



ETHNOBOTANICAL PROPERTIES OF PLANTS USED BY THE RURAL COMMUNITY OF DAUSA DISTRICT OF RAJASTHAN, INDIA

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Abstract: An ethnobotanical survey of medicinal uses of plants of District Dausa (Rajasthan), India was undertaken by means of structured oral questionnaire during January 2018 to December 2019. The aim of the survey was to collect information about these valuable plants used for the treatment of various ailments and other uses by the indigenous people and to identify the traditional healers among different communities in rural areas of the region. Interviews were conducted on a regular basis of local people, who had knowledge on the ethnobotanical uses of various parts of these plants. Many plant species were reported to be in use among the rural people of different communities in the study area. The survey provided a veritable source of information related to ethnomedicinal uses of plants in the area studied.

Keywords: Conservation, Dausa, Ethnobotany, Traditional knowledge.

INTRODUCTION

Bio resources and humans have intimate relationship since past and depend upon each other for existence. Now days, greater emphasis is being laid on the traditional knowledge regarding application of bio resources in the indigenous healing practices by tribal / ethnic people since ancient time (Prakash, 2017). Most of world's rural population depends on traditional / indigenous drugs for their primary health care. The percentage of the population using traditional medicines for primary health care in developing countries is 60-90% and in developed countries 23-80% (Borah and Prasad, 2017).

India has one of the oldest, richest and most diverse cultural traditions associated with the use of medicinal plants in the form of traditional system of medicine. However, no proper documentation of such remedies exists. Recently,

many developing countries have ventured into studies of traditional medicines, devoting significant attention to migrant communities in industrialized countries.

Human beings have been using plants since long. Research workers are bringing to light additional information on the relationship between plants and man. Man's vital interest in plants primarily as a source of food, shelter and clothing dates back to the very origin of human civilization. The number of species about which we have a reasonably detailed knowledge is probably less than one percent. In Indian subcontinent, the plants have played crucial role in the socio-cultural development of human species concurrently in different parts of human civilization and exerted greater impact because of varied climatic conditions and diversified socio-economic conditions (Pandey, 2019).

The World Health Organization (WHO) defines this traditional or folk medicine as 'the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness' (Prakash and Verma, 2021).

Ethnobotany is the study which deals by means of the direct time-honored and natural association among human beings and plants (Trivedi, 2002). Medicoethnobotany acts as a bridge between botany and tribal knowledge regarding medicinal aspects of plants. The use of plants as medicine to cure or prevent illness and other ethnobotanical aspects of plants to lubricate the wheels of social interaction at the interpersonal and group level is a behavior that predates civilization, and extending to every society irrespective of its level of development and sophistication.

Ethnobotanical information throughout the world is available in the literature (Abbas *et al.*, 1992; Alam, 1992; Medley, 1993; Manandhar, 1995). However, studies related to ethnobotany in India have received due attention in the last two or three decades (Jain, 1975; Chakravarti, 1975; Rao, 1981; Gangwar and Ramakrishnan, 1990; Dobriyal *et al.*, 1996; Hedge *et al.*, 1996; Singh, 1999a). Moreover, sporadic ethnobotanical information is available from Rajasthan (Nathawat and Despande, 1960; Chandra, 1978; Shrivastava, 1977, Singh, 1983; Shekhawat and Anand, 1984; Singh, 1999b). There has been a wide concern to collect more and more ethnobotanical information, especially related with ethnomedicine (Jain, 1975, 1981, 1995; Binu *et al.*, 1992; Trivedi, 2002; Choudhary and Thakar, 2004).

The knowledge, which is mostly undocumented, is transmitted orally from generation to generation thereby restricted to a particular family, tribe, or section of society, which has led them to the verge of extinction. Since due to various reasons, both natural resources and tribal culture are depleting at an alarming rate, therefore, there is an urgent need to explore and document this unique and indigenous knowledge

before it is lost forever (Prakash and Yadav, 2020). Rajasthan is very rich in floristic diversity as well as in ancient folk literature which may be tapped for information since all systems of medicines have their roots, in one way or the other in folk medicines and house hold remedies. The present investigation related with the ethnobotanical importance of plants growing in Dausa district of Rajasthan has drawn the attention of authors in the light of studies already carried out on the flora of this district. This ethnobotanical survey was undertaken during January 2018 to December 2019.

MATERIALS AND METHODS

Periodic field surveys for ethnobotanical exploration were undertaken in which more than 100 persons were interviewed. Informants were requested to collect specimens of the plants they knew or to show the plant species on site. These informants were traditional healers themselves or had a tradition of healing in their families and had at least some knowledge of the medicinal use of the plants. The information was collected by conducting personal interviews with different ethnic groups, villages and traditional healers. Apart from ethnomedicinal plants information was also gathered about other ethnobotanical aspects of plants pertaining to their use in food, agriculture, fodder, fencing, musical instruments ceremonies etc. The species mentioned by the informants were taxonomically identified. The ethnobotanical data were collected through questionnaire, interviews and discussions among the traditional practitioners in their local language. Questionnaire allowed descriptive responses, such as part of the plant used, medicinal use, detailed information about the mode of preparation and form of usage such as fresh or dried, as ingredients mixed with other plants or unmixed. The information gathered was confirmed by old traditional practitioners in different groups of village people of the area of investigation.

During the field survey, the plants have been collected from the natural habitats in their flowering and fruiting stages as far as possible. Collected voucher specimens were pressed, dried, mounted, prepared and preserved for further response. Plants with their correct

nomenclature were arranged alphabetically by their scientific names, vernacular name and ethnobotanical uses. The plant specimens were identified using relevant floras and other means. The identification was then verified and confirmed at Herbarium, Department of Botany, University of Rajasthan, Jaipur (RUBL).

RESULTS AND DISCUSSION

During present investigation, authors observed

that the number of plants and their species already reported have either become endangered or they are being exploited in an unscientific manner. Some plants used for the purpose of medicinal and veterinary diseases in the district are documented in table 1. Besides the medicinal use, plants are also being utilized for various other purposes like food, famine food, shelter, fodder, oil (edible and non-edible), gums, resins, timber, agricultural equipment, fencing etc.

Table1: Ethnomedicinal plants used by indigenous people of Dausa District.

S. No.	Name of the plant	Parts used	Ailment	Mode	Preparation
1.	<i>Abelmoschus esculentus</i>	Root along with root bark	Abdominal pain and dysentery	Extract, orally	Crushed & strained
2.	<i>Abrus precatorius</i>	Leaves and seeds	Heart burn, plough wounds in neck of cattle, urinary tract infection, constipation	Rubbed locally, seed orally	Paste
3.	<i>Acacia senegal</i>	Exudate from plant	Facilitates difficult child birth	Orally	Katha mixed with milk, local liquor
4.	<i>Acacia farnesiana</i>	Leaf	Eye inflammation	Orally, poultice over eyes	Crushed into paste
5.	<i>Achyranthus aspera</i>	Whole plant	Cough, cold and gangrene	One cake eaten orally locally	Cakes of ash and maize flour sandwiched in 2 <i>Butea</i> leaves
6.	<i>Adiantum caudatum</i>	Whole plant	Cuts and migraine	As ointment	Crushed into paste
7.	<i>Ailanthus excelsa</i>	Root and stem bark	Fever, cough and cold	Orally, vapors inhaled	Decoction, drug boiled in water
8.	<i>Aloe barbadensis</i>	Leaf	Guinea worms	Locally applied	As vegetable
9.	<i>Amaranthus spinosus</i>	Leaf	Constipation, loss of appetite	Eaten	As vegetable
10.	<i>Argemone</i> spp.	Root and leaf	Eye inflammation, scorpion stings	Dropped in eye, locally applied	Juice
11.	<i>Curculius hirsutus</i>	Leaf	Cut, sores, wound, and cure blindness	Dripped over eyes, eaten	Juice, vegetable
12.	<i>Crataeva nurvala</i>	Leaf stem bark	Guinea worm, cracked skin	Hot ones tied locally	Boiled, paste
13.	<i>Cucurbita maxima</i>	Fruit stalk	Relieves Scorpion stings	Locally	Sap by rubbing in stone
14.	<i>Cuscuta reflexa</i>	Stem	Jaundice treatment	Orally	Decoction
15.	<i>Cyperus rotundus</i>	Stem	Snake bite	Chewed	Chewed
16.	<i>Datura</i>	Latex and leaf	guinea worm	Smearred locally	Paste
17.	<i>Dendroptioe falcate</i>	Leaf	Dropsy	Bath taken	Handful of crushed leaves
18.	<i>Derris elliptica</i>	Oil	Sores, wounds, removes lice and ticks in hair	Locally decoction	Crushed or as
19.	<i>Euphorbia hirta</i>	Whole plant	Ring worms	Locally	Paste

20	<i>Ficus hispida</i>	Receptacle	Facial swelling	Locally on face	Paste
21	<i>Gymnema sylvestre</i>	Whole plant	Dysentery	Orally	Extract in water
22	<i>Indigofera tinctoria</i>	Leaf	Migraine	Three drops dripped in eye	Juice
23	<i>Jatropha curcas</i>	Latex	Pimples, boils and sores	Smear locally	Smear locally
24	<i>Lawsonia inermis</i>	Leaf	Conjunctivitis	Suppository	Paste
25	<i>Syzygium cumini</i>	Stem bark	Dysentery and abortion	Orally	Crushed
26	<i>Tamarindus indica</i>	Seed	Scorpion stings	Locally	Rubbed on stone with water
27	<i>Tinospora cordifolia</i>	Stem	Fever and painful lactation	Rubbed locally	Water extract paste
28	<i>Tridax procumbens</i>	Whole plant	Stops bleeding	Dripped over injured spot	Juice
29	<i>Typha augustata</i>	Inflorescence	Deep unhealing wounds	Tied as dressing	Infl. split in 2 halves, a half taken
30	<i>Vitex trifolia</i>	Leaf and seeds	Dropsy	One eaten daily	Laddoos of powdered fried seeds

Food and Crops

The plant species grown as crops in the district by tribals of the district are: *Brassica campestris*, *Capsicum annum*, *Cicer arietinum*, *Cucurbita maxima*, *Cyamopsis tetragonoloba*, *Eruca sativa*, *Hordeum vulgare*, *Luffa acutangula*, *Pennisetum americanum*, *Sesamum indicum*, *Trigonala foenum-graecum*, *Triticum aestivum*, *Vigna aconitifolia* and *Zea mays*. Some wild plants used as source of food by tribals are: *Acacia nilotica indica*, *Aegle marmelos*, *Albizia lebbek*, *Aloe barbadensis*, *Capparis decidua*, *Prosopis cineraria* and *Zizyphus* spp.

Famine Food

Plant species utilized as famine food in the area are: *Acacia nilotica*, *Achyranthes aspera*, *Capparis decidua*, *Cenchrus biflorus*, *Citrullus colocynthis*, *Cyperus rotundus*, *Ficus* spp., *Pedaliu murex*, *Prosopis cineraria*, *Salvadora persica*, *Tribulus terrestris* etc.

Fodder

Many plant species are utilized as fodder for cattle viz. cow, horses, buffalo, camel, goat, sheep and donkey that are few common animals which are kept by tribal and non-tribal people of the area. The major fodder sources are annual and

perennial grasses, sedges or herbs, shrubs and trees.

Field fencing

Though some plants and trees are not primarily for field fences but certain trees and shrubs are allowed to grow within or in vicinity of the fences. Their branches are used in forming dense dead barricades in the form of fencings. Some of their properties like spiny or bushy and sand binding nature are just like the plants grown primarily for fencing. Common plant species used for field fencing by the tribals of the area are: *Ailanthus excelsa*, *Leptadenia pyrotechnica*, *Acacia nilotica*.

Edible oil and nonedible oil

Plant species used as source of edible oil are: *Brassica campestris*, *Eruca sativa*, *Sesamum indicum*, *Brassicu juncea*, *Brassica nigra*. Plant species used as source of nonedible oil by the tribals are: *Azadirachta indica*, *Brassica juncea*, *Chenopodium alba*.

Gums and Resins

Musa paradisiaca, *Acacia nilotica*, *Acacia senegal*, *Acacia catechu*, *Azadirachta indica*, *Ficus benghalensis*, *Ficus racimosa*, *Prosopis cineraria* are main plant species used for source

of gums and resins by the tribals of the area.

Tannins

Acacia catechu, *Anogeissus pendula*, *Acacia nilotica*, *Acacia senegal*, are main plant species used for tannins.

Detergents

Plant species utilized as source of detergents by the tribal women in the area are: *Acacia nilotica*, *Acacia senegal* and *Azadirachta indica*.

Fibre plants

The plant fibres have important role to fulfill the various human needs and are the part and parcel of their basic requirements. The tribals mainly use *Saccharum bengalense* and *Crotolaria juncea* for this purpose.

Timber wood

Acacia nilotica indica, *Anogeissus pendula*, *Capparis decidua*, *Dalbergia sissoo*, *Dendrocalamus strictus*, *Holoptelea integrifolia*, *Ficus spp.*, *Prosopis cineraria*, *Leptadenia pyrotechnica*, are common plant species used as timber.

Fuel wood

Capparis decidua, *Cajanus cajan*, *Azadirachta indica*, *Anogeissus pendula*, *Acacia senegal*, *Ipomea fistulosa*, *Pennisetum typhoedium*, *Ailanthus excelsa*, *Acacia nilotica*, *Prosopis juliflora*, *Prosopis cineraria*, *Salvadora oleoides*, and *Zizyphus mauritiana* are used for fuel.

Shelter

Plants used in making huts and shelter are: *Acacia nilotica*, *Anogeissus pendula*, *Calotropis procera*, *Pennisetum americanum*, *Prosopis cineraria*, *Prosopis juliflora*, *Saccharum bengalense*, *Cajanus cajan*, *Saccharum spontaneum*, and *Zizyphus nummularia*.

Agricultural equipments

Acacia nilotica, *Anogeissus pendula*, *Prosopis cineraria*, are used for making agricultural equipments.

Ethnomusicology

Musical instruments like Bansuri, Chang, Dholak, Dhol, Nagada, Poongi, Ravanhattha, Ghera, Duff, Harmonium, Khartal, Sarangi are made from plant species like *Acacia nilotica*

indica, *Ailanthus excelsa*, *Argemone mexicana*, *Azadirachta indica*, *Dalbergia sissoo*, *Dendrocalamus strictus*, *Mangifera indica*.

Intoxicants and Masticatories

Many species of Angiospermic plants are used as intoxicants and masticatories which are used by the indigenous people of the district. Plants used as intoxicants and masticatories are: *Acacia nilotica*, *Balanites aegyptiaca*, *Cordia gharaf*, *Datura innoxia*, *Datura metal*, *Calotropis procera*, *Nicotiana tabacum*, *Tamarindus indica* and *Zizyphus nummularia*.

Ceremonies

The various plant found to be significant in ceremonies in tribal lives are: *Acacia nilotica*, *Hordeum vulgare*, *Lawsonia inermis*, *Oryza sativa*, *Pennisetum americanum*, *Sesamum indicum*, *Cicer aeritinum*, *Brassica juncea*, *Vigna mungo*, *Vigna radiata*, *Mangifera indica*, *Ficus religiosa*, *Cyanodon dactylan*, *Saccharum spontaneum*, *Acacia catechu*, *Piper betal*, *Musa paradisiaca*, *Saccharum officinales* and *Zizyphus nummularia*.

It is apparent from the foregoing account that rural inhabitants have a good knowledge of medicinal uses of plants available in their area. The rural people exploit plants for the treatment of a wide variety of ailments whether major or minor like fever, asthma, cough, cold, headache, rheumatism, stomachache, skin diseases etc. since ancient times.

Many plants are left unexploited in the forests and in some cases a large number of banned species are extracted. This thoughtless and unplanned extraction is resulting into extinction of many important and valuable species. Emphasis has to be laid on preparing a data base using latest trends and techniques on underutilized plants of economical and industrial utility for their optimum exploitation on a sustained basis. The invaluable role of the ethnic people in the conservation of the plant genetic resource now begins to be recognized. However, the economic benefits from the utilization of these materials seldom accrue to them. The ethnic people have provided several 'miracle plants' of immense food and medicinal value to modern civilization. The primitive

cultivars and wild relatives of crop plants preserved by the indigenous ethnic people may hold the 'genetic key' of many valuable 'miracle crops' of the future. Moreover, there is a need to work out the detailed research on the plants of medicinal values including their biochemical properties.

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