



IMPORTANT ETHNOMEDICINAL PLANTS OF EASTERN RAJASTHAN, INDIA

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ABSTRACT

The tribal and traditional communities of Eastern Rajasthan have rich knowledge about ethnomedicinal plants of their surroundings. The tribal medicinal system is an elaborate one and also efficacious since tribal and traditional communities in seclusion have been surviving since ages without the aid of modern medicine. The traditional knowledge of plant species to cure an ailment is confined to primitive people and passes from one generation to another. Present paper deals with 30 plants species which are used as ethnomedicine by natives of eastern Rajasthan. Various parts of plants like root, stem, stem-bark, leaf, flower, seeds, pods, gum, latex etc. are used to treat different ailments. Their mode of administration includes fresh plant part, paste, decoction, extract and poultice etc.

Key words: Ethnobotany, Traditional communities; Ethno-medicines

INTRODUCTION

The history of medicine is linked with evolution of mankind. Since disease, decay and death have always co-existed with life, the study of disease and their treatment must also have been contemporaneous with the dawn of human intellectuality. The primitive man must have used those therapeutic agents and remedial measures.

Vedas are written documents of this knowledge up to the time of curative herbs. Among traditional medicines, Ayurveda has a major role designated as the science of life. Ayurveda is the Indian system of medicine whose foundation was laid down by Charak, Sushruta and others like Bag Bhatta, Chakradatta, Bhav Prakash, and Bag Sen etc.

The practice of medicine among tribal people and villagers follows the same pattern of two thousand years ago, there is hardly any change. Rajasthan has 70.97 lacs tribal population (fifth rank in India) forming 12.5% of state's total population which is concentrated mainly in ten districts viz. Baran, Banswara, Chittorgarh, Dausa, Dungarpur, Karauli, Pratapgarh, Rajsamand, Sawaimadhopur, and Udaipur.

In the eastern Rajasthan, main tribal community is Meena and traditional communities are Gurjar, Jogi, Kanjar, Sansi, Mali, Mongia etc. Above mentioned groups still live in remote areas and used local flora for their daily needs.

In Rajasthan a lot of work on medicinal plants has been carried out. Joshi (1995) gave an overview of the ethnomedicine of tribals of Rajasthan. Katewa and Jain (2006) reported total 384 medicinal plant species used by the tribals of Rajasthan. These works were mainly carried out in southern Rajasthan. Sen (1999) studied home remedies of different communities of Jaipur district whereas Shekhawat and Batra (2006) of Bundi district. Agrawal (2017) published work on ethnobotany of Siliserh, Alwar. Kumar (2009) collected data on ethnomedicinal plants of Jaisalmer district. Meena et al. (2003) documented ethnomedicinal plants of Karauli district. It is evident that very little work has been carried out on ethnomedicinal plants of eastern Rajasthan and therefore there is a great scope to study traditional medicines used by the natives of the area.

Study Area

Field surveys were made in Dholpur, Karauli and Sawai Madhopur districts located between 26°03' to 26°70' latitude and 76°35' to 77°89' longitude. Sapotara, Mandrail and Karauli tehsil of Karauli district (Fig. 1), Bari and Baseri tehsil of Dholpur district, and Sawai Madhopur tehsil of Sawai Madhopur were surveyed. 45 localities/ villages were covered during the course of study.



Fig. 1. Forest of Kudka Khoh (valley) in Karauli district

MATERIALS AND METHODS

Surveys were conducted in the interior villages inaccessible like in Dang region. The data were collected by interviews, observations and participations in their activities. Herbarium sheets were prepared of all the plant specimens collected from the study area and were identified using floras of Duthie (1903-1929), Cooke (1901-1908), Shetty and Singh (1987-1993) and Sharma and Tiagi (1979)}.

Tribal and traditional communities have their own medicines and cures which are effective enough in ordinary diseases. For diseases, they know several plants used as medicines from which they make concoction, which are often quite effective. The knowledge of medicines is handed from one generation to other. Women also have a lot of knowledge about traditional medicine. The species which are used by natives of eastern Rajasthan are mentioned below:

OBSERVATIONS

1. *Abelmoschus esculentus*

- The root powder is taken with sugar to increase sexual potentiality, cure impotency and check undesirable discharge of semen with urine.

- The decoction of immature fruits is taken orally with sugar against syphilis.

2. *Abelmoschus moschatus*

- Leaf paste applied against wasp sting. (Fig.2)
- The leaves cooked as vegetable with gram pulse are taken orally for one month to treat night blindness.



Fig. 2. Leaf paste of *Abelmoschus moschatus* applied against wasp sting

3. *Acacia catechu*

- The gum is eaten raw in arthritis, body heat and as tonic. It is also used to prepare sweet preparation (*laddooes*) eaten in joint pain, lumbago and general sickness in female. Gum powder is mixed with ghee and unrefined sugar is kept in an earthen pot for 7-8 days. This is taken three days before menses for conception.
- Bark is chewed to get relief in cough and stomatitis.
- *Kattha* extracted from its heart wood is smeared locally against scabies and other skin diseases.

4. *Acacia nilotica*

- The stem bark is either chewed with salt or boiled in water and taken orally or gargled to cure cough and mouth sores.
- The pod paste mixed with candy is consumed empty stomach in the morning by women in case of leucorrhoea.
- Seeds are grounded with sugar candy and eaten by women for conception.
- Seed powder is filled in the anus of infants against worm infestation.
- The bark is crushed with that of *Azadirachta*, mixed with lemon juice and applied as an ointment against ringworm.

5. *Acalypha indica*

- Leaf or root extract is given orally to diabetic patient.
- The root paste is made into tablets and one tablet is taken daily in empty stomach as a laxative to avoid constipation and colic.
- Root powder is taken with milk to cure bronchitis, pharyngitis and pneumonia.
- Poultice of green leaf paste is tied over lower part of abdomen for relief in spasmodic retention of urine.

6. *Achyranthes aspera*

- The root paste is smeared over forehead to cure headache.
- The root and stem are used as toothbrush to prevent dental caries, swollen gum and pyorrhoea as well as to strengthen teeth.
- Crushed root is kept between teeth against toothache.
- The root is burnt with tobacco leaves and fumes are inhaled by asthmatic patient.

- Root decoction cures cough, cold and typhoid. The root powder is taken orally by women against leucorrhoea. Root paste is applied locally over scabies. Root boiled in water is used to take bath to get rid from itching due to pods of *Mucuna*.
- The leaves are crushed with jaggery (3:1) to make 5-6 pills which are taken orally to treat thorn injury.
- Seed paste taken with milk cures dysentery. Seeds boiled with milk and sugar are eaten as tonic.

7. *Albizia lebbek*

- The decoction of leaves and flowers is used as gargle against weak and spongy gums and chronic pharyngitis.
- Stem bark boiled in water is gargled in pyorrhoea and toothache.
- Seed paste is applied in eyes to get rid from cataract.
- Seed paste wrapped around cotton wick is burnt and soot collected in an earthen pot is applied daily in eyes to cure cataract.

8. *Allium cepa*

- 2-3 drops of bulb/leaf juice are dropped in ear to relieve pain.
- Leaf juice is applied in toothache.
- Bulb juice is dropped in eyes to cure conjunctivitis. It is also smeared over forehead, soles and palms to cure heatstroke and applied against scorpion sting and insect bite.
- Roasted bulb is rubbed against scorpion sting or paste of bulb mixed with *Hukka's* (indigenous smoking device) water is tied locally.
- Poultice made using crushed bulb and turmeric powder is tied over sprain.
- Seed paste is applied in dental caries.
- Bulb paste mixed with powder of *Trachyspermum ammi* seeds and dried pods of *Moringa oleifera* is boiled in whey and eaten to cure low blood pressure.

9. *Annona squamosa*

- Seed paste is applied to uterus of pregnant lady for abortion.

10. *Asparagus racemosus*

- Root powder is taken with milk as lactagogue and to increase sexual potentiality.
- The root is eaten to cure stomachache.
- Boiled crushed roots and leaves are applied locally on boils.

- Paste of tuberous roots is taken with water or milk as growth tonic, to increase sexual potentiality and decrease chances of abortion, to improve digestion and stimulate appetite, to treat convulsions and chronic dyspepsia.
- Gruel prepared with rice using root pieces is taken by the patient of jaundice and gall bladder stone.
- 4-8mL of extract of fresh root with sugar is taken daily as a good health tonic.
- Flowers cooked as vegetable are eaten as a tonic.

11. *Balanites aegyptiaca*

- Consumption of roasted kernel/ fruit pulp or fruit powder cure cough.
- Consumption of roasted kernel powder with jaggery treat cough.
- Consumption of mesocarp and kernel cure stomach disorders.
- Roasted kernel rubbed on stone adding water is mixed with cow's ghee to prepare ointment for boils and pimples.
- Roasted kernel powder mixed in ghee is applied locally as ointment on boils.
- Ash of wood/kernel mixed in sesame oil is applied on wounds for complete healing.
- Fruit pulp paste mixed with fuller's earth is applied on scalp against hair falling.
- Seed or fruit paste is used against foot sores and boils. Seed oil is also applied to cure wounds.

12. *Barleria prionitis*

- Crushed 2-3 leaves cure cough, diarrhoea and thorn injury.
- Warmed up leaves tied locally relieve stomachache. The leaves boiled with *Cuscuta reflexa* are tied to relieve body ache.
- The tender twig when used as toothbrush cures swollen gums and toothache.
- Root paste mixed with goat milk treat rheumatic fever.
- Powder of root, stem or leaves mixed with cow milk is a remedy for dropsy and liver congestion.

13. *Boerhavia diffusa*

- Root paste mixed with water and sugar given orally to treat stomachache and vomiting.

- Root pounded with black pepper and candy is taken orally to cool body heat during summers.
- Crushed roots are boiled with cloves and thick paste is applied locally on boils and pimples.
- Extract of leaf, stem and roots is used to treat dropsy.

14. *Butea monosperma*

- Tender twig is used as toothbrush to relieve toothache.
- Boiled leaves or fresh leaves smeared with oil warmed and tied locally to get relief in joint pain and colic.
- Leaf ash mixed with oil is smeared on inflamed skin for early healing.
- Seeds pounded with lemon juice are applied locally to get rid from ringworm.
- Powdered seeds are taken orally as anthelmintic and laxative.
- Stem bark ash is said to be diuretic and laxative.
- Decoction of stem bark is used to gargle in stomatitis and pharyngitis and as lotion to cure ulcers.
- Stem bark ground finely is taken with cow milk to avoid infertility in woman and as tonic to treat impotency in man.
- Wheat grains soaked in exudates of stem are dried, powdered, prepared into sweet preparation locally known as *laddooes* are eaten to get rid from lumbago.
- Gum locally called "*Kamarkas ka gond*" is powdered or boiled and taken with milk in the morning to cure menorrhagia and body heat.
- Root extract mixed with ghee is roasted along with wheat flour to prepare *laddooes* are eaten in summers to prevent heatstroke.

15. *Calotropis procera*

- Warmed up tender twig or root is used as toothbrush to cure toothache, pyorrhea, souring and swollen gums and gingivitis.
- Latex is applied locally against ringworm, honeybee sting, toothache, boils, pimples, thorn injury and massaged over body to relieve rheumatic pain. It is also smeared locally on nails as a remedy for retention of urine during summers.
- Latex smeared on tobacco leaf is warmed and tied on thorn injury.

16. *Capparis sepiaria*

- 2-3 leaves crushed with black pepper and cloves are taken to treat colic.
- Root paste is applied as ointment on boils and pimples.
- Pounded root mixed with honey is applied as *kajal* in eyes to treat cataract.
- Root crushed into paste with juvenile leaves of *Capparis decidua* is applied on stytes.
- Root crushed with roots of *Datura innoxia* and *Nerium oleander* is applied against insect bite.
- Root powdered with that of *Chlorophytum tuberosum*, *Bombax ceiba* and fruits of *Pedaliium murex* is taken with water to calm body heat and as tonic.

17. *Cleome gynandra*

- Plant crushed into paste is squeezed and extract is applied in skin diseases.
- Fresh leaf extract given orally to cure diarrhea, dyspepsia, flatulence, colic and in intestinal worms.
- Decoction of bruised fresh leaves is mixed with sesame oil and dropped in ears in case of any ear complaint.

18. *Cocculus hirsutus*

- Leaf extract mixed in water to form a thick jelly which is applied locally in eyes to cure conjunctivitis.
- Fresh leaf extract mixed with water and candy is consumed in summers to calm body heat and as tonic.
- Leaf paste is applied locally on swellings for relieving pain.

19. *Dichrostachys cinerea*

- Leaf paste is applied locally against snake bite, monitor lizard bite and insect bite whereas leaf extract is dropped in ears to relieve pain (Fig.3).

Fig. 3. *Dichrostachys cinerea* (Painted thorn brush)**20. *Lannea coromandelica***

- Gum soaked in water is rubbed on stone and applied locally to cure sprain.
- Crushed stem bark (inner) is either squeezed over cuts to check bleeding and to prevent tetanus or rubbed on stone and applied for same purpose. Extract of bark is dropped in ears to cure ache.

Fig. 4. *Pedaliium murex***21. *Pedaliium murex***

- Leaves soaked in water for 12 hrs. are crushed with sugar candy and cardamom and given to women to cure leucorrhoea (Fig.4).
- The plant twig is dipped in water 7-10 times and this water is taken orally as refrigerant and to cure dysentery.
- Plant extract is either taken orally or its powder roasted in ghee is used to make *laddooes* and eaten as cooling agent during summers and to improve digestion.
- Crushed plant soaked in water is filtered in the next morning, mixed with sugar candy and powder of black pepper seeds and taken as refrigerant as well as to cure skin diseases.

22. *Ricinus communis*

- Leaves smeared with ghee (clarified butter) or oil are warmed and tied locally to cure headache, muscular pain, colic, nodule in breast, stiffed muscles, boils and pimples.
- Leaf juice boiled with ghee is soaked in a cotton plug and tied on cuts, wounds, boils and pimples to cure completely.
- Root decoction is used against rheumatism and lumbago.
- Root paste is smeared over penis to cure urine retention.
- Seeds crushed with *ajwain* seeds, jaggery and soap are warmed and applied locally with cotton plug on boils.

- Seed paste is applied locally to cure fractured bone.
- Seed oil mixed with milk is purgative and oxytotic.
- Seed oil mixed with ash of *neem* stem bark is applied locally on boils.
- Bark boiled in water with *Nyctanthes* bark is taken orally for seven days and foment to relieve rheumatic pain.

23. *Salvadora oleoides*

- Seed oil is applied in rheumatic pain.
- Decoction of unripe fruits cure enlarged spleen and rheumatic fever.
- The tender twig or root is used as toothbrush in dental caries.
- Leaves are used in dry cough while fruits are useful in asthma and digestive disorders.
- Stem bark powder mixed with curd cure spermatorrhoea.
- Stem bark soaked overnight in whey with bark of *Capparis decidua* in a brass pot having a copper coin. In the next morning bark crushed into paste is applied locally on eczema. After 2-3 days, decoction of leaves of *neem* is applied with cotton plug to completely cure eczema.
- Leaf juice is given twice a day to jaundice patient for complete cure.
- Leaf paste made adding *Cannabis sativa* leaves and peacock droppings is spread like *chapatti*, roasted from one side and applied on anus to cure piles.
- Seed oil massage of the body cure rheumatism.
- Crushed root bark is applied on foot sores.

24. *Sphaeranthus indicus*

- Flowers taken orally with betel cure menorrhagia in ladies.
- Root extract treat colic, flatulence, dyspepsia, bronchitis and laryngitis.

25. *Tamarix aphylla*

- Tender twig is used as toothbrush against swollen gums.
- Decoction of leaves is used to gargle.

26. *Tribulus terrestris*

- Seeds used in preparation of *laddoes* are eaten as refrigerant in summers. Plant extract taken orally treat urinary stone.

- Seeds powdered with turmeric, catechu, dried ginger, seeds of ammi and *Butea* gum are used in preparing in *laddoes* for mother after delivery as a tonic for good health.



Fig. 5. *Urginea indica*

27. *Urginea indica*

- The bulb cooked as vegetable cure joint pain.
- Leaves crushed with jaggery treat malaria (Fig.5).
- Bulb paste applied locally to relieve scorpion sting pain and body ache.
- Roasted bulb tied locally on tumors, boils and lymphodinitis.

28. *Wrightia tinctoria*

Boiled leaves tied to cure boils, sprain and muscular pain.

29. *Xanthium strumarium*

- Leaf powder mixed with mustard oil is applied against dog bite.
- Leaf powder is taken orally with water as a refrigerant.
- Leaf juice or paste is applied locally against scabies.
- Seed oil is also used against scabies and other skin diseases.
- Plant decoction cures spermatorrhoea and fever.

30. *Ziziphus mauritiana*

- Leaf paste is applied locally against insect bite and as styptic.

DISCUSSION

Tribal and traditional communities used 30 plant species ethnomedicinally to treat 81 diseases. Most common diseases are abdominal disorders, body pain, cough and cold, cut and wounds, diarrhea, fever, scorpion sting and toothache.

The various mode of administration are as follows:

1. Plant part made edible either by powdering, burning, roasting, soaking in water or frying and mixing with other ingredients or food.
2. Raw plants /parts /products.
3. Extract by crushing or pounding fresh plant or slicing it.
4. Juice /simple rubbing /smearing of plant part or paste.
5. Poultice.
6. Decoction / gargle.
7. Ash of plants.
8. As tooth brush /chewing.
9. Oils.
10. Cooking as vegetables, *laddooes*.
11. Inhaling the fumes.
12. Tying drug to body part.
13. Tablets /pills.

The different parts of plant e. g. stem, stem bark, leaf, flower, fruit, seeds, latex, gum, root, root bark, bulb, or whole plant are used to cure different ailments.

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