



## An ethnobotanical study of veterinary plants used in traditional medicine in dang region of Rajasthan (India)

Dr. Manoj Kumar Meena

Assistant Professor, Department of Botany, M.S.J. Govt. P.G. College, Bharatpur, Rajasthan, India

### Abstract

An ethnobotanical study was performed from June 2023 to Dec 2024 to investigate the diversity of veterinary medicinal plants growing in dang region of Rajasthan, India. Present study provides useful information about vegetation and its therapeutic uses of different animals residing in different villages of dang region. This study is based on data obtained from survey, field trip and discussion with traditional medicinal practitioner. The present paper deals with the study of ethnomedicinal veterinary plants in Dang region of Rajasthan. Ethnomedicinal and ethnoveterinary research in dang area of Rajasthan represents a study aimed at unraveling the rich traditional knowledge of plant usage among the indigenous community of dang region. These plants are used to curative various animal ailments and also play an important role in healing. This research endeavors to document and analyze the indigenous knowledge systems, practices and beliefs associated with plants in dang region of Rajasthan.

**Keywords:** Ethnomedicinal, Medicinal properties, Phytochemical compounds, Traditional knowledge, Dang region.

### Introduction

The study of correlation between plants and people in surrounding them is called Ethno-botany. The dang region of Rajasthan is very rich in plant biodiversity. Due to occurrence of numbers of medicinal plants and herbs in dang region, it is also known as herbal region of Rajasthan. In various parts of this region ethnobotanical survey conducted to diagnose vegetation diversity and uses of plant. The ancient medicine system treating animal diseases by using plants popularly known as ayurved appeared and develop between 2500 and 500 BC in India, (suphose *et al.*, 2005). According to World Health Organization (WHO), about 80% of the world population still uses herbs and other traditional medicines for their primary health care needs. Ethnobotanical studies are very popular and accepted world wide. It does provide input to researcher to diagnose unknown medicinal property. In India villagers and tribes believes in their indigenous uses of plants. Several plants are utilized to cure numbers of diseases. In Ayurved which is ancient medicine book of india based upon the uses of medicinal plants. There are several technique described regarding use of plants. These techniques are Ras (plant or plant part juice), Choorna (powder of plant part), Quath (decotion of plant or plants part), Awaleh (Plant and its part boiled in milk and clarified kept in a pot for fermentation). Most of the tribes more or less use this technique to cure diseases. Above all system of traditional medicine arise or developed from the Ayurved in India (Rao, 1987). The ethnomedicinal plants are useful for therapeutic as well as for curing of animal diseases because of the existence of phytochemical compounds. Phytochemicals are naturally stirring in the medicinal plants, leaves, vegetables and roots that have protection mechanism and protect from various diseases. Currently, the global demand of herbal medicines is increasing rapidly because of their higher safety margin and low cost.

### Study Area

Dang area is one of the most resource dispossessed and arid region of Rajasthan state marked with degraded ravines, barren land and severe water shortage. Dholpur and Karauli districts with an area of 6034 square kilometers is located in eastern most extremity of the state of Rajasthan and lies between latitudes 22°21'19" and 26°57'33" North and longitude 77°13'06" and 78°16'45" East.

### Land use detailed statistics of Dang region Land

S.No.	Particulars	Figure in sq. Km
1	Area not found suitable for cultivation	746.51
2	Hills and forest	270.59
3	Pastured land	178.77
4	Barren found land	113.38
5	Others	4.63
6	Area suitable for cultivation but not cultivated	180.20
7	Area found under cultivation	1514.97
	1. Irrigation by wells	910.49
	2. Irrigation by canals	90.91
	3. Irrigation by tanks / ponds	1.78
	4. Irrigation by various other sources	Nil means not found
8	Total Irrigated area	1003.18
	Un-irrigated area	510.79

Source- Survey report of Rajasthan 2024

### Rainfall and Climate

The climate of Dholpur and Karauli of Dang region is semi-arid type. Summer period starts from March to middle of June and after this rainy season starts which last up to end of September. In winters it is very cold and during the summer season the district is very dry and hot. During period of May and June month, everyday temperature is 40°C. In the year of 1901-1970 long-term rainfall is about 717.5 and in 1977-1906 year was 598.00 mm. The normal yearly rainfall is about 67 centrimeters, although in the year 2008 highest rainfall recorded was 110 cm. The potential evapotranspiration is 1780.0 mm.



Fig 2: Map of Rajasthan state showing study area (source: Atlas of Rajasthan)

**Methods**

1. The plant life was identified by villagers of tribal local communities about various aspects.
2. Obtain the knowledge of folklore remedies of several animal diseases.
3. Interviewing with regular people to know about ethno medicine and plants used for treating diseases in cattle.
4. Collection of information about ethnomedicinal and ethnoveterinary plants their uses by local or rural communities including preparation, mode of administration and applications.

**Major plants species of Ethnobotanical importance:** In Dang region of Rajasthan in the proposed work many plants were reported to cure various health ailments of indigenous people and need to conservation these plants. Some plants like *Asparagus racemosus*, *Abelmoschus esculentum*, *Achyranthes aspera*, *Adhatoda vasica*, *Azadirachta indica*, *Acacia nilotica*, *Anogeissus pendula*, *Balanites aegyptiaca*, *Bombax ceiba*, *Bauhinia variegata*, *Butea monosperma*, *Citrullus colocynthis*, *Cordia dichotoma*, *Calotropis procera*, *Capparis deciduas*, *Cissus quadrangularis*, *Cordia myxa*, *Datura stramonium*, *Dichrostachys cinerea*, *Dracaena trifasciata*, *Dalbergia sissoo*, *Emblica officinalis*, *Ficus racemosa*, *Grewiatenax*, *Hibiscus rosa-sinensis*, *Lantana camara*, *Lactuca serriola*, *Leucaena leucocephala*, *Martynia annua*, *Momordica dioica*, *Nerium oleander*, *Physalis angulata*, *Petalium murex*, *Ricinus communis*, *Solanum xanthocarpum*, *Thevetia peruviana*, *Thespesia populnea*, *Tribulus terrestris*, *Tecomella undulata*, *Ziziphus mauritiana* are found as ethnomedicinal plants helpful in curing many health ailments.

**Ethnoveterinary plants in this region are as follows**

*Aegle marmelos*, *Abelmoschus esculentum*, *Abrus precatorius*, *Balanites aegyptiaca*, *Acacia leucophloea*, *Cassia tora*, *Datura stramonium*, *Encicostemma littorale*, *Ficus benghalensis*, *Ficus religiosa*, *Grewia tenax*, *Ricinus communis*, *Hygrophila spinosa*, *Hibiscus rosa-sinensis*, *Jatropha gossypifolia*, *Launaea procumbens*, *Lawsonia inermis*, *Lantana camara*, *Momordica dioica*, *Maytenus emarginata*, *Nyctanthes arbor-tristis*, *Nerium indicum*, *Ocimum sanctum*, *Oxalis corniculata*, *Papaver somniferum*, *Petalium murex*, *Phoenix sylvestris*, *Saccharum benghalensis*, *Syzygium heyneanum*, *Saccharum officinarum*, *Trapa natans*, *Tecomella undulata*, *Tinospora cordifolia*, *Wrightia tinctoria*, *Withania somnifera*, *Vitex negundo*, *Vitex peduncularis*, *Xanthium strumarium*, *Zingiber officinale* and *Ziziphus mauritiana*. Various ailments of the cattle of indigenous people are cured with the help of these plants used in various manners.

**Information about Ethnoveterinary plants**

A total of 207 extracts from different plant species belonging to different families were investigated. The plants were consumed in different forms for curing the health ailments of human and cattles. Table- shows the traditional use of different plant parts (leaves, roots, seeds, pods and Fruits etc.) in which 23 plant species used leaves part (88.11%), Flower (29.33%), which are remarkably followed by stem (17.21%), rhizome (12.67%), root (62.67%), pod (19.33%). Total 150 informants in which 143 informants using leaves of plants in curing various health ailments, fruit and pulp (48.67%), whole plant (24.04%), oil (27.23%), Latex, Resin and Gum (32.67%) and bark (84.11%) all the parts in some way or other are being used by tribal people.

**Table 1:** Percentage of plant parts used

Plant Part Used	Percentage
Leaves	88.11
Flower	29.33
Stem	17.33
Rhizome	12.67
Root	62.67
Pod	19.33
Whole plant	24
Fruit and pulp	48.67
Oil	27.33
Latex, Resin and Gum	32.67
Bark	84

### Effect and Popularity

The data obtained from popularity percentage analysis, found that *Citrullus colocynthis* (99.76%) were in highest popularity ratio among all the medicinal plant shown in table. Other plants like *Asparagus racemosus*(98.89%), *Pedaliium murex*(98.58%), *Solanum xanthocarpum*(96.61%), *Balanitesaegyptiaca*(95.05%), *Acacia nilotica*(92.14%), *Moringa oleifera*(85.24%), *Eclipta prostrata*(74.84%), *Asparagus racemosus*(70.08%), *Nerium oleander*(66.47%), *Euphorbia hirta*(59.27%), *Ocimum sanctum*(55.75%), *Datura stramonium*(51.01%), *Acalypha indica*(45.00%), *Phyllanthus emblica*(43.85%), *Ricinus communis*(40.16%), *Ficus benghalensis* (39.57%), *Butea monosperma*(34.36%), *Ziziphus mauritiana* (29.07%), and *Azadirachta indica* (27.36%).

**Table 2:** Effect and Popularity different plants

S.No.	Plant Name	No. of Informants		
		Popularity	Percentage	Norm. Dist.
1	<i>Citrullus colocynthis</i>	147	99.76	0.0095
2	<i>Asparagus racemosus</i>	141	98.89	0.0092
3	<i>Pedaliium murex</i>	136	98.58	0.0078
4	<i>Solanum xanthocarpum</i>	133	96.61	0.0071
5	<i>Balanites aegyptiaca</i>	128	95.05	0.0065
6	<i>Acacia nilotica</i>	112	92.14	0.0061
7	<i>Moringa oleifera</i>	109	85.24	0.0059
8	<i>Eclipta prostrate</i>	103	74.84	0.0146
9	<i>Asparagus racemosus</i>	94	70.08	0.0142
10	<i>Nerium oleander</i>	73	66.47	0.0138
11	<i>Euphorbia hirta</i>	71	59.27	0.0133
12	<i>Ocimum sanctum</i>	65	55.75	0.0128
13	<i>Datura stramonium</i>	63	51.01	0.0125
14	<i>Acalypha indica</i>	56	45.00	0.0118
15	<i>Phyllanthus emblica</i>	53	43.85	0.0113
16	<i>Ricinus communis</i>	47	40.16	0.0090
17	<i>Ficus benghalensis</i>	44	39.57	0.0087
18	<i>Butea monosperma</i>	41	34.36	0.0061
19	<i>Ziziphus mauritiana</i>	38	29.07	0.0057
20	<i>Azadirachta indica</i>	35	27.36	0.0043
21	<i>Mangifera indica</i>	27	22.00	0.0041
22	<i>Hibiscus rosa-sinensis</i>	24	21.81	0.0054
23	<i>Leptadenia pyrotechnica</i>	16	19.12	0.0035
24	<i>Ficus racemosa</i>	12	15.44	0.0159
25	<i>Lantana camara</i>	8	14.96	0.0093

**Table 3:** Different mode of administrations used for treatment by informants

S.No	Plant forms used for treatment	No. of informants	Percentage	Normal distribution
1	Decoction	138	93.83	0.0068
2	Extract	123	82.11	0.0104
3	Powder	117	63.74	0.0143
4	Paste	99	46.36	0.0163
5	Raw/Direct Consumption	75	35.00	0.0124
6	Infusion	63	21.91	0.0085
7	Oil and Poultice	40	14.48	0.0048

### Conclusion

The present study suggests that villagers of dang region are using plants for veterinary medical purposes even today. They are still dependent on plants for common and immediate health problems and are curing various diseases with the help of plants growing around them. He has information about various plants used for the treatment of various diseases as well as the nature of plants and their cultivation, although his method is slowly ending due to the availability and reliability of modern hospitals, hence the village. The medical properties of these plants were highly known by the elders of the country, it is not only a relatively information. The aim of the present study is to overcome this problem and to preserve information about the medicinal properties of plants for the future.

The practice of traditional folk medicine is a vibrant and most important aspect of Ethno-botany. The traditional art of medicinal plant curative is a characteristic of Indian principles and Tribal people rely on it since ages. Thousands of uninhabited and grown plants are being utilised by these natives to treat several diseases. A substantial quantity of data on herbal plants is obtainable with these groups which needs proper documentations. Rajasthan is one of the largest states and has a great heritage related to these forests and aboriginals. India has suffered with the loss of its rich heritage due to urbanization and deforestation. This is an important area of research which presents a variety of opportunities for conservation, sustainable development and health-care. Tribal people preserved this knowledge through their conservation oriented approach that pass on from one progeny to other through idle talk. Now this is the time to preserve this knowledge in written form so looking to the significance of ethno-medicinal plants and their phytochemicals are the safe cure of human beings, the present study is carried out.

Ethno-medicinal and ethno-veterinary plants play a vibrant part in inhibiting different disorder in human-being and cattle. Due to the availability of the secondary metabolites as stated above, help in the form of anti-diuretic, anti-analgesic, anti-cancer, anti-viral, anti-malarial, anti-fungal, anti-inflammatory activities. In the making of new herbal medicine, herbal plants are screened on the basis of phytochemical elements. The significant phyto-chemical characteristics are recognized in this investigation in local plants of Dang area, Dholpur and will be beneficial in coping various disorders in the present region of research.

**Conflicts of Interest:** There is no conflict of interest-

### Aknoeledge ment

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