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Ethnobotanical Survey of Medicinal Plants of Tehsil Deedwana, District Deedwana-Kuchaman, Rajasthan

Jehangeer Rehman Quereishi

Principal, Government Girls College, Kuchaman City, District Deedwana-Kuchaman, Rajasthan

Abstract: *The aim of present survey is to identify and documenting the plants used in the area of Deedwana regions of Deedwana-Kuchaman district, Rajasthan, India. The study aimed to identify and classify the medicinal plants, document indigenous knowledge related to their therapeutic properties, and assess their cultural and economic significance. Recently, focus is given to study of herbal drugs and traditional remedies. The present study highlights useful ethnobotanical information about the uses of plants by the inhabitant of central part of Rajasthan specially of the Deedwana as medicine traditionally.*

A total of 331 species of angiospermic plants belonging to 218 genera and 65 families were recorded from this area, out of them a total of 83 species of plants representing 74 genera and 40 families employed in the literature as traditional medical practice have been recorded from the study area. Ailments such as mental disorder, diarrhoea, fever, skin-problems, dysentery, rheumatism, jaundice, piles etc. are mostly treated with the different medicinal plants traditionally.

The survey will be helpful in formulate strategies for future conservation. Though many of these plant species have immediate attention for their conservation. Due to overgrazing, encroachments, unsustainable utilization and other developmental activities in the regions, several persistent medicinal plant species are on the verge of extinction.

Keywords: *Ethno-botany, medicinal plants, traditional knowledge, therapeutic properties, conservation, sustainable management, Arid and semi arid vegetation; Human health, human disease, Deedwana-Kuchaman, Rajasthan.*

I. INTRODUCTION

The term “Ethnobotany” was coined by J. W. Harshberger in 1895 to indicate plants used by the aboriginals: From “ethno”-study of people and “botany”- study of plants. It deals with the study and evaluation of plant-human relations in all phases and the effect of plant environment on human society. The traditional wisdom of the indigenous people which is expressed in their ancient folklore and proverbs as well as in their beliefs and customs contain a fund of knowledge about local plants. This is particularly important source for obtaining information on the medicinal and nutritional properties of plants and on their ecological aspects.

India occupies a special status in terms of ecosystem, species and genetic diversity because of its location in the tropical zone, physical features and eco-climatic conditions. Rajasthan is the largest state of India and is situated in the north-western part of India between 23°3'N and 30°12'N latitude and 69°30'E and 78°17'E longitude, occupying an area of 3,42,239 sq.km. The elevation of land surface varies from 214 to 1375 m. In shape, it is an irregular rhomb with north-south and east-west diagonals, the former about 784 km. and the latter 850 km. long. The remarkable feature of Rajasthan is the Aravalli range, perhaps the oldest folded mountain range in the world. It intersects Rajasthan from end to end, diagonally running from Delhi to the plains of Gujarat for a distance of about 692 km. It has a wide range of habitats, climatic factors, physiography, soil types and geological antiquity. Aravalli range divides the whole of Rajasthan into two natural divisions i.e. three fifth lying on north- west and two fifth on the east and south-east.

The present study is a report based on survey of angiospermic plants of Deedwana tehsil of Nagaur district (Now of Deedwana-Kuchaman newly created district). A total of **three hundred thirty one** species, grouped into **two hundred eighteen** genera, assigned to **sixty five** families according to Bentham and Hooker's system of classification have been recorded from Deedwana tehsil. The Tehsil is situated in a semi-arid region, making it an area of great ecological significance due to its distinctive flora and vegetation specially for salt loving plants (halophytes). Despite its ecological importance, the flora of Deedwana region has not received adequate scientific attention, and there is limited research focusing on the plant diversity and distribution in the area. Therefore, a comprehensive and systematic floristic study is essential to document and understand the plant diversity, conservation status, and ecological dynamics of Deedwana region.

The primary purpose of this research is to conduct a comprehensive floristic study of Deedwana Tehsil, District Deedwana-Kuchaman, Rajasthan including- document and enumerate the plant species found within the study area, including both native and exotic species, To assess the floristic diversity and composition, identification and classification of plant species, identify and document any endemic or rare plant species present in the region, and evaluate their conservation status, exploring the traditional uses of plants by local communities, including medicinal, cultural, and economic significance, analyze the various habitats and vegetation types of region, study the ecological factors influencing plant distribution.

II. REVIEW OF THE LITERATURE

Ancient Indian literature has recorded the use of plants as sources of medicine (Tulsidas 1631; Shastri et al. 1996). The local use of plants as remedy are common, particularly, in those areas, which have little or no access to modern health services, such as the innumerable villages and hamlets in India (Jain and Rao, 1977; Joshi,2000; Singh and Karthikeyan, 2000; Sandhya *et al.* 2006).

In recent years a large number of publications dealing with the flora and floral composition of Rajasthan have been published. These have been reviewed by Jain (1970) Bhandari (1978), Sharma (1980). Publication of Flora of Indian Desert (Bhandari, 1990), Flora of north-east Rajasthan (Sharma & Tiagi, 1979) and Flora of Rajasthan (Shetty & Singh, 1987) have further added to our knowledge of the flora and floral composition of Rajasthan. District flora of Tonk (Shetty & Pandey, 1983) and Banswara (Singh, 1983) district of Rajasthan have been published. Quereishi (2002), Sharma & Aggarwal (2008) and Quereishi & Vyas (2017), Quereishi (2018, 2023) have significantly contributed in the existing knowledge about the vegetation of Deedwana and Nagaur. Intensive botanical exploration of Nagaur district of Rajasthan is in progress including study of phytodiversity of traditional medicine and medicinal plant usage has been investigated in many parts of the country (Singh et al. 2020, Ozukum et al. 2019, Parkash and Aggarwal, 2010; Yadav and Bhandoria, 2013). Nevertheless, taking in consideration the rich biodiversity, huge area and multiculturalism of India, more ethnobotanical studies are the need of the hour for efficient documentation and conservation of this knowledge (Yadav and Bhandoria, 2013). Therefore, documentation of medicinal plants and their usage by local people of the tehsil is important. The objectives of this study were to collect and document information about the medicinal plants used by local people and traditional healers of deedwana tehsil, district Deedwana-Kuchaman, Rajasthan, India. Plants are the backbone of all life on Earth and an essential resource for human well-being.

III. AIM OF THE STUDY

Conservation and protection of natural wealth is urgent need of human being for survival. In the most part of Rajasthan mainly in desert and tribal areas. Many commercially and medicinally important species of tree flora such as *Commiphora wightii*, *Tecomella undulata*, and several others are facing severe threats of extinction due to grazing, lopping, mining and by the use of new instruments of agriculture. Some herbs specially Cucurbits like *Momordica dioca* and *Citrullus colocynthis* are also in same category i.e. over-exploited plants. The botanical researchers would play decisive role in conservation, bio-prospecting and sustainable utilization of plant diversity. Because of their knowledge of the requirements of the plants, their distribution status and their importance. The present work on the flora of Deedwana tehsil has been taken up by the authors for investigation along these lines. This work will also be helpful in compilation of the district flora.

The aim of the study titled "Ethnobotanical Survey of Medicinal Plants of Deedwana Tehsil, District Deedwana-Kuchaman, Rajasthan" is to comprehensively document and analyze the traditional knowledge and usage patterns of medicinal plants within the Deedwana Tehsil region. Specifically, the study seeks to:

- 1) Identify and document the medicinal plant species utilized by the local communities in Deedwana Tehsil for various health and wellness purposes.
- 2) Record the traditional methods of preparation and administration of medicinal plants, including any associated rituals or cultural practices.
- 3) Assess the cultural significance of medicinal plants within the socio-cultural context of Deedwana Tehsil, highlighting their role in indigenous healing systems and community well-being.
- 4) Investigate the ecological distribution and abundance of medicinal plants in the study area, including their habitats, growth patterns, and conservation status.

Provide recommendations for the sustainable management and conservation of medicinal plant resources in Deedwana Tehsil, emphasizing community involvement and biodiversity conservation efforts. Through achieving these aims, the study aims to contribute to the preservation of traditional knowledge, support community health initiatives, and promote the sustainable utilization of medicinal plant resources in Deedwana Tehsil, Rajasthan.

IV. RESEARCH METHODOLOGY

The survey for plant collections and observation were conducted at regular interval throughout the year. Excursions were undertaken two to three times a month. field trips were arranged in such a way to cover all the locations at more or less regular intervals to collect most of the plants in flowering and fruiting stages. All the specimen collected were serially numbered. The field notes included habit, habitat, colour of flowers, associations etc. The present is also an attempt to work out the phytodiversity of this region. Herbarium methodology given by Jain & Rao (1976) was followed. Provisional identification was made by the help of Duthie’s FUGP (Vol 1-2 repr. 1952), Santapau’s Fl. Saur. (Vol 1952), Hooker’s flora (Vol 1-7 repr. 1952) and Flora of North-Eastern Rajasthan (Sharma & Tiagi, 1979; Bhandari, 1990, and Shetty & Singh 1987). Further help was taken from many other monographs and revisions. These identification were later on confirmed by matching the plants with authentic specimens at the RUBL Jaipur and JAC Jodhpur.

V. ETHANOBOTANICAL SURVEY OF MEDICINAL PLANTS OF DEEDWANA TEHSIL

The traditional wisdom of the indigenous people which is expressed in their ancient folklore and proverbs as well as in their beliefs and customs contain a fund of knowledge about local plants. This is particularly important source for obtaining information on the medicinal and nutritional properties of plants and on their ecological aspects. For instance, one of their sayings comments on the indiscriminate foraging habits of live-stock and the resultant degradation: “ Oont chhode aakro, bakri chhode kankaro” which means that camels eat anything except ‘Aak’ (*Calotropis procera*), while goats eat everything leaving only stones. Other such proverbs include: “ Naam phogari, phogara ko naam ni” means village name is phogari in respect of plants in district, but village lacks the phog (*Calligonum polygonoides*).

“ Aayoo Makoro, ni chhodiyo Palo na Matiro” means it is about the agricultural friend the tractor sowing of seeds by tractor in semi-arid region is harmful for indigenous plants.

Ethnobotanical description of the flora of Deedwana tehsil has been discussed. Human life is dependent to a very large extent on the plant life, specially the green ones. Besides the general uses, some specific uses to which the plants are put in the area under survey by the local inhabitants have been recorded under following sub-heads :

Table-1 List of medicinal plants

Name of Species	Family	Part used	Ailments
I. Brain Tonic			
<i>Acacia nilotica s.sp. indica</i>	Mimosaceae	bark	For curing cuts / wounds / ulcers
<i>Ageratum conyzoides</i>	Asteraceae	dried powder	burns, ulcers and many eruptions
<i>Ailanthus excelsa</i>	Simaroubaceae	leaf infusion	tonic during pregnancy
<i>Argemone mexicana</i>	Papaveraceae	seed oil	tonic during pregnancy
<i>Balanites aegyptica,</i>	Balanitaceae	fruit pulp	tonic during pregnancy
<i>Corchorus depressus</i>	Tiliaceae	root decoction	treating impotency
<i>Calotropis procera</i>	Asclepiadaceae	Latex	help removal of barbs, thorns
<i>Cassia fistula</i>	Caesalpinaceae	pod pulp in water	brain tonics
<i>Cleome gynandra, ,</i>	Cleomaceae	leaf-extract	brain tonics
<i>Cocculus pandulus</i>	Menispermaceae	leaf-extract	brain tonics
<i>Convolvulus microphyllus</i>	Convolvulaceae	plant extract	brain tonics
<i>Corchorus aestuans</i>	Tiliaceae	root decoction	treating impotency
<i>Datura sp. with Turmeric ('Haldi')</i>	Solanaceae	ointment of leaf-juice	to heal the wounds
<i>Derris indica</i>	Fabaceae	seed oil	to check the bleeding
<i>Eclipta indica</i>	Asteraceae	plant extract	to check the bleeding
<i>Evolvulus alsinoides</i>	Convolvulaceae	plant extract	to check the bleeding
<i>Leptadenia pyrotechnica</i>	Asclepiadaceae	Latex	to check the bleeding
<i>Mimosa hamata</i>	Mimosaceae	leaves and seeds	treating impotency
<i>Ocimum canum</i>	Lamaceae	leaves and seeds	treating impotency
<i>Opuntia elatior</i>	Cactaceae	boiled phylloclades	tied over wounds for a speedy recovery

<i>Pedaliium murex</i>	Pedaliaceae	<i>mucillaginous water extract</i>	<i>treating impotency</i>
<i>Portulaca oleracea</i>	Portulacaceae	<i>leaf-extract</i>	<i>treating impotency</i>
<i>Salvia aegyptiaca</i>	Lamaceae	<i>leaves and seeds</i>	<i>treating impotency</i>
<i>Sida ovata</i>	Malvaceae	<i>seed oil</i>	<i>to check the bleeding</i>
<i>Tamarix sp.</i>	Tamaricaceae	<i>root and stem bark</i>	<i>to check the bleeding</i>
<i>Tinospora cordifolia</i>	Menispermaceae	<i>stem decoction</i>	<i>treating impotency</i>
<i>Tribulus terrestris</i>	Zygophyllaceae	<i>mucillaginous water extract</i>	<i>treating impotency</i>
<i>Tridax procumbens</i>	Asteraceae	<i>the juice</i>	<i>antiseptic on wounds or cuts</i>
<i>Zaleya redimita</i>	Aizoaceae (Ficoidaceae)	<i>Seeds</i>	<i>cause abortion</i>
<i>Zizyphus nummularia</i>	Rhamnaceae	<i>Powdered root bark</i>	<i>brain tonics</i>
<i>Zizyphus nummularia</i>	Rhamnaceae	<i>leaf –paste</i>	<i>to check the bleeding</i>
2. In skin diseases			
<i>Acacia nilotica s.sp. indica</i>	Mimosaceae	<i>crushed leaves</i>	<i>Skin disease</i>
<i>Adhatoda vasica</i>	Acanthaceae		<i>Skin disease and cough</i>
<i>Ailanthus excelsa</i>	Simaroubaceae	<i>Juice of bark</i>	<i>Skin eruptions</i>
<i>Azadirachta indica</i>	Meliaceae	<i>(crushed leaves</i>	<i>Skin diseases</i>
<i>Balanites aegyptiaca</i>	Balanitaceae	<i>Greasy pulp of fruit</i>	<i>Skin diseases</i>
<i>Cassia occidentalis</i>	Caesalpinaceae	<i>(leaf extract and seed powder)</i>	<i>ring worm disease</i>
<i>Commelina bengalensis</i>	Commelinaceae	<i>plant</i>	<i>Skin inflamations</i>
<i>Datura metel</i>	Solanaceae	<i>Plant part</i>	<i>Skin diseases</i>
<i>Euphorbia caducifolia</i>	Euphorbiaceae	<i>(latex),</i>	<i>Skin diseases</i>
<i>F. religiosa</i>	Moraceae	<i>(bark and latex),</i>	<i>Skin diseases</i>
<i>Ficus benghalensis</i>	Moraceae	<i>(latex),</i>	<i>Skin diseases</i>
<i>Lycium barbarum</i>	Solanaceae	<i>(crushed leaves with 'Deshi ghee'</i>	<i>Skin diseases</i>
<i>Prosopis cineraria</i>	Mimosaceae	<i>(juice from yong twigs)</i>	<i>useful for curing the abscesses</i>
<i>Zizyphus sp.</i>	Rhamnaceae	<i>crushed leaves</i>	<i>useful for curing the abscesses</i>
3. As cure for swellings / rheumatism			
<i>Acacia leucophloea</i>	Mimosaceae	<i>dried pounded leaves</i>	<i>local swellings</i>
<i>Alhagi sp.</i>	Fabaceae		<i>rheumatism</i>
<i>Argemone mexicana</i>	Papaveraceae	<i>Yellow sap &seed oil</i>	<i>to cure cutaneous diseases and swelling in the joints and muscles</i>
<i>Calotropis procera</i>	Asclepiadaceae	<i>Leaves</i>	<i>applied on local swellings</i>
<i>Citrullus colocynthis and</i>	Cucurbitaceae	<i>(root extract),</i>	<i>useful in treating rheumatism</i>
<i>Cyamopsis tetragonoloba</i>	Cucurbitaceae	<i>(boiled seeds)</i>	<i>local swellings</i>
<i>Leptadenia pyrotechnica</i>	Asclepiadaceae	<i>(root and plant juice)</i>	<i>rheumatism</i>
<i>Momordica charantia</i>	Cucurbitaceae	<i>(root and fruit extract)</i>	<i>rheumatism</i>
<i>Solanum nigrum</i>	Solanaceae	<i>(fruits),</i>	<i>local swellings</i>
<i>Tamarindus indica</i>	Caesalpinaceae	<i>dried pounded leaves</i>	<i>local swellings</i>
<i>Tephrosia purpurea</i>	Fabaceae		<i>rheumatism</i>
<i>Withania somnifera</i>	Solanaceae	<i>dried pounded leaves</i>	<i>local swellings</i>
4. As remedies in diarrhoea and dysentery			
<i>Achyranthes aspera</i>	Amaranthaceae	<i>plants</i>	<i>diarrhoea and dysentery</i>
<i>Adhatoda vasica</i>	Acanthaceae		<i>diarrhoea and dysentery</i>

<i>Aegle marmelos</i>	Rutaceae	fruit pulp	diarrhoea and dysentery
<i>Calotropis gigantea</i>	Asclepiadaceae	latex	diarrhoea and dysentery
<i>Cynodon dactylon</i>	Poaceae	Plant	diarrhoea and dysentery
<i>Desmostachya bipinnata</i>	Poaceae	Plant	Antidiarrhotic, antidysentric
<i>Ficus bengalensis</i>	Moraceae	Plant	Antidiarrhotic, antidysentric
<i>Prosopis juliflora</i>	Mimosaceae	Plant	Antidiarrhotic, antidysentric
<i>Tephrosia purpurea</i>	Fabaceae	Plant	Antidiarrhotic, antidysentric
<i>Ziziphus mauritiana</i>	Rhamnaceae	Plant	Antidiarrhotic, antidysentric
5. curing abdominal pains and constipation			
<i>Amaranthus viridis</i>	Amaranthaceae	Root decoction	useful in the stomachache
<i>Citrullus colocynthis</i>	Cucurbitaceae	(fruit with common salt)	useful in the stomachache
<i>Cocculus hirsutus</i>	Menispermaceae	(stem powder),	useful in the stomachache
<i>Ocimum cannum</i>	Lamaceae		Stomachic
<i>Tribulus terrestris</i>	Zygophyllaceae		Stomachic
<i>Trigonella corniculata</i>	Fabaceae	(seeds)	Stomachic
<i>Wrightia tinctoria</i>	Apocyanaceae	(root & stem extract)	Stomachic
6. In toothache, asthma, cold and cough			
<i>Abutilon indicum, ,</i>	Malvaceae	root	body temperature to the normal
<i>Adhatoda vasica</i>	Acanthaceae	Flowers , roots Dry leaves	to cure asthma
<i>Balanites aegyptiaca</i>	Balanitaceae		Whooping Cough & Cold
<i>Barleria prionitis</i>	Acanthaceae	Leaves	curing cough and toothache
<i>Blumea lacera</i>	Asteraceae	root	curing cough and toothache
<i>Capparis decidua</i>	Capparaceae	The tender shoots	to relieve toothache
<i>Celosia argentea</i>	Amaranthaceae	flowers and seeds	to relieve toothache
<i>Chenopodium album,</i>	Chenopodiaceae	Leaf-juice	to relieve toothache
<i>Citrullus colocynthis</i>	Cucurbitaceae	root extract	In urinary troubles
<i>Cleome gynandra</i>	Cleomaceae	seeds	In urinary troubles
<i>Cymopsis tetragonoloba</i>	Fabaceae	dried roots, stem	toothache and asthma
<i>Datura sp.</i>	Solanaceae	dried leaves	toothache and asthma
<i>Desmostachya bipinnata</i>	Poaceae	decoction	toothache and asthma
<i>Digera muricata</i>	Amaranthaceae	flowers and seeds	toothache and asthma
<i>Glinus lotoides</i>	Molluginaceae	decoction	toothache and asthma
<i>Grewia tenax</i>	Tiliaceae	wood	toothache and asthma
<i>Lindenbergia indica</i>	Scrophulariaceae	Leaves	toothache and asthma
<i>Mollugo cerviana</i>	Molluginaceae	root	toothache and asthma
<i>Ocimum sp</i>	Lamaceae	Leaves	toothache and asthma
<i>Opuntia dilleni</i>	Cactaceae		Whooping Cough & Cold
<i>Solanum nigrum</i>	Solanaceae	root	Whooping Cough & Cold
<i>Solanum surattense</i>	Solanaceae	berries	Whooping Cough & Cold
<i>Solanum surattense</i>	Solanaceae	root decoction	Whooping Cough & Cold
<i>Tephrosia sp.</i>	Fabaceae	dried leaves	Whooping Cough & Cold
<i>Withania somnifera</i>	Solanaceae	root decoction	Whooping Cough & Cold
<i>Wrightia tinctoria</i>	Apocyanaceae	dried leaves	Whooping Cough & Cold
<i>Ziziphus nummularia</i>	Rhamnaceae		Whooping Cough & Cold
7. In Diabetes			
<i>Momordica charantia</i>	Cucurbitaceae	Decoction	cures the sugar disease

8. Against scorpion / snake / dog bites			
<i>Achyranthes aspera</i>	Amaranthaceae	Plant extract	Antihydrophobic, snake, dog and insect bites.
<i>Alternanthera sessilis</i>	Amaranthaceae	(leaf-juice),	eye lotions
<i>Aristolochia bracteolata</i>	Aristolochiaceae	root powder	eye lotions
<i>Bidens biternata</i>	Asteraceae	(leaf and flower juice),	eye lotions
<i>Boerhavia diffusa</i>	Euphorbiaceae	(leaf & root extract)	eye lotions
<i>Cleome viscosa</i>	Cleomaceae		eye lotions
<i>Cocculus hirsutus</i>	Menispermaceae	(stem powder)	eye lotions
<i>Derris indica</i>	Fabaceae	Seed oil	to cure ear ailments.
<i>Portulaca sp.</i>	Portulacaceae	Juice	to cure scorpion-sting
9. Vivid			
<i>Abutilon indicum</i>	Malvaceae	Roots & leaves	Urinogenital Diseases, Piles, Fever
<i>Acacia nilotica</i>	Mimosaceae	Aqueous extract	Urinogenital Diseases
<i>Acacia senegal</i>	Mimosaceae	Plant extract	Leprosy
<i>Achyranthes aspera</i>	Amaranthaceae	Plant extract	Asthma
<i>Adhatoda vasica</i>	Acanthaceae	Plant extract	Bronchitis
<i>Aegle marmelos</i>	Rutaceae	Plant extract	Fever
<i>Albizia lebbeck</i>	Mimosaceae	Plant extract	Bronchitis
<i>Alhagi sp.</i>	Fabaceae	Plant extract	Vomiting, Cholera
<i>Argemone mexicana</i>	Papaverceae	Plant extract	Scabies & Ophthalmia
<i>Boerhavia diffusa</i>	Euphorbiaceae	Plant extract	Asthma, Dropsy
<i>Calotropis procera</i>	Asclepiadaceae	Plant extract	Leprosy
<i>Capparis decidua</i>	Capparaceae	Plant extract	Vomiting, Piles
<i>Cassia fistula</i>	Caesalpinaceae	Plant extract	Fever
<i>Commelina bengalensis</i>	Commelinaceae	Plant extract	Leprosy, Piles
<i>Commiphora wightii</i>	Burseriaceae	Plant extract	Bronchitis
<i>Cordia dichotoma</i>	Ehretiaceae	Plant extract	Urinogenital Diseases
<i>Cordia gharaf</i>	Ehretiaceae	Plant extract	Fever, Urinogenital Diseases
<i>Cuscuta reflexa</i>	Cuscutaceae	Plant extract	Liver troubles
<i>Cynodon dactylon</i>	Poaceae (Graminae)	Plant extract	Hysteria, Epilepsy, Gonorrhoea, Dropsy
<i>Datura stramonium</i>	Solanaceae	Plant extract	Asthma
<i>Ficus bengalensis</i>	Moraceae	Plant extract	Lumbago
<i>Lepidagathis trinervis</i>	Acanthaceae	Plant extract	Piles
<i>Ocimum canum</i>	Lamaceae	Plant extract	Bronchitis, Urinogenital Diseases and Fever
<i>Derris indica</i>	Fabaceae	Plant extract	Piles
<i>Ricinus communis</i>	Euphorbiaceae	Plant extract	Lumbago
<i>Solanum surattense</i>	Solanaceae	Plant extract	Asthma, Sore throat
<i>Tamarix dioca Roxb</i>	Tamaricaceae	Plant extract	Leprosy
<i>Tephrosia purpurea</i>	Fabaceae	Plant extract	Vomiting, Bronchitis, Asthma and Urinogenital Diseases
<i>Xanthium strumarium</i>	Asteraceae	Plant extract	Fever
<i>Ziziphus nummularia</i>	Rhamnaceae	Plant extract	Fever

VI. CONCLUSION AND DISCUSSION

A. Plants Carrying Medicinal Importance

- 1) *As Tonics*: leaf infusion of *Ailanthus excelsa* is used as tonic during pregnancy; seeds of *Zaleya redimita* cause abortion; mucillaginous water extract of *Pedalium murex* ('Bada Gokhroo'), and *Tribulus terrestris* is used for treating impotency. *Tinospora cordifolia* (stem decoction), *Corchorus aestuans*, *C. depressus* (root decoction), *Ocimum canum* (leaves and seeds), *Salvia aegyptiaca* (leaves and seeds), *Mimosa hamata* (leaves and seeds), are taken in boiled buffalo milk as the brain tonic. *Convolvulus microphyllus* and *Evolvulus alsinoides* (plant extract), *Cassia fistula* (pod pulp in water) and *Zizyphus nummularia* (Powdered root bark) are used as the general tonics or brain tonics.
- 2) *For Curing Cuts / Wounds / Ulcers*: *Acacia nilotica* s.sp. *indica* (bark), *Derris indica* (seed oil), *Sida ovata* and *Zizyphus nummularia* (leaf –paste) are applied on cuts or wounds to check the bleeding and are believed to bring quick healing, *Ageratum conyzoides* (dried powder), *Argemone mexicana* (seed oil), *Cleome gynandra*, *Cocculus pandulus*, *Portulaca oleracea* (leaf-extract), *Balanites aegyptica* (fruit pulp) *Tamarix* sp. (root and stem bark), *Eclipta indica* (plant extract) are applied to cure burns, ulcers and many eruptions. The boiled phylloclades of *Opuntia elatior* (after removing the thorns) are tied over wounds for a speedy recovery. An ointment of leaf-juice of *Datura* sp. with turmeric ('Haldi') is applied to heal the wounds. Latex of *Calotropis procera* or *Leptadenia pyrotechnica* are applied to help removal of barbs, thorns etc. from the part of body. The warmed leaves of former are smeared with 'ghee' and are applied over pimples; its stripped bark is tied over cuts, made by sharp instruments, for healing them; the juice of *Tridax procumbens* serves as an antiseptic on wounds or cuts. The leaf-paste (ash of the leaves mixed in 'Deshi ghee') is applied as a disinfectant on the sores on the neck of the cattle or are used for quick healing of the wounds.
- 3) *In Skin Diseases*: *Cassia occidentalis* (leaf extract and seed powder) and *Prosopis cineraria* (juice from young twigs) are applied against ring worm disease. *Acacia nilotica* s.sp. *indica*, *Azadirachta indica*, *Zizyphus* sp. (crushed leaves) *Euphorbia caducifolia*, *Ficus benghalensis* (latex), *F. religiosa* (bark and latex), *Lycium barbarum* (crushed leaves with 'Deshi ghee') are useful for curing the abscesses.
- 4) *As cure for Swellings / Body Pains / Rheumatism*: Leaves of *Calotropis procera* are applied on local swellings after warming them. *Argemone mexicana* (Yellow sap and seed oil) is useful to cure cutaneous diseases and swelling in the joints and muscles. *Acacia leucophloea*, *Tamarindus indica*, *withania somnifera* (dried pounded leaves), *Solanum nigrum* (fruits), *Cyamopsis tetragonoloba* (boiled seeds) are applied on the local swellings. *Citrullus colocynthis* (root extract), *Leptadenia pyrotechnica* (root and plant juice) and *Momordica charantia* (root and fruit extract) are useful in treating rheumatism.
- 5) *As Remedies in Diarrhoea and Dysentery*: *Desmostachya bipinnata* and fruit pulp of *Aegle marmelos* are proved antidiarrhotic and antidysentric medicines. The seeds of *Cucumis melo*, fruits of *Foeniculum vulgare*, black pepper and petals of rosa (*Rosa* sp.) are mixed together to prepare cold drinks and are useful in dysentery.
- 6) *For Curing Abdominal Pains and Constipation*: *Amaranthus viridis* (root decoction), *Citrullus colocynthis* (fruit with common salt), *Cocculus hirsutus* (stem powder), *Trigonella corniculata* (seeds) and *Wrightia tinctoria* (root and stem extract) are useful in the stomachache.
- 7) *In Toothache, Asthma, Cold and Cough*: *Cymopsis tetragonoloba* (dried roots, stems), *Datura* sp. (dried leaves), *Tephrosia* sp., (dried roots), *Wrightia tinctoria* (dried leaves) are smoked for giving a relief in toothache and asthma. The tender shoots of *Capparis decidua* are also reported to relieve toothache. Leaves of *Barleria prionitis* and *Lindenbergia indica*, *Ocimum* sp., and berries of *Solanum surattense* ('Bhoorangi') are chewed for curing cough and toothache. Decoction of *Ephedra foliata* is used to cure asthma. The root of *Abutilon indicum*, *Blumea lacera*, *Molugo cerviana* and *Solanum nigrum*, root decoction of *Solanum surattense* and *Withania somnifera* (also for asthma), seeds of *Cleome gynandra* and wood of *Grewia tenax* are boiled in water and taken to bring down the body temperature to the normal. Leaf extract of *Achyranthes aspera* is used to cure cough.
- 8) *In Urinary Troubles*: Jaundice and urinary troubles are cured by application of root extract of *Citrullus colocynthis*, decoction of *Desmostachya bipinnata* and *Glinus lotoides*. Leaf-juice of *Chenopodium album*, flowers and seeds of *Celosia argentea* and *Digera muricata* are reported to be very useful in urinary disorders.
- 9) *In Diabetes*: Decoction of *Momordica charantia* cures the sugar disease.
- 10) *Against Scorpion / Snake / Dog Bites*: Juice of *Portulaca* sp. Is applied to cure scorpion-sting. Plant extract of *Achyranthes aspera* and root powder of *Aristolochia bracteolata* ('Hukka bel') are said to be antihydrophobic and used to cure snake, dog and insect bites. It is reported that a snake bite victim is asked to chew the leaves of *Calotropis procera* till they taste bitter, before venom is treated, the leaves taste sweet to the victim.

11) *As Eye Lotions: Alternanthera sessilis* (leaf-juice), *Bidens biternata* (leaf and flower juice), *Boerhavia diffusa* (leaf and root extract) and *Cocculus hirsutus* (stem powder) are used as eye lotions.

12) *Ear Ailments: Seed oil of Derris indica* and *Cleome viscosa* is useful to cure ear ailments.

13) *For Curing Pin Worms: Leaves of Clerodendrum phlomidis* are used in a paste-form for curing pin worms in children.

The present study revealed the ethnobotanical knowledge of people in Deedwana-Kuchaman district of Rajasthan. Among 83 plant species of 74 genera and 40 families, Mimosaceae was represented by seven species, Solanaceae, Asteraceae by six and Fabaceae were represented by five species. Euphorbiaceae, Caesalpiniaceae, Menispermaceae and Tiliaceae were represented by three species. The present study mainly focuses on the medicinal plants used by the local people in Deedwana-Kuchaman District for primary health care and to cure various diseases like paralysis, skin infections, rheumatism, diarrhea, ulcers, skin ailments, toothache, headache, wounds, diabetes, liver problems, menstrual disorders, pyorrhea, piles, jaundice, asthma, mental illness etc. Most of the earlier ethno botanical studies confirmed that most of the plant's part are useful and used in the treatment of diseases. This study clearly reveals that most of the plants were used to treat dysentery and diarrhoea skin diseases, fever, wounds & itching, asthma, bronchitis, urogenital diseases, whooping cough & cold and rheumatism, piles and stomachic leprosy and ulcers, scabies & ophthalmia, indigestion and sore throat, reproductive disorders and other diseases were treated by several species as enlisted (Table 1).

The present study focused on the need of proper documentation of the medicinal plants used by various communities for common diseases prevailing in this area. However, present generation are least interested about traditional medicines. Proper documentation and conservation of the plants used is necessary which should play a great role in Ayurveda, homoeopathy and in modern medicine. Though we know about the use and importance of every plants that's are useful in our daily life. Plants fulfill our daily life demand i. e. Food, Cloths and Shelter. Plants utilized in various forms as Food, famine food, supplementary food, as brain tonic, as timber, as vegetables, oils, fruits, fodder, in agriculture practices, fuel, raw material for different types of industries. But valueable role of plants for human beings is medicinal importance.

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