

Plants used for topical application from Gingeer hills, Tamil Nadu, India.

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Abstract

This study is a documentation of medicinal plants used for topical applications by villagers around Gingeer hills of Villupuram District, Tamil Nadu, India. A total of 23 Dicot plants belong to 18 families are used as topical applications to treat various skin diseases such as sore, psoriasis, itching, scabies, eczema and other skin infections. Herbs (8 species) are the dominant life form category equal number of shrubs and trees (6 species) followed by 3 species of climbers. Generally fresh plant parts are used in the form of powder, extract and paste. Leaves are the mostly used part in the preparation of medicine. The present study concluded that the abundance of medicinally important plants is an excellent potential for discovery of novel drugs to cure various ailments.

Keywords: Community Knowledge, Ethnobotany, Gingeer hills, Topical application.

INTRODUCTION

People living in developing countries mostly depends on plant resources found in agricultural and forest areas for food, fodder, medicine and shelter [1]. Nearly 80% of the population globally depends on traditional medicine for primary health care [2]. A number of diseases are cured by plant based drugs [3, 4]. In India 6,000 higher plants are recorded as medicinal resource [5].

Plants used for topical application include skin diseases such as eczema, scabies, sores, boil, foot crack, corn and many other skin infections without distinct symptoms. In India, there is significant incidence of skin diseases due to tropical climate and poor personal hygiene. Traditional medicine uses several plant species for treatment of skin diseases caused by microbial pathogens. Many researchers across the country have documented the information on plants used for treating skin diseases by rural and tribal communities [6 – 10].

MATERIALS AND METHODS

Gingeer hills are group of hills located in south west direction from Gingeer town. There are lot of isolated hillocks are present and it is the offshoot of Eastern Ghats. The study area Pakkamalai Reserve forest a sacred hill is one of hill range of Gingeer hill complex located between Lat.12°10.123' and Long. 79°17.821' in Villupuram district of Tamil Nadu, India. There are about 16 villages present around the hill. During floristic survey we come across

knowledgeable persons aware of medicinal uses of plants. This documentation is based on single resource person Mr. Laxman who resides in foothill of Pakkamalai Reserve Forest. This resource person has rich repository of knowledge on the topography, flora of the hill as well as the uses of several plants occur in the hill. He also functions as a guide for medicinal plant collectors and the pilgrims. A standard questionnaire was used to collect data, which includes local name, plant parts used, mode of administration, whether single or many plants are used for a single diseases. The collected plant species were identified using The Flora of Presidency of Madras [11], The Flora of Tamil Nadu Carnatic [12] and Plant Resources of Tiruvanamalai District [13].

RESULTS

The present investigation comprises 23 species of plants distributed in 23 genera belong to 18 families that are used for topical application to cure skin diseases. A life form analysis of 23 plants used to treat skin diseases shows that the herbs (8 species) are the dominant category followed by shrubs and trees in equal numbers (6 species) and 3 species of climbers respectively. Medicinal plants used in the treatment of skin diseases are listed in Table 1. The plants are arranged in alphabetical order with their botanical name, family, local name, parts used, and mode of administration and chemical constituents.

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Table 1. Ethno medicinal plants used for topical application.

Sl. No.	Botanical Name Family	Local Name	Parts Used	Mode of administration	Chemical Constituents
1	<i>Acacia chundra</i> (Roxb.ex Rottl) Willd. Mimosaceae	Karungali	Leaves	Leaves ground with turmeric and applied for boils	Nicotine and colcotomine, saponin oxalic, tartaric, citric,sucinic and ascorbic acids[14]
2.	<i>Acalypha indica</i> Dalz. Euphorbiaceae	Kupaimeni	Leaves	Leaves crushed apply to cure eczema	Stigmasterol,acalylphol [15]
3.	<i>Albizia amara</i> (Roxb.) Boivin Mimosaceae	Vagai	Leaves	Leaves dried powdered and mixed with neem or castor oil apply on the head to cure boil	Prodelphinidins, Myricitrin, Hyperin, quercitrin, trans-p-coumaric, cis-p-coumari acid&trans-ferulic acid [14]
4	<i>Andrographis alata</i> (Vahl) Nees. Acanthaceae	Periyanangai	Leaves	Leaves immersed in castor oil overnight and apply for sores	Saponins,Flavanoids, Triterpenoids, gums, mucilages, Tanins and Phenolic compounds [16]
5.	<i>Aristolochia bracteolata</i> Lam. Aristolochiaceae	Aduthendapalai	Leaves	Leaves boiled in sesame oil cooled and apply for itching	N- acetylnornuciferine, aristololactan [15]
6.	<i>Cansjera rheedii</i> Gmel. Opiliaceae	Vandikodi	Leaves	Leaves are Crushed with turmeric and apply for sores	3,4- dihydroxy cinnamic acid, 4- hydroxyl 3- methoxy cinnamic acid [15]
7.	<i>Carmona retusa</i> (Vahl) Masamune Boraginaceae	Kurvechedi	Leaves	Leaves dried powdered and mix with water and made into paste to cure boil	Microphyllone [15]
8.	<i>Clausena dentata</i> (Willd.) M.Roem. Rutaceae	Koonjai	Leaves	Leaves made into paste and mix with turmeric apply for skin infection	Sabine, biofloractriene, borneol, β - bisabolol [17]
9.	<i>Commiphora caudata</i> (Wight & Arn.) Engler Burseraceae	Pachaikiluvai	Stem bark	Stem bark are made into paste and applied to cure cracks on foot	Carbohydrate, Phytosterols, Saponins, Proteins, Flavonoids, Terpenoids & Glycosides [18]
10.	<i>Croton bonplandianum</i> Baill. Euphorbiaceae	Railpodu	Leaves	Leaves crushed and apply to remove corn in foot	Phenols, resins, methanol, glycosides, steroids, tannin and resins [19]
11.	<i>Hemidsmus indicus</i> (L.) R. Br. Periplocaceae	Nannari	Leaves	Leaves made into paste and mix with neem oil to cure scabies	Drevogenin B-3-0- β -D-oleandropyranosyl, β -D-oleandropyranoside [15]
12	<i>Ichnocarpus frutescens</i> (L.) R.Br. Apocynaceae	Serukumjan Vagai	Leaves	Latex of the plant is apply in boil to reduce pain	Triterpenoids, Flavonoides,Simple phenolic acids, Sterpods and tannins [20]
13	<i>Ipomea staphylina</i> Roem. & Schultes Convolvulaceae	Oonankodi	Leaves	Leaf latex is used to cure foot crack	
14.	<i>Ocimum tenuiflorum</i> L. Lamiaceae	Thulasi	Leaves	Leaves crushed and apply for skin infection	Eugenol [15]
15	<i>Passiflora foetida</i> L. Passifloraceae	Mosuthazhai	Leaves	Leaves mix with water and made into paste apply for itching	Pachypodol, Eramin [15]
16	<i>Phyllanthus madraspatensis</i> L.	Keezhanelli vagai	Leaves	Leaves mix with	Linolenic acid [15]

	Euphorbiaceae			water and made into paste to cure scabies	
17	<i>Ricinus communis</i> L. Euphorbiaceae	Aamanaku	Seeds & Leaves	Seeds are powdered and mix with neem oil to cure psoriasis Leaves are made into paste and apply on boils	β -amyirin, Stigmasterol, β -sistosterol, ricinine, quercetin and rutin [15]
18	<i>Sphaeranthus indicus</i> L. Asteraceae	Kotaikaranthai	Leaves & Flower	Leaves and flower are mix with coconut oil apply to cure skin infections	A new eudesmenolide-7- α -hydroxy eudesm-4-En-6, 12-olide [15]
19	<i>Sterculia urens</i> Roxb. Sterculiaceae	Manjai Kongu maram	Leaves	Leaves is curshed and apply to cure foot crack	Glutamic acid, arginine, Aspartic acid. Isoleucine, Stearic acid, Linoleic, Palmitic acid, Eicosadienoic and Eicosatrienoic acid [21]
20	<i>Thespesia populenea</i> (L.) Soland. ex Correa Malvaceae	Poovarasu	Fruits	Fruits are crushed and apply to cure skin infections	Flavonoids, Alkaloids, Tanins & Anthraquinone glycosides [22]
21	<i>Ventilago madraspatana</i> Gaertn. Rhamnaceae	Chembarakodi	Leaves	Leaves made into paste for skin infection	Emodin & Physcion [23]
22	<i>Wrightia tinctoria</i> (Roxb.) R.Br. Apocynaceae	Vetpalai	Leaves	Leaves soaked in coconut oil overnight apply for psoriasis	Flavonoids, Glycoflavones- Iso-orientin phenolic acid [15]
23	<i>Ximenia americana</i> L. Olacaceae	Kanupalai	Leaves	Leaves are made into paste and apply for skin infection	Saponins, Cyanogenic glycosides, Flavonoids, Tannins. [15]

DISCUSSION

Leaves were most frequently used (21 plant species) followed by flower, fruit, whole plant and stem bark. Among the skin diseases 3 plants were used for foot crack, 1 corn, 6 boil, and 15 plant sources were used for treating skin diseases like sore, psoriasis, itching, scabies, eczema and other skin infections. External application is most sought after for curing skin diseases by the villagers rather than oral administration. In the study area out of 23 plant species *Acalypha indica*, *Aristolochia bracteolata*, *Ocimum tenuiflorum*, *Passiflora foetida*, *Ricinus communis* and *Thespesia populenea* are commonly used to treat skin diseases in India. *Hemidismus indicus* and *Ichnocarpus frutescens* root is used to treat skin diseases in Maharashtra, Madhya Pradesh, Andhra Pradesh, Assam and Uttar Pradesh [24] whereas in the study area leaves are used to treat skin diseases. *Commiphora caudata* is used for foot crack by Thottianaickans of Semmalai Hills, Tiruchirapalli district [25] in the study area also the same plant is used for foot crack. Whereas remaining 14 plant species are unique in treatment of skin diseases in the study area. Phytochemical constituents were referred from data available from literature, out of 23 plant species the chemical constituents for *Ipomea staphylina* yet to identify. Cultivation of these medicinal plants should be encouraged through which their extinction can be prevented. The community knowledge gathered from the resource person is useful for researchers in the field of pharmacology and ethnomedicine as these plants could be future potential chemicals for phyto-chemical analysis to extract novel and

potential drugs. Once the herbal drug's efficacy is scientifically established, these remedies can be popularized among rural mass through healthcare providers [26].

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