

QUESTIONNAIRE FOR MAHER INDIVIDUAL

ETHNOBOTANICAL SURVEY

Name: _____

Age: _____Male / female: _____

Ness: _____ Cast: _____

PLANTS AND THEIR USES

For the purpose of shelter		For the purpose of food	
Purpose	Name of the Plant used	Purpose	Name of the plant used
Walls		Food grains	
Roof		Pulses	
Doors and Windows		Vegetables	
Fencing		Unripe fruits	
Paniyaru		Ripe fruits	
Protection of wall		Flower	
Support		Spice	
Rope		Flavour	
Extra		For the purpose of preparing and serving food	
For the purpose of animal shelter		Name of utensil	Name of plant
Purpose	Name of the plant used	Spoon	
Shed		Plate	
Nails		Mortar	
Ropes		Pestle	
Fencing		Dish-bowl	

PLANTS AND THEIR USES

For colour and decoration purpose			For miscellaneous purpose		
Purpose	Name of the plant used	Part of plant use	Purpose	Name of the plant used	Part of plant used
Wall			Hand flour mill		
House			Wooden pestle		
Body			Winnowing basket		
Clothes			For writing		
Extra			Bed		
Plants used as a fiber			Hanger		
Plant	Part giving fiber	Use	Storage and preservation of food grains		
	Seed		Broom		
	Leaves		Protection of clothes		
	Stem		Cage for Bird		
	Root		To Clean Water		
Plants used for bathing and washing			Tanning Leather		
Plant Used	Part of plant used		Other household articles		
Bathing					
Washing clothes			For cleaning water pot		
Washing hair					

PLANTS AND THEIR USES

For miscellaneous purpose			For miscellaneous purpose		
Purpose	Name of the plant	Plant part used	Purpose	Name of the plant	Plant part used
For making smoking pipe			For fire		
Leaves to prepare bidi			For giving to animals		
Material for filling the bidi leaves			As a tooth brush		
Forecasting weather			Plant giving gum		
Preparation of Liquor			For filling cushion and pillow		
For measuring weight			Plants used as a medicine		
For making furniture			Disease	Plant	Part used
For the production of coal for fuel					
For covering mouth of animals					
For making toys			Name form Plant name		
Extra			People		
			Ness		
			Place		
			Plants in idiom and folksongs		

PLANTS AND THEIR USES

On special occasion			Property based plant	
Occasion	Purpose	Plant name	Property	Plant Name
Marriage			Poisonous	
Birth			Itching	
Death			Dye	
Festival			Insecticide	
Religious			Weedicide	
On belief based plants			Narcotics	
Belief	Name of plants		Plants used as fodder	
Sacred			Fresh fodder	Dry fodder
Omen				
III-Omen				

QUESTIONNAIRE FOR MEDICINEMEN

ETHNOBOTANICAL SURVEY

Name:

Age: Male/Female:

Ness: Caste

Numbers of years for which giving medicine:

How did you know about the medicine?

For which disease are you an expert?

Which disease occurs frequently in your village			
General diseases	Winter	Summer	Monsoon

DISEASE AND THEIR FUNDAMENTS

GENERAL DISEASES

Name of the disease	Name of the part of plant used	The part of the plant used as a medicine	Methods of preparation of medicine
Fever			
Body ache			
Headache			
Vomiting			
Bronchitis			
Cough			
Stomach ache			
Constipation			
Cold			
Extra			

DISEASE AND THEIR FUNDAMENTS

SKIN DISEASES

Name of the disease	Name of the part of plant used	The part of the plant used as a medicine	Methods of preparation of medicine
Eczema			
Boil (abscess)			
Leprosy			
Crack			
Ulcer			
Itching			
Swelling			
Pimples			
Extra			

EYE EAR NOSE DISEASES

Name of the disease	Name of the part of plant used	The part of the plant used as a medicine	Methods of preparation of medicine
Cataract			
Reddish eye			
Albug			
Conjunctivitis			
Sty on the eye lid			
Earache pus in ear			
Hearing problem			
Bleeding from nose			
Cold			
Swelling on neck			
Pain in neck			

DISEASE AND THEIR FUNDAMENTS

SPECIFIC DISEASES

Name of the disease	Name of the part of plant used	The part of the plant used as a medicine	Methods of preparation of medicine
Malaria			
Diabetes			
Osteoporosis			
Piles			
Sciatica			
Rheumatism			
Tuberculosis			
Jaundice			
Paralyses			
Anuria			
Blood in urine			
Tetanus			
Asthma			
Lice			
Weakness			
Insanity			
Stone			

CHILDREN DISEASES

Name of the disease	Name of the part of plant used	The part of the plant used as a medicine	Methods of preparation of medicine
Polio			
Colic complaints			
Enlargement of belly			
Mumps			
Worm			
Asceriasis			
Teeth			

DISEASE AND THEIR FUNDAMENTS

GYNAECOLOGICAL

Name of the disease	Name of the part of plant used	The part of the plant used as a medicine	Methods of preparation of medicine

SEXUAL

Name of the disease	Name of the part of plant used	The part of the plant used as a medicine	Methods of preparation of medicine

VETERINARY

Name of the disease	Name of the part of plant used	The part of the plant used as a medicine	Methods of preparation of medicine

OTHRS

Name of the disease	Name of the part of plant used	The part of the plant used as a medicine	Methods of preparation of medicine

Research Site

Distant view of Barda Hills

Spring at Bharwada

Cuminium Field

Researcher with local people

Checkdam

A Maher Women

A visit to Barda Hills

Plate-1

Ethnobotanically Important Plants

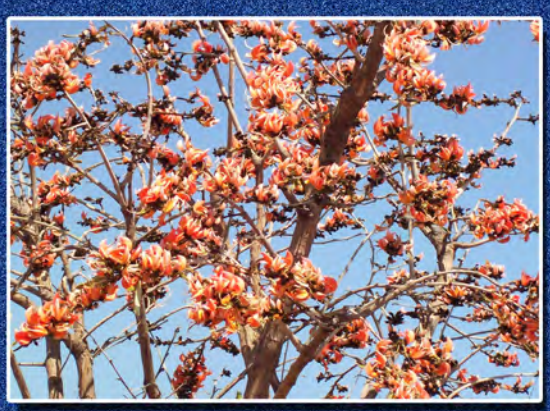
Abrus precatorius

Alangium salvifolium

Aloe vera

Andrographis paniculata

Asparagus racemosus



Butea monosperma

Cadaba fruticosa

Carissa congesta

Ethnobotanically Important Plants

Cassia auriculata

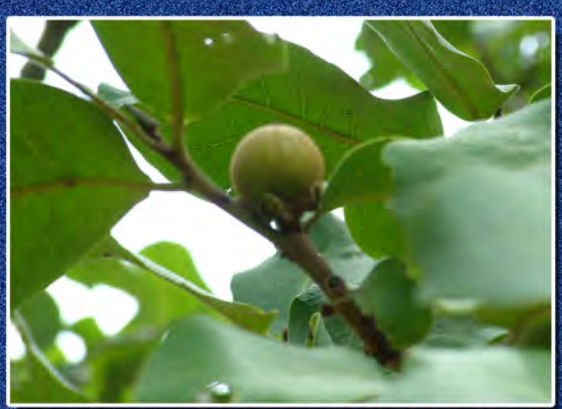
Cassia fistula

Cocculus hirsutus

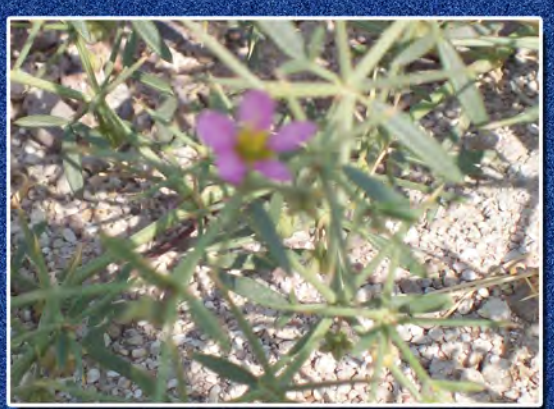
Commiphora wightii

Curculigo orchioides

Derris indica



Diospyros melanoxylon



Fagonia cretica

Ethnobotanically Important Plants

Gloriosa superba

Lablab purpureus

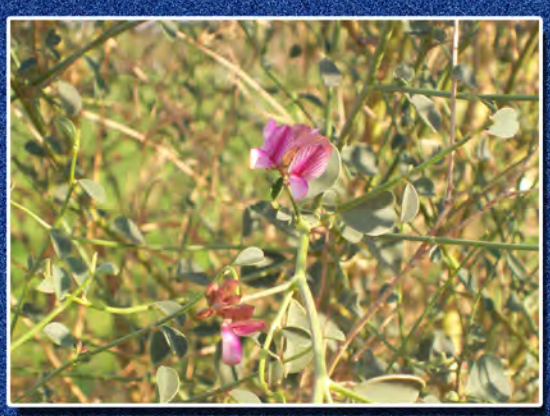
Morus alba

Nymphaea pubescens

Opuntia dillenii

Parkinsonia aculeata

Phoenix sylvestris



Taverniera cuneifolia

Sacred Places

Porai Mataji

Shiv Mandir

Sikoter Mandir

Gorakhnath

Gatral Mandir

Randal Mandir

Mama Dev

Lirbai Mataji

Life Style Of Maher

Warming in Winter

A girl carring drinking water

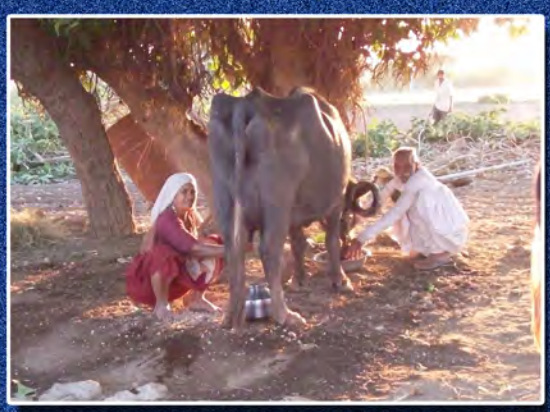
Lunch at farm

Collection of Fodder

Sweeping the House

To milk sheep

Storage of Fodder

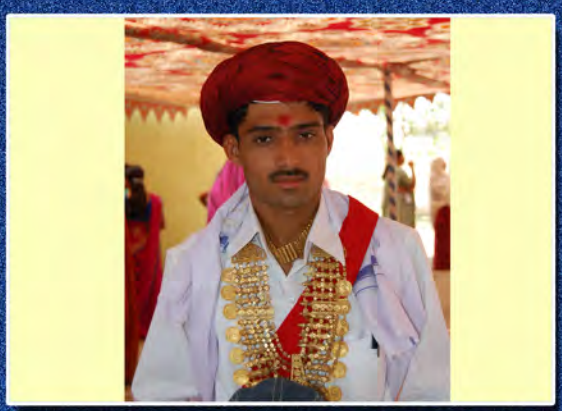


Milch Buffalo

Marriage Ceremony

Dhol pujan

Mandaparopan



Bride groom

Sweet distribution

Ganesh pujan

Procession

Traditional Maher Rass

Brahmin

Folk Uses

Temporary Hut

Sewing a jute bag by triumpheta stem

Feeding to Calf

Use of *Sali* to Prevent Leakage

Passing from prosopis root to cure bronchitis

Spine of *Agave* use to remove spine from legs

Collection and storage of fuel

Plate-8