

Ethnomedicinal Study of Plants to Cure Skin Diseases in Mukundara Hills National Park, Kota, Rajasthan

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Received: 5.12.2022 | Revised: 29.01.2023 | Accepted: 9.02.2023

ABSTRACT

Ethnobotanical surveys were done in the Mukundara hills national park of Kota during the year 2021 to 2022. Local communities of the study area use native plants for the treatment of various types of diseases. During the surveys, it was found that local people of the study area are very alert to skin related problems and they have important knowledge of medicinal plants to cure skin diseases. They use local plants very often for the treatment of skin diseases. In this paper, 28 ethnomedicinal plants from 21 families are described for the treatment of skin diseases by local communities of the study area. This study aims to describe the uses of plants for treating skin diseases by traditional communities and draw scientific attention to the detailed study on medicinal plants of the study area. This study includes Information on plant parts, mode of administration, and drug preparation for treating skin diseases.

Keywords: Ethnomedicines, local communities, medicinal plants, skin diseases.

INTRODUCTION

Since ancient times, humankind has depended on plants for its livelihood, and this tradition is going on to date. The uses of plants for medicinal purposes are as old as our civilization (Maheshwari & Sharma, 2019). In India, ethnomedicinal knowledge is from Vedic period. Detailed Information of medicinal plants and their curative properties is described in Ayurveda, Rigveda, Charak

Samhita, and Sushruta Samhita, etc. (Joshi, 1982). The concept of plant-based medicinal system is a revival in the development of societies along with other traditional medicinal systems (Choudhary et al., 2009). The world health organization has estimated that approximately 80% of the world's population depends on medicinal plants for their primary health needs (WHO, 2011).

Cite this article: Soni, D., & Sharma, L. (2023). Ethnomedicinal Study of Plants to Cure Skin Diseases in Mukundara Hills National Park, Kota, Rajasthan, *Ind. J. Pure App. Biosci.* 11(1), 43-49. doi: <http://dx.doi.org/10.18782/2582-2845.8978>

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The science of Ayurveda has utilized many herbs and floras to make medicines for beautification, cure skin diseases and protection from external effects. The natural content in these medicines does not cause any side effects on the human body but enriches the body with nutrients and other natural minerals (Tiwari, 2015). Ethnomedicinal research has led to the discovery of many herbal medicines and helped a lot in modern drug development (Tiwari, 2015). Many hundreds of medicinal plant species worldwide are being used as traditional medicine for the treatment of skin diseases. These skin diseases are caused by bacteria, fungi, viruses, and pollution, including eczema, acne, ringworm, leprosy, leucoderma, and other diseases (Adhikari et al., 2021).

Schultes, the father of ethnobotany, worked on hallucinogens, medicinal and toxic plants (Schultes, 1954) in the foremost centre of ethnobotany, The Botanical Museum of Harvard University in Massachusetts (Schultes, 1954). In India, organized fieldwork, and other studies on ethnobotany were initiated in the BSI (Botanical Survey of India) by Janaki Ammal in 1955. She worked on food plants of certain tribal of South India (Janaki Ammal, 1955). S.K. Jain started intensive fieldwork among the tribes of Central India in 1960. The first book on Indian ethnobotany, "Glimpses of Indian Ethnobotany", was written by Jain in 1981. In this book, more than 1500 plants were recorded during field studies in remote villages and forests (Jain, 1981).

A review has attempted to analyze the ethnobotanical knowledge base for the treatment of various skin related problems and identified medicinal plants to cure dermatological disorders (Gupta, 2010). A detailed review has been done on ethnodermatology based upon the analysis of data obtained from 178 articles on medicinal plants, used for the treatment of skin diseases (Anand, 2022). An ethnomedicinal survey has been conducted in Bidar district, Karnataka and found that folk practitioners commonly use drug preparations of plant origin for the

treatment of skin diseases (Vidyasagar & Kumar, 2008). A report has been carried out on ethnomedicinal plants to cure skin diseases and healing of wounds by local communities of Gulmarg wildlife sanctuary in Jammu and Kashmir (Wani & Pant, 2019). A study has been done on traditional herbal cosmetics for skin care by ethnic people of southeast Rajasthan (Krishnendra, 2016). Some medicinal plants have been enumerated for the treatment of psoriasis disease in Rajasthan (Nagar & Sharma, 2021).

The present study has been carried out to document the curative properties of herbal medicines against various types of skin diseases. Many ethnobotanical studies have been done throughout Rajasthan, but most of the studies have been carried out to general assessment and documentation of medicinal plants. Till date, no such kind of study has been conducted on medicinal plants to cure skin diseases in MHNP, Kota. Therefore, the study has been conducted in MHTR, Kota, on the traditional knowledge practices used to cure skin-related problems.

MATERIAL AND METHODS

Study area

Rajasthan has 13.5% tribal population of the total population of this state. Mukundara hills national park is situated in the south-eastern region of Rajasthan. It was also known as Darrah sanctuary and declared a national park in 2004. This place is located at a distance of about 50 km from Kota. The total area of MHNP is 199.55 sq. Km. It is located between 24°38' to 25°7'N latitude and 75°26' to 76°12'E longitude. It is located on the eastern bank of the Chambal River and is drained by its tributaries. The area of Mukundara hills national park comprises seven villages in the buffer zone and nine villages in the core area. The study has been conducted in the villages of MHNP of Kota. This area has rich floral and faunal diversity, along with many traditional communities like Saharia, Damor, Naikda, Garasia, Meena, Bhil etc. According to the census 2011, Meena and Bhil constitute the highest population among other

communities in the study area. These forests represent a transitional type – moist deciduous on the wetter side and thorn forest on the drier side of the season. *Anogeissus latifolia*, *Anogeissus pendula*, *Cassia fistula*, *Holarrhena antidysenterica*, *Diospyros melanoxylon*, *Terminalia arjuna*, *Terminalia bellirica* etc. plant species frequently form

patchy distribution of dry deciduous forest. Whereas, *Acacia leucophloea*, *Prosopis cineraria*, *Capparis aphylla*, *Ziziphus nummularia*, *Flacourtia indica*, *Acacia nilotica* etc. Many species of algae, fungi, bryophytes and pteridophytes are available here.

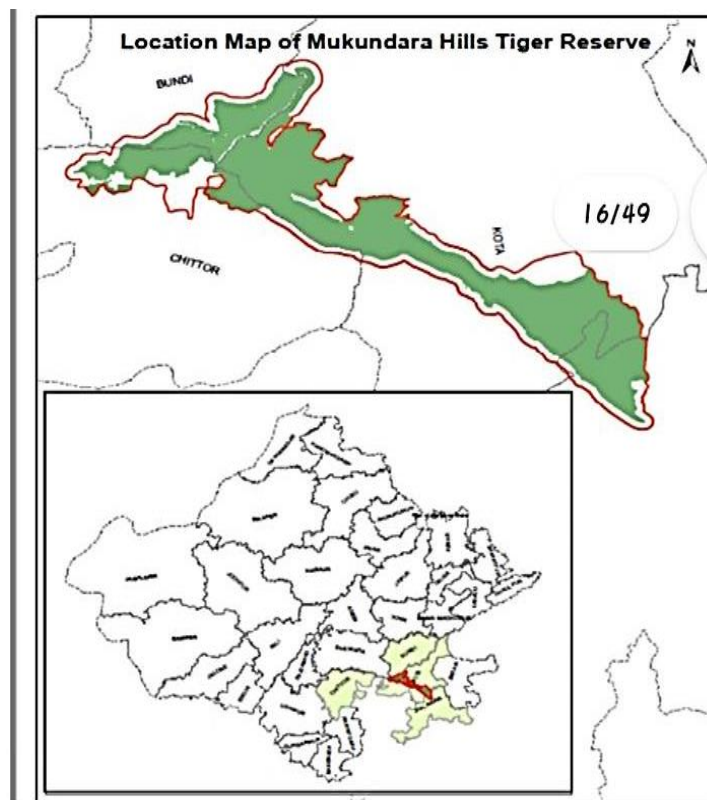


Fig. 1 Map of study area

The present study is based on an extensive survey, conducted in Mukundara hills national park, Kota, from the year 2021 to 2022. Most of the villages in MHNP of Kota were surveyed during the period of study. Before conducting interviews, prior information of local plants and study area were obtained from literature, forest office, and internet sources. The data regarding plants in treating various skin-related problems were collected from the local people through interviews, observation and participation. Handful information about the medicinal plants for the treatment of various type of skin diseases were collected from local vaidyas, women and experienced people of the area. Plants were identified with the help of flora of Rajasthan (Singh & Shetty,

1987-1993). These traditional people have their own medicines for skin diseases which are enough for their daily healthcare and skin care. Data obtained were analyzed using MS-excel 2010 and presented as charts, graphs and composition of data.

RESULT AND DISCUSSION

The study has revealed that 28 plant species belonging to 28 genera and 21 families are used in the treatment of skin diseases by the traditional people of the study area. Uses of medicinal plants with their botanical names, local names, families and modes of administration for the treatment of skin diseases are presented in table-1. The present investigation shows the ethnomedicinal uses of

plants for curing skin related problems by local people. Developing these traditional medicinal systems with the perspectives of

safety and quality will not only help preserve traditional knowledge but rationalize the uses of natural products in the health care system.

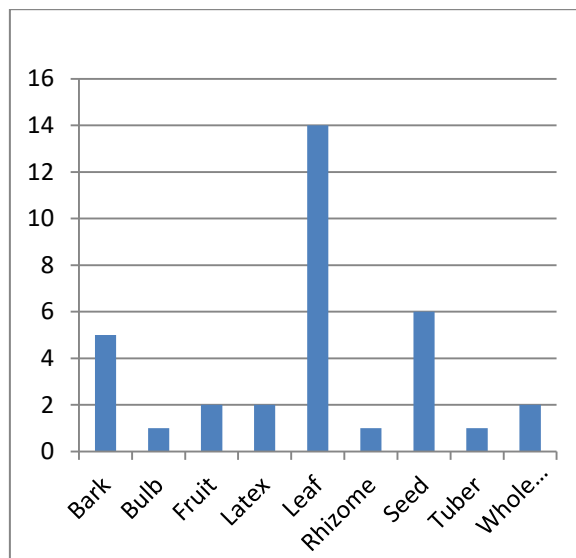


Fig. 1 Utilization pattern

Different plant parts are used to cure various types of skin diseases such as root, leaf, flower, seed, and sometimes whole plants (Fig-1). Mainly leaves are used in drug preparation. Local people of the study area

used these leaves as paste and applied on the infected part. These medicinal plant species are present in different life forms, i.e. trees, herbs, and shrubs (Fig-2).

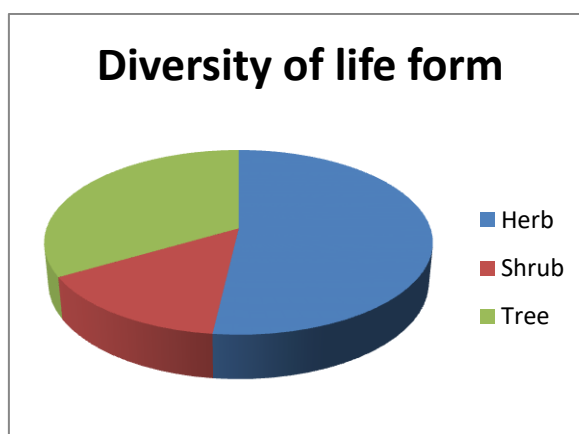


Fig. 2 Diversity of plant habit

Traditional people of the study area use mostly herbaceous forms of medicinal plants. These skin diseases include several conditions, such as eczema, acne, ringworm, leprosy, leucoderma, and other diseases. The result shows that among these diseases, most of the plants are used for the treatment of acne and pimples (Fig-3). Among all plants, 23 plant

species are native to the study area. The remaining plant species have been introduced for various purposes like food, agriculture, and ornamental or have been introduced unintentionally. Non-native plants are *Nyctanthes arbour-tristis*, *Tagetes erecta*, *Ricinus communis*, *Curcuma longa*, *Allium sativum*, and *Plumeria rubra*.

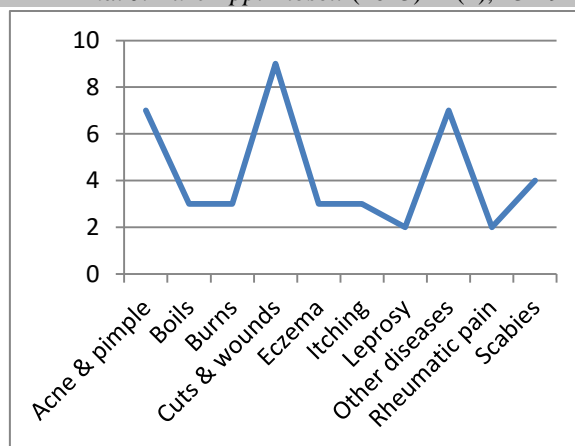


Fig. 3 No. of plant species used for curing skin diseases

Table 1: Plat species used to cure skin diseases in study area

No.	Botanical name	Local name	Family	Plant part used	Mode of administration
1	<i>Acacia catechu</i>	Kattha	Mimosaceae	Bark	Stem bark made into paste and applied to treat eruption of skin.
2	<i>Acalypha indica</i>	Kuppi	Euphorbiaceae	Leaves	Leaves made into paste with salt and applied externally on the wound to reduce inflammation and pain.
3	<i>Achyranthes aspera</i>	Andhijhara	Amaranthaceae	Leaves	Leaves paste applied externally on cuts and wounds.
4	<i>Allium sativum</i>	Lahsan	Liliaceae	Bulb	Oil applied externally to cure pimple and acne.
5	<i>Aloe vera</i>	Gwarpatha	Liliaceae	Leaves	Gel used with coconut oil to cure acne and skin allergy. Gel mixed with cardamom powder to treat burnt part to get relief.
6	<i>Argemone mexicana</i>	Pili kateli	Papaveraceae	Seeds	Seed oil applied against skin diseases.
7	<i>Azadirachta indica</i>	Neem	Meliaceae	Leaves and seeds	Leaves and seeds made into paste and applied locally against skin diseases, e.g. leprosy, scabies, boil, eczema and pimple. Leaves boiled in water and this water used to bath to get relief from smallpox.
8	<i>Butea monosperma</i>	Dhok	Fabaceae	Leaves and seeds	Leaves crushed and juice applied against pimple and acne. Seed oil paste applied externally to treat fungal infection.
9	<i>Calotropis procera</i>	Aakda	Asclepiadaceae	Bark and latex	Latex applied externally to reduce swelling of the wound. Bark mixed with mustard oil applied to cure itching.
10	<i>Catharanthus roseus</i>	Sadaphuli	Apocynaceae	Leaves	Leaves paste applied externally against eczema and acne. Crushed leaves applied on wound for healing.
11	<i>Citrus limon</i>	Nimbu	Rutaceae	Fruits	Fruit juice mixed with curd and gram flour applied to cure acne and pimple.
12	<i>Curcuma longa</i>	Haldi	Zingiberaceae	Rhizome	Rhizome powder applied externally to treat wounds, acne, and pimple and in Ubtan. Rhizome powder mixed into milk, boiled and taken orally for early healing of wound.
13	<i>Cuscuta reflexa</i>	Amarbel	Cuscutaceae	Whole plant	Crushed stem and leaves, making paste then applied on fresh wound to quick healing.
14	<i>Cynodon dactylon</i>	Doob	Poaceae	Whole plant	Plant juice applied locally to relief in burning sensation.
15	<i>Datura innoxia</i>	Dhatura	Solanaceae	Leaves	Leaves made into paste with the leaves of <i>Ficus racemosa</i> and applied on boils. Leaves boiled and tied to treat rheumatic pain and swelling.
16	<i>Euphorbia hirta</i>	Badidudhi	Euphorbiaceae	Leaves	Leaves boiled and made into paste then applied on ringworm and other skin diseases.
17	<i>Ficus racemosa</i>	Gular	Moraceae	Bark	Bark made into paste and applied externally on cut.
18	<i>Holoptelea integrifolia</i>	Bandar ki roti	Ulmaceae	Leaves and bark	Bark made into paste applied against skin infections. Leaves made into paste against eczema and scabies.
19	<i>Nerium indicum</i>	Lal kaner	Apocynaceae	Leaves	Leaves made into paste and warm then applied externally against scabies.
20	<i>Nyctanthes arbortristis</i>	Harsingar	Oleaceae	Seeds	Seed powder applied to treat scurvy. Seed paste mixed with coconut oil to treat itchy scalp.
21	<i>Ocimum tenuiflorum</i>	Tulsi	Lamiaceae	Leaves	Leaves mixed with <i>Azadirachta indica</i> oil and boiled and filter that oil applied locally against to treat mosquito bites and skin allergy.
22	<i>Phyllanthus emblica</i>	Amla	Euphorbiaceae	Fruits	Dried fruit powder mixed with coconut oil and <i>Aloe vera</i> gel, and then applied to treat psoriasis and itching.
23	<i>Plumeria rubra</i>	Champa	Apocynaceae	Latex	Latex applied locally to treat rheumatic pain and boils, and to remove germs and worms from wounds.

24	<i>Ricinus communis</i>	Arandi	Euphorbiaceae	Leaves and seeds	Leaves paste applied locally to treat swelling and skin disease. Seed oil used to massage to cure dandruff and dermatitis.
25	<i>Tagetes erecta</i>	Hazara	Asteraceae	Leaves	Leaves paste applied locally to treat sunburn.
26	<i>Terminelia bellirica</i>	Baheda	Combretaceae	Seeds	Oil applied locally against leucoderma and skin diseases.
27	<i>Gloriosa superba</i>	Kalihari	Colchicaceae	Rhizome	White flour prepared from tuber is mixed with honey and given orally in leprosy.
28	<i>Tridax procumbens</i>	Kali mehndi	Asteraceae	Leaves	Leaves juice sprayed externally on wound to check bleeding.

CONCLUSION

The present paper makes an attempt to give a scientific account about the uses of herbal medicines. The study indicates that the flora of the study area is rich in medicinal plants. Plants have been a source of safe and effective medicines for thousands of years. Due to their inexpensive nature, indigenous treatment is very common among people of the study area as well as in India to cure various types of skin diseases. This study reveals that indigenous knowledge about plants and ethnomedicinal values need to be integrated with biotechnological approaches and pharmacological activities. This will be certainly very profitable for evolving new sources of herbal drugs in different industries.

Acknowledgement:

The authors are grateful to Mr. Arindam Tomer, additional principal chief conservator of forest, Jaipur, Rajasthan, for permitting to visit Mukundara hills national park, Kota. The authors are immensely thankful for the support and cooperation received from the local communities of the study area during the field surveys.

Funding

The author(s) received no financial support for this article's research, authorship, and/or publication.

Conflict of Interest:

The author declares no conflict of interest.

Author Contribution

All authors contributed equally to establishing the topic of the research and design experiment.

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