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Ethnomedicinal plants of Jodhpur District, Rajasthan used in herbal and folk remedies

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ABSTRACT

The Jodhpur district a part of Thar Desert is very rich in medicinal plant wealth. The medicinal plants of this region have great potential to be used in drug and pharmaceutical industries. These herbal plants have been used by local people, tribal communities, vendors, native doctors such as Ojhas, Bhagats Bhopas and experts of Ayurvedic fields since long time in herbal and folk remedies. Kalbelia, Nats, Bhils, Raika, Bhopas, Banjara, Gadolia-Lohar, Saharia and Meena communities of this district have a rich knowledge of plants based traditional medicines. Ten ethnomedicinal plants like *Cleome gynandra* Linn., *Clerodendrum phlomidis* Linn., *Cassia angustifolia* Vahl., *Echinops echinatus* Roxb., *Leucas aspera* (Willd.) Spreng., *Mimosa hamata* Willd., *Moringa oleifera* Lamk., *Pedaliium murex* Linn., *Peganum harmala* Linn., *Sida cordifolia* Linn. have been selected for this research work. The present investigation is aimed to create awareness about the ethnomedicinal value of the plants and their uses to draw the attention of pharmacologists, phytochemists and pharmaceuticals.

1. Introduction

Arid zone of Rajasthan is fortunately gifted with 628 species belonging to 352 genera and 87 families [1]. About one-fourth of the total plants of the Indian Thar desert are useful for the welfare of human beings and domestic animals for food, fuel, fodder, medicine and other requirements. The erratic rainfall and poor soil fertility have marked effect on the vegetation of the Indian desert. Despite the prevailing harsh climatic conditions, the Indian Thar desert comprises richest plant diversity among the other desert of the world [2]. The Ethno medicinal plants of Rajasthan have been studied for their medicinal uses in herbal and folk remedies by many workers [3-16]. The present chapter highlights the importance of ethno medicinal plants of Jodhpur district of Rajasthan. Jodhpur is located in the western part of the state Rajasthan forming a part of the Thar Desert. Kalbelia, Nats, Bhils, Raika, Bhopas, Banjara, Gadolia-Lohar, Saharia and Meena communities of this district have a rich knowledge of plants based traditional medicines used in herbal and folk remedies.

2. Materials and Methods

The ten selected ethno medicinal plant species growing in Jodhpur district and their voucher plant specimens have been collected and maintained in the herbarium, P.G. Department of Botany, Govt. Dungar College, Bikaner.

Information regarding the utility has been gathered from local people, tribal communities, vendors as well as experts of Ayurvedic field etc.

3. Observations and Discussion

Some important ten ethno medicinal plants are described here in brief with their botanical name, family, local name and ethno medicinal uses.

I. *Cleome gynandra* Linn.

Family - Cleomaceae

Local name - Safed bagro, Karalia, Hulhul

Ethnomedicinal Uses

- The decoction of seeds is given orally in cough, cold and fever.
- Bhils believe that leaf-juice when dropped in the ears, it is very effective to cure intermittent fever-locally called Tihalia or Otagia'.
- They also rub the leaves in rheumatic pains and headache.
- Garasia tribe eat fresh leaves to cure intestinal ulcer and take orally 5-10 gm seed powder with cold water daily after dinner for three days to cure painful piles and for removing intestinal worms.
- The tribals of Jodhpur eat the vegetable of leaves to cure night-blindness and apply the seed powder on the eyes to improve eye-sights.
- Leaf extract is poured in the ear to cure earache.
- The paste of fresh leaves is applied locally to cure skin diseases.
- Seed powder is used to improve eye sight.
- Patient suffering from scorpion bite is made to smell the pieces of hulhul root seven times.

II. *Clerodendrum phlomidis* Linn.

Family - Verbenaceae

Local name - Arni, Yerna, Anni

Ethnomedicinal Uses

- Bhils apply leaf-juice on the male sex organs to cure syphilis.
- The decoction of fresh roots is also given by them orally to cure gonorrhoea and to the children to cure measles.
- The Garasia tribals mix the twigs of this plant with the fodder of their cattle suffering from diarrhoea and worms.
- They also apply non-edible seed oil to their hairs as a hair tonic.
- The Saharia and Damor tribals take about 50 gm leaves and boil them in 250 ml water till it is reduced to one-fourth. Now the decoction is filtered and little sugar is added to it before taking orally thrice a day for two days to cure pain of joints.
- However, the Bhils of Jodhpur prepare a sweet called 'Laddoo' with seed powder, ghee and flour of *Sorghum bicolor* (Jowar) and give to the patients of rheumatism.
- They also apply leaf-juice on the pimples and wounds.
- Two tea spoon mixture of powder of dried roots and leaves is taken twice a day for 15-20 days to cure body swelling and bodyache.
- Paste of leaves is bandaged on swollen part of the body whereas in eczema and other diseases it is applied locally and

1/4th cup of juice of leaves is also taken orally.

- The fresh leaves are tied over the eyes in ophthalmia.
- The paste of root is applied locally in snake-bite as antidote whereas the decoction of roots is taken orally by the tribals as demulcent in gonorrhoea and obesity.
- Dried shoot powder of *Clerodendrum phlomidis* and leaf powder of *Azadirachta indica* are fried in purified butter and paste is prepared. This paste is applied locally by the tribals once a day for seven days to cure eczema.

III. *Cassia angustifolia* Vahl.

Family - Caesalpinaceae

Local name - Senna, Sonamukh

Ethnomedicinal Uses

- To treat diabetes, haemoglobin disorders and constipation, various preparations are made from these plants.
- It can be used as an anthelmintic for expelling intestinal worms.
- A paste of the dried leaves made with vinegar as a base can be used for acne, eczema and pimples.
- Leaves of the plant are also effective in biliousness, gout and rheumatism.
- The leaves of senna are effective purgative even for children, weak and elderly persons.
- It also purifies blood.
- It helps in restoring the proper metabolic balance that has been lost due to indigestion.
- It is effective drug against constipation, leprosy, leucoderma, jaundice and dyspepsia.
- It is also used to cure cold, cough and bronchitis.
- It can be used in the treatment of typhoid, anemia and tumors.

IV. *Echinops echinatus* Roxb.

Family – Asteraceae

Local name - Oont-kanti, Oont-katalo

Ethnomedicinal Uses

- The Garasia and Bhil tribals apply root powder mixed with gum of *Acacia senegal* (Kumatio) to destroy lice, ticks and to heal up the wounds of cattle.
- Decoction of roots is placed in the navel of women for easy and quick delivery by the Garasia tribe in Jodhpur district.
- Saharia tribals take orally the infusion of plant with Jaggery (Gur) to cure cough, hysteria, dyspepsia and seminal debility.
- Kathodi and Dhanka tribals, however, boil the pieces of roots in milk and drink the latter for sexual vigour.
- Bhils take orally the extract of roots to cure cough and cold.

- In Jodhpur district, the tribals apply the root paste on the body in fever.
- The Kathodi tribes give infusion of leaves and inflorescence in the morning for seven day to the barren ladies to induce fertility.
- They also put inflorescence on fire and inhale fumes through mouth to cure teeth infection.

V. *Leucas aspera* (Willd.) Spreng

Family - Lamiaceae

Local name - Goma

Ethnomedicinal Uses

- The plant is used traditionally as an antipyretic. Medicinally it has been proven to possess various pharmacological activities like antifungal, antioxidant, antimicrobial, antinociceptive and cytotoxic activity
- Warmed leaved are applied locally on painful swelling, whereas leaf paste is applied locally on various skin diseases like eczema, warts etc.
- The inflorescence is massaged by the tribals on forehead to cure headache and migraine.
- Poultice of warmed leaves is applied locally in abdominal pain and gastric complaints.
- Leaf paste is applied locally in leprosy while root paste is used in hemiparesis.
- The smoke of whole plant is inhaled by the tribals to cure chickenpox.
- Leaves are considered useful in chronic rheumatism, psoriasis and other chronic skin eruptions.
- Bruised leaves are applied locally in snake bites.

VI. *Mimosa hamata* Willd.

Family - Mimosaceae

Local name - Jinjani, Jinjania, Liptti, Bander-Ki-Rakhi

Ethnomedicinal Uses

- The Garasia and Bhils tribes take about 5 gm of seed powder with buffalo milk during night for seven days to cure sexual weakness in males.
- Saharia tribes apply fresh juice of leaves to check bleeding from the wound and ulcer.
- Kathodi tribals, however, take orally the leaf juice in diarrhoea and dysentery.
- The criminal tribes especially Kanjar, give the leaf juice with goat milk to the children to cure bronchitis.
- Mixture of flower powder of *Mimosa hamata* and powder of bunch of sterile flowers of *Mangifera indica* is given to women in leucorrhoea and menorrhagia.
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VII. *Moringa oleifera* Lamk.

Family - Moringaceae

Local name - Sanjna, Hargua, Sargua, Segu, Sahjan, Sainjna

Ethnomedicinal Uses

- The fresh roots and stem bark are crushed with little water and the paste is applied to the joints for relief in swellings, tumour and in rheumatic pain by Bhils.
- Bruised fresh leaves are mixed with lime and applied to the wounds caused by snake-bite and dog-bite by the nomadic tribe Kalbelia.
- In Jodhpur region however, the bark powder mixed with the bark powder of *Azadirachta indica* is given orally for 2-3 days and their paste is applied on the spot of bite.
- Garasias give the extract of fresh leaves with goat milk and sugar in acute dyspepsia and without milk in acute diarrhoea .
- The leaves of plants are used to treat scurvy and catarrhal affection, paste of the leaves is applied externally on wounds.
- Flowers are tonic, diuretic, and cholagogue.
- The seeds are antipyretic. The oil extracted from seed is used to treat gout and rheumatism.
- The roots of the young tree and root bark are vesicant and rubefacient.
- The folks from Jodhpur found that pods are made into vegetable and is useful in care of spleen disorders, diabetes and constipation.
- The Garasia tribe has found this plant quite beneficial in curing fever, stomachache in children and pain during menstruation. Mainly leaves, roots and bark of stem are used.
- In Siddha system of medicine, leaves are used to cure boils and abscess.

VIII. *Pedalium murex* Linn.

Family - Pedaliaceae

Local name - Bara Gokhru, Kanti, Pila gokhru, Vilayati gokhru.

Ethnomedicinal Uses

- The fruits of *Pedalium murex* are found to be very effective to cure spermatorrhoea.
- The tribals, particularly Kokna, Naikra and Bhils, collect the plant early morning and boil it with the milk; white viscous liquid so formed is taken orally with honey twice a day for about a month to cure impotence in males.
- The Garasia tribals take orally the mucilaginous sap of fresh leaves against gonorrhoea and dysuria.

- The decoction of fruits with the roots of *Abrus precatorius* (Chirmi) is taken orally by nomadic tribes to cure syphilis.
- It is also considered very effective in checking the free discharge of semen with urine.
- The tribals of Jodhpur district add the seeds of *Mucuna pruriens* (Kaunch) with its fruits and boil the both in milk. Now, they are dried and powdered and two teaspoonful powder is taken orally every morning as a tonic for health and vigour.
- The plant is also shows antidiabetic properties.
- Observation and recorded during the present field survey revealed the beneficial role of the plant (flowers and fruits) in curing body pain and swelling.
- Powder of seeds is mixed in 'ladoo's' (local sweet) and eaten to cure rheumatism and lumbago.
- Decoction of fruits is taken by the tribals to cure dysuria.
- Powder of whole plant of *Withania somnifera* is mixed with the powder of dry fruits of *Pedaliium murex* and taken orally by the tribals as health tonic.

IX. *Peganum harmala* Linn.

Family – Zygophyllaceae

Local name - Harmal, Gandhiyo, Syrian Race

Ethnomedicinal Uses

- Garasia tribes inhale the smoke of the dry plant for relief in toothache.
- The decoction of leaves is given orally to cure rheumatism and seed powder is given orally to the children with water as a vermifuge against tape worm.
- The Garasias and Bhils make a paste of root and seed powder in mustard oil and apply on hair to kill the lice.
- Meena tribes boils the seeds in *Sesamum* oil (Til) and drop the latter in the ears to cure earache.
- The decoction of entire plant is considered as a strong abortifacient by Bhils and Garasia tribals and they use it

4. Conclusion

The arid ecosystem of western Rajasthan exhibits a great variety of geology, physiography, and peculiar edaphic and climatic conditions. The region is a rich repository of genetic material of important arid medicinal plant wealth. These plants are not valued as herbal drugs but also utilized for food, fodder, gums & resins, essential oils, dyes, fatty oils, condiments, spices etc. These studies of ethnomedicinal aspects will be useful for further researches in the field of pharmacology, phytochemistry and pharmaceutical chemistry.

Conflict of interest statement

only when the *Plumbago zeylanica* (Chitrak) and *Rhynchosia minima* (Kalta) are not available to them, since latter are rather soft and safe for causing abortion.

- Seeds contain harmaline, yageine and harmine alkaloids, so the plant and dried seeds are used as drug.
- It has narcotic, emetic and anthelmintic properties. It is used in the treatment of jaundice, fever and painful menstruation, colic pains gallstones, asthma, hysteria and rheumatism.
- Higher doses are toxic and cause nervous depressions. The alkaloids act as hallucinogen. It stimulates motor tracts of cerebrum and central nervous system. Experiments have confirmed bactericidal action of the drug.

X. *Sida cordifolia* Linn.

Family – Malvaceae

Local name - Bal, Kungyi, Sahaderi, Bala

Ethnomedicinal Uses

- Bhil and Saharia tribes apply pounded leaves on cuts and take internally to cure diarrhoea of pregnant woman.
- Kathodias prepare a paste of flowers and unripe fruits and take orally with water against painful urination.
- Kathodias also take the roots orally with sugar to cure the effect of sun-stroke.
- The seeds make general tonic for improving sexual strength.
- Decoction of roots is administered in fever.
- The powder of root bark (with milk and sugar, or singly) is given in certain disease of woman, such as leucorrhoea and in nervous diseases.
- Root juice is used for promoting healing of wounds.
- The bark of the root, with sesamum oil and milk is efficacious in curing certain types of facial paralysis.
- Seeds of the plant are considered useful in gonorrhoea and colic pains.
- The parts of it's leaves is applied in ophthalmic diseases.

We declare that we have no conflict of interest.

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