



ISSN : 0973-7057

## Traditional use of medicinal plants among the tribal communities of Pali District, Rajasthan

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Received : 02<sup>nd</sup> January, 2024 ; Revised : 30<sup>th</sup> January, 2024

DOI:-<https://doi.org/10.5281/zenodo.14062646>

**Abstract-** It is now widely recognized that medicinal plants can play a crucial role in conventional medical procedures, shed light on unexplored areas of research and contribute to the conservation of biodiversity. However, in many interior regions of the state of Rajasthan, information on the use of plants for medicine is lacking. Against this background, the present study was started in the tribal-dominated hinterland of the Pali district. Pali District has a total area of 12,387 km<sup>2</sup>, of which 438 km<sup>2</sup> is urban and 11,949 km<sup>2</sup> is rural. The aim of the study was to examine the diversity of plant resources used by the local population to treat various diseases. Scientific validation of the medicinal formulations of the tribal formulation can also be effective in treating ailments in this tribe that has no contact with modern medicine or does not want to have one. A semi-structured questionnaire and guided field walk method were used to collect information from the healer. The effects of socio-economic changes and development activities on traditional knowledge are also examined.

**Key words:** Herbal Formulation, Ethnology, Medicinal plants, Tribes

### INTRODUCTION

Ethnobotany is the study of regional plants and their practical uses through the traditional knowledge of local people. A person who studies ethnobotany is known as an ethnobotanist. Ethnobotany, a relatively new science, is concerned with the various principles that govern such a relationship between man and the vegetation that grows on the earth. The term "ethnobotany" was coined by J.W. Hershberger in 1895. The book "Dictionary of Economic Products of India", written between 1889 and 1904 by George Watts, greatly facilitated the Indian medicinal plant. This text discussed earlier work (1813-1893) on medicinal plants, including plant habitat, use of appropriate plant parts, cultivation, economic importance, drug yield, and

clinical trial results when available. The roots of ethnobotanical science have also emerged from India, and the sources of this science lie in old Indian scripture (for example, Rig-Veda, Atharvaveda).<sup>1</sup> It has been seen that these ancient sources contain guidelines for information regarding ethnobotanical medicinal plants.<sup>2</sup> Utilization of medicinal plants has been documented long back in the ancient literature.<sup>3-5</sup> In the Charak Samhita, which appears to be the most important work, around one hundred forty-eight medicinal plants are included, and in the Charka Samhita, four hundred to five hundred medicinal plants are included.<sup>6-8</sup> The disease classification in the Charak Samhita includes more than two hundred diseases and one hundred fifty pathological conditions.<sup>6</sup> The book "Indian Medicinal Plants", written by Kirtikar and Basu in 1935, noted one thousand seven hundred seventy-five plants, and

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the "Glossary of Indian Medicinal Plants" by Kumar *et al.* in 1956, included more than three thousand five hundred medicinal plants.<sup>9</sup> The origin of all the sciences of India lies in the Vedas. The present study was carried out tribal area of Pali district of Rajasthan. Rajasthan is largest state of country, in which tribal area of Pali district was selected purposively for the study. The shape of Pali district resembles to an irregular triangle and has undulated plains with scattered hills. The survey to find out information about herbal medicines was carried out among local population and the tribal community of Bhil and Grasia.

## METHODS & MATERIALS

### Area of Study:

Pali, one of the 33 districts of Rajasthan, was a part of Jodhpur state before the formation of Rajasthan. Pali district takes its name from the town of Pali, which is also headquarter of the district administration. Pali district is located between 24° 45' to 26° 75' North latitude and 72° 0' 48' to 74° 20' East longitude. Eight districts of Rajasthan share the boundaries of Pali. They are Sirohi and Jalore in south west, Barmer in west, Rajasamand in south east, Nagaur in north, Jodhpur in North West and Ajmer in north east. The great Aravali Hills connect Pali district with Rajasamand, Ajmer, Sirohi and Udaipur districts. Pali city is located at 212 meters above the sea level. Pali district has climatic conditions that are some different than the other western Rajasthan. 34.2° is the recorded average maximum temperature and 20° is the minimum average temperature here. The average rainfall of Pali district is 447.4 mm.

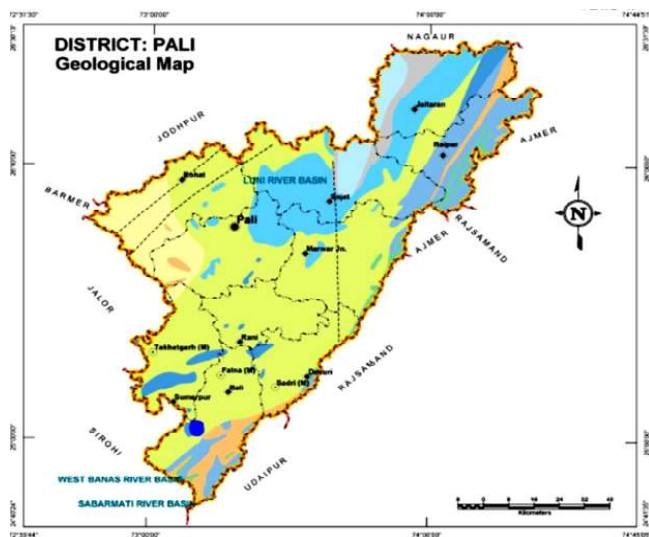


Figure 1. Pali map showing study area

About 22.79 percent of the total geographical area of Pali district is under irrigation and it comes 2824.02 km<sup>2</sup>. Wells, which constitute seventy-five percent of total irrigated area are the main source of irrigation in Pali district. There are also ponds, tanks and tube wells in the district. There are 92 dams in the district and some of these reservoirs created by these dams are used for irrigation purposes, flood control and drinking water. Jawai Dam, which is the largest dam in western Rajasthan is the main source of drinking water for the district in summer season.

### Collection of Data:

To collect all medicinal plant specimens from the study area, knowledgeable people were asked to determine their correct identification. Therefore, a survey was conducted to find out the medicinal properties of the collected medicinal plant specimens with the help of local vaidyas, herbalists, and local medicine men. The survey was conducted by using the convenience sampling method. The survey was initiated by conducting interviews and conferences/meetings with people from the Gaddi community during a field visit on the basis of a semi structured questionnaire. The questionnaire was prepared in such a way to collect relevant information on the current study. During the survey, before proceeding to the interviews and group discussions, the selected thirty respondents were enlightened about the intention behind this interview and their verbal consent was taken. In the study area, all the local people, including shepherds, tribes, plant collectors and farmers, were investigated according to their age and gender. During the survey, the respondents were divided according to their age groups into age group I (above 60 years), age group II (35-60) and age group III (15-35). The respondents were interviewed in their local language to make them understand the question easily and to make them comfortable sharing accurate information about the medicinal species. During the investigation, respondents (herbalists, Ayurveda practitioners, local members of the tribal community) were first asked to enlist medicinal plant species which they had used as medicine in the present or in the past, for preparing specific forms (e.g., decoction, plaster, spray and powders) to utilise them. Furthermore, they investigated the collection period and seasonal availability of medicinal plant species. After the completion of the field survey, the collected information through questionnaires and group discussions with respondents was analysed, then compared with the

collected literature and reconfirmed. The reported plants were classified on the basis of their overall utility in the study area. The list of medicinal plants included, habitat, botanical name, common name, local name, family, plant part used and their other medicinal uses mentioned in Table No.1.

The Frequency of Citation (FC%) was determined by dividing the number of informants who mentioned a specific plant species (n) by the total number of informants interviewed (N), and then multiplying by 100. The formula used is:  $FC\% = (n/N) \times 100$ , where 'n' represents the

number of informants citing a particular plant species, and 'N' represents the total number of informants who participated in the study.

## RESULTS & DISCUSSION

In the present study all plant species in the enumeration were cited by their family, local name, components used, and various uses for the treatment of illness and diseases (Table 1). A total of 43 plant species belonging to 38 genera of 30 families have been reported for various therapeutic uses.

**Table-1: Traditional medicine used by Tribes of Pali district of Rajasthan**

Botanical Name	Local name	Family	Habit	Plant part used	Used to cure	FC (%)
<i>Abutilon indicum</i> G. Don.	Kandhi	Malvaceae	Herb	Leaf	Piles	68
<i>Achyranthes aspera</i> Linn.	Chakauri	Amaranthaceae	Herb	Leaf	Rabies, Skin diseases	57
<i>Adhatoda vasica</i> Nees.	Aamssa	Acanthaceae	Shrub	Leaf	Cold and cough	76
<i>Ailanthus excels</i> Roxb.	Ardusa	Simarubaceae	Tree	Leaf	Paralyze	48
<i>Amaranthus spinosus</i> Linn.	Jangli chollai	Amaranthaceae	Herb	Leaf & Root	Stomach ulcer	63
<i>Argemone mexicana</i> Linn.	Sattayanasi / Kateli	Papaveraceae	Herb	Latex	Boils	52
<i>Asparagus racemosus</i> Willd.	Sattawari	Liliaceae	Shrub	Leaf & Root	Weakened immunity	86
<i>Bauhinia retusa</i> Ham.	Ambhajori	Fabaceae	Shrub	Leaves and fibres	Fever	56
<i>Bauhinia tomentosa</i> Linn.	Kachnar	Caesalpiniaceae	Shrub	Leaves	Digestive disorder	58
<i>Boerhaavia diffusa</i> Linn.	Gaddakand	Nyctaginaceae	Herb	Whole plant	Digestive disorder	65
<i>Caesalpinia sepiaria</i> Roxb.	Railan	Caesalpiniaceae	Shrub	Leaf	Stomach disorder	52
<i>Capparis deciduas</i> L.	Kher (Tint)	Capparaceae	Shrub	Pod	Fever	59
<i>Capparis sepiarira</i> Linn.	Kanthari	Violaceae	Herb	Fruit and Root	Swellings	42
<i>Citrullus colocynthis</i>	Tumba	Cucurbitaceae	Creepers	Fruit	Abdomen pain	82
<i>Cocculus hirsutus</i> Diels.	Patalgiri	Menispermaceae	Climber	Leaf	Leucorrhoea	47
<i>Cuculigo orchitoides</i> Gaetm.	Kalimoosali	Hypoxidaceae	Tree	Whole plant	Genital disorder	68
<i>Datura metel</i> Linn.	Dhatara	Solanaceae	Herb	Leaf	Swelling in joints	72
<i>Euphorbia heterophylla</i> Linn.	Baddi dudhi	Euphorbiaceae	Herb	Leaf	Stomach problems & dysentery	59
<i>Euphorbia hirta</i> Linn.	Baddi Dudhi	Euphorbiaceae	Herb	Leaf & fruit	Leucorrhoea	65
<i>Grewia tiliaefolia</i> Vahl.	Dhamani	Tiliaceae	Tree	Bark	Mental illness.	47
<i>Hemidesmus indicus</i> R.Br.	Dhudhali	Asclepiadaceae	Climber	Leaf	Stomach disorder	53
<i>Jasminum angustifolium</i> Vahl.	Vanmallikka	Oleaceae	Shrub	Leaf	Diahhroea	62
<i>Jatropha curcas</i> Linn.	Jamalgota	Euphorbiaceae	Shrub	Bark & latex	Stomach related problems during pregnancy	59
<i>Lantana camera</i> Linn.	Ganeri/Lalten	Verbinaceae	Shrub	Leaf	Wound healing	47
<i>Lantana whitiana</i> Wall.	Laltain	Verbinaceae	Shrub	Leaf	Skin disease	32
<i>Laptadenia pyrotechnic</i>	Kheenp	Asclepiadaceae	Shrub	Tender twin	Paste	68
<i>Launaea pinnatifida</i> Cass.	Pathari	Goodeniaceae	Herb	Leaf	Fever	53
<i>Lawsonia inermis</i> Linn.	Mehandi	Lytharaceae	Shrub	Leaf	Mouth ulcer	68
<i>Leucas aspera</i> Spreng.	Goma/ Madhupathi	Lamiaceae	Herb	Leaf	Snake bite, One side headache	47
<i>Mukia maderaspatans</i> Linn.	Agumakki	Cucurbitaceae	Climber	Leaf	Asthma	59
<i>Ocimum basilicum</i> Linn.	Ramtulasi	Lamiaceae	Herb	Leaf	Asthma and other breathing problems	65
<i>Phyllanthus amarus</i> Linn.	Amalli	Euphorbiaceae	Herb	Root & Fruit	Liver problems	57
<i>Plumbago zeylanica</i> Linn.	Chitrak	Plumbaginaceae	Herb	Root	Piles	63
<i>Prosopis cineraria</i>	Sangri (khejari)	Mimosaceae	Tree	Whole plant	Wound/diabetes	82

<i>Sesbania aegyptiaca</i> Pers.	Jayanto	Fabaceae	Shrub	Tender twig & seed	Problems in hair growth and body heat	47
<i>Sida acuta</i> Burm.	Bairaya	Malvaceae	Herb	Leaf	Boils	68
<i>Solanum indicum</i> Linn.	Kanidu	Solanaceae	Herb	Fruit	Expelling worms	72
<i>Solanum nigrum</i> Linn.	makoia	Solanaceae	Herb	Leaf & Fruit	Mouth ulcer	63
<i>Syzygium cumini</i> Linn.	Jamun	Myrtaceae	Tree	Seed	Diabetes	59
<i>Terminalia bellarica</i> Roxb.	Baheda	Combretaceae	Tree	Bark & Root	Skin diseases	47
<i>Trianthema decandra</i> Linn.	Gadabani	Aizoaceae	Herb	Root	Elephantiasis	47
<i>Tridax procumbens</i> Linn.	Khalmooriya	Asteraceae	Herb	Leaf	Wound healings	68
<i>Ziziphus mauritiana</i> Linn.	Jharberi	Rhamnaceae	Tree	Leaf	Paralyze	72

**FC= Frequency Citation**

Ethno-medicinal uses of ethnic plants used by the tribes in the district have been reported, also described uses of medicinal plants in tribes of Pali district. Among the reported species, 39 species were collected from wild whereas 4 species were cultivated by the local tribes and 2 species were collected from wild as well as cultivated. In our current study Solanaceae was the dominant family with three species, Malvaceae was second most dominant followed by Favaceae, Caesalpiniaceae, Lamiaceae, and

Euphobiaceae with two species each and rest of the families with one species each. The current study supports the idea that local people use dominant plant families and species for disease treatment. Amongst mentioned species, Herb form dominated the list with 44.18%, shrub were the second most dominant form with 30.2% followed by trees 16.2%. Three climbers *Mukia maderaspatans* Linn., *Hemidesmus indicus* R.Br. and *Cocculus hirsutus* Diels. were reported.

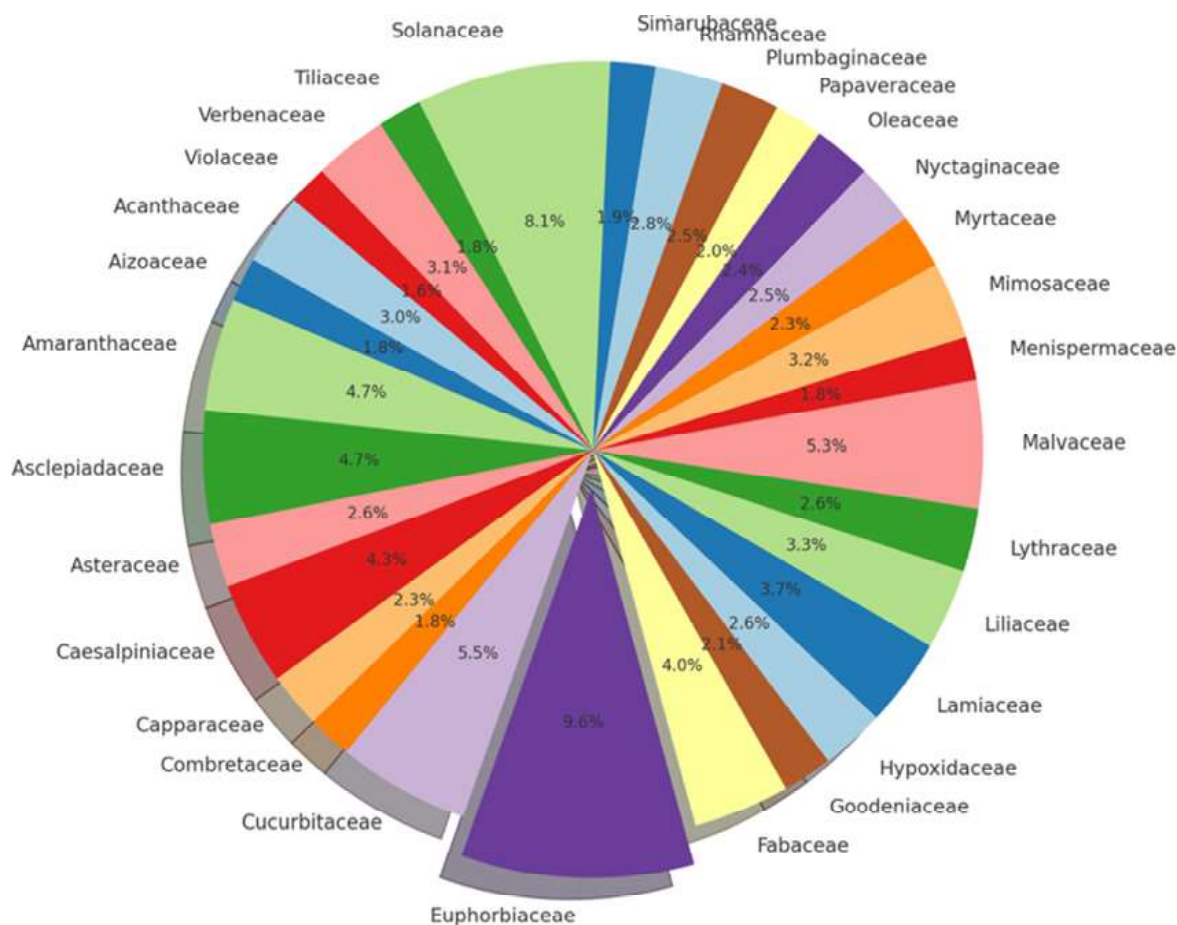


Figure 2- Distribution of medicinal plant families used by tribal communities in Pali District

## CONCLUSION

In the present work, 43 medicinal species of 38 genera and 30 families were documented from the tribal community of the Pali district of Rajasthan. Leaf was the most used plant part by the indigenous communities. Digestive disorders were found to be the most frequently encountered problems treated by medicinal plants. This was followed by pain, cut wound and lungs related problems. *Asparagus racemosus*, followed by *Citrullus colocynthis* and *Prosopis cineraria* have shown relatively higher Use Value signifying their high usage by the indigenous communities. Many plants reported in our study are also included in the endangered, frequent, planted, rare and sparse categories; and some are also listed in the conservation list of the Government of India. Many human diseases and ailments treated from these documented species can lead us to understand importance of this area in biodiversity conservation.

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