



Ethnomedicinal plants used by the villagers of Reni tehsil (Alwar) Rajasthan, India

Ashok Kumar Bairwa

Department of Botany, Government College Hindaun City (Karauli), Rajasthan, India

Abstract

The present survey aims to identify and document the ethnomedicinal plants used amongst the indigenes of Reni Tehsil, Alwar district of Rajasthan, India. The field survey of the study area was conducted between January 2019 to March 2021. During the survey, 40 ethnomedicinal plant species belonging to 24 families have been recorded from the study area used by the peoples of about 25 villages of Reni tehsil to cure various diseases, such as wounds, boils, ulcers, urinary disorders, sexual weakness, diarrhea, dysentery, inflammation, asthma, rheumatism, skin diseases, gonorrhoea, cough, cold, fever, gastric disorder, leucorrhoea, anemia, etc. Out of 40 plant species, 20 are trees, 04 shrubs and 16 herbs. Fabaceae (10 species) was the dominant family among all families followed by Euphorbiaceae and Moraceae (3 Species each) and the most used plant part as medicine was noted to be the leaf (32.00%), followed by fruit (14.67%), bark (12.00%) and root (10.67%). In this paper, a list of plant species along with their local name, plant part/s used and Medicinal uses for effective control in diverse ailments of ethnomedicinal plants are given.

Keywords: ethnomedicinal plants, Reni Tehsil, Alwar district, Rajasthan

Introduction

India has very rich plant biodiversity and is considered to be a storehouse of medicinal plants. It's home to 7434 species of algae, 15447 species of fungi, 2786 species of bryophytes, 1307 species of pteridophytes, 82 species of gymnosperm and 18800 species of angiosperm^[1]. Rajasthan is one of the largest States of India with a geographical area of 342,239 km² and is situated in the north-western part of the country. The state constitutes 10.4% area of the country and contains a rich diversity of plant species with different habitats. The floristic diversity of Rajasthan has documented by Bhandari (1978)^[2]; Sharma & Tiagi (1979)^[3]; Shetty & Singh (1987, 1991, 1993)^[4, 5, 6]; Vyas (1967)^[7] and Parmar (1985)^[2-8].

World Health Organization (WHO) listed quite 21,000 plant species used for several medicinal purposes around the world^[9]. In Rajasthan, much work has been done on ethnomedicinal plants used for various diseases by different tribal communities^[10-14]. The purpose of this research paper is to collect valuable information about ethnomedicinal plant diversity utilized by local communities in and around the Reni tehsil of the Alwar district.

Material and Methods

Study Area

The Alwar district is located between 27°4' to 28°4' north latitudes and 76°7' to 77° 13' east longitudes in the north-eastern part of Rajasthan. The district is spread across an 8380 km² area. Its greatest length from south to north is 137 km² and its greatest breadth from east to west is 110 km² approx. It is bounded by the district Gurgaon (Haryana) in the north, Dausa in the south, Jaipur in the south-west, and Bharatpur in the north-east. Alwar district comprises 14 Sub

Divisions, 16 tehsils, and 14 panchayat samitis. Study area Reni tehsil is situated 122 km from Jaipur and about 60 km from Alwar city. There are many forest areas in Reni tehsil such as Babli, Bairer, Bhooleeri, Dera, Doroli, Ishwana, Jamdoli, Machadi, Tahtda, Thumda. There is no complete published account of the flora of this area. Therefore, the study of the vegetation of this area is of interest and importance. The vegetation of the Alwar district corresponds to the northern tropical dry deciduous forest and northern tropical thorn forest^[15].

The most topographic feature in the Alwar district is the Aravalli Mountain range which runs for about 81 km. from south to north. The climate in this area is hot and dry. The summer season is from the middle of March to June is extremely hot. The rainy season is from July to September with more than 90% of the rain is received from this period. Winter is from October to February. The average annual rainfall of the district is 668.6 mm.

Methods

The field survey of the study area was conducted between January 2019 to March 2021. The plant specimens were collected from Babli, Bairer, Bhooleeri, Dera, Doroli, Ishwana, Jamdoli, Machadi, Tahtda, Thumda villages of Reni tehsil of Alwar district. The collected plant samples were pressed, dried and mounted on herbarium sheets of standard size. The plant specimens were identified and confirmed with the help of regional flora and using standard literature^[3, 16-18]. Some plant specimens were identified with the help of experts. Information about the medicinal properties, local plant name, usages, parts used was collected through interviewing local villagers, village headmen, priests and tribal folks.

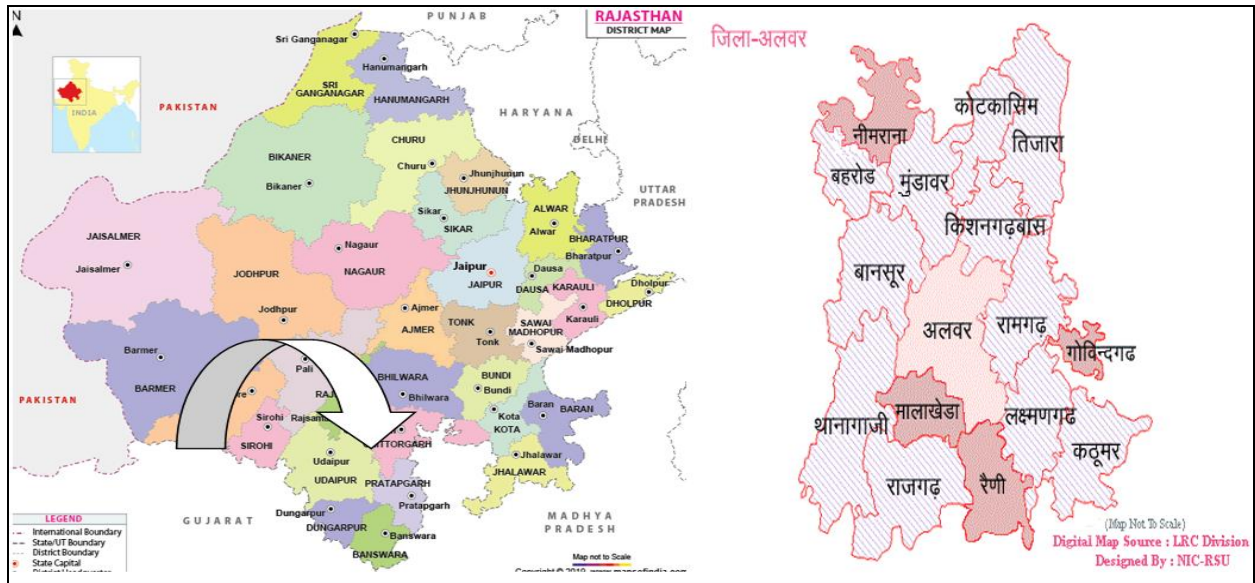


Fig 1: Map of the study area



Fig 2: Satellite image of the study area

Result and Discussion

This paper gives an account of 40 ethnomedicinal plants belonging to 24 families in the study area. A list of plant species and their local names, plant parts used and Medicinal uses for effective control in diverse ailments of ethnomedicinal plants are given. [Table 1]. The habit of the majority of the plants was noted as Trees (50%). In the rest of the plants, the herbs were (40%), shrub (10%) recorded in the present study [Figure 3]. The highest number of plant species (10) belonged to the family Fabaceae followed by Euphorbiaceae and Moraceae (3 Species) and 2 species each have belonged to the families like Capparaceae, Lamiaceae and Rhamnaceae, and 01 species each was recorded belonged to the families like Acanthaceae, Achyranthaceae, Apocynaceae, Asclepiadaceae, Asteraceae, Balanitaceae, Bursaceae, Cyperaceae, Ehretiaceae, Malvaceae, Meliaceae, Moringaceae, Nyctaginaceae, Papaveraceae, Rutaceae, Solanaceae, Ulmaceae and Zygophyllaceae [Table 2]. This study established that many different parts of

the medicinal plant species are used as medicine (root, stem, leaves, whole plant, flower, fruit, seeds, bark, pod, gum, latex, rhizome, etc.) but the most used plant part was leaf (32.00%), followed by fruit (14.67%), bark (12.00%) and root (10.67%) [Figure 4]. In total 40, medicinal plants were used to wounds, boils, ulcers, urinary disorders, sexual weakness, diarrhea, dysentery, inflammation, asthma, rheumatism, skin diseases, gonorrhea, cough, cold, fever, gastric disorder, leucorrhoea, anemia, etc.

Conclusion

Plants are a significant part of the ecosystem and play vital roles in the development of medicine and human health care. The present survey provides information on ethnomedicinal plants used amongst the indigenes of Reni Tehsil, Alwar district of Rajasthan. People of rural areas have not enough sources and facilities for health care. These are still dependent on traditional medicines therefore documentation of the indigenous information about the

medicinal plants is valuable for the communities and their future generations. So future generations must learn the importance and traditional uses of these plants and conserve plants for the future.

Table 1: List of plant species with their medicinal uses.

Sr. No.	Botanical Name	Family	Local Name	Habit	Plant part(s) used	Medicinal Uses
1.	<i>Abutilon indicum</i> (L.) Sweet.	Malvaceae	-	Herb	Whole plant Leaves Flower	<ul style="list-style-type: none"> The decoction is used to cure gonorrhoea. Leaf's extract is applied locally to boils and ulcers. Powdered flowers are used in cough.
2.	<i>Acacia leucophloea</i> (Roxb.) Willd.	Fabaceae	Ronjh	Tree	Leaves	<ul style="list-style-type: none"> Used to cure Urinary tract bleeding.
3.	<i>Acacia nilotica</i> (L.) Del.	Fabaceae	Babul	Tree	Leaves Bark Pod	<ul style="list-style-type: none"> The decoction of leaves and bark is used to cure sore throat and toothache. Pod decoction is used in the treatment of urinogenital diseases.
4.	<i>Achyranthes aspera</i> L.	Achyranthaceae	Unga	Herb	Whole plant	<ul style="list-style-type: none"> The decoction is used to cure cough, cold and intermittent fever.
5.	<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Bel	Tree	Leaves Fruit	<ul style="list-style-type: none"> The juice of leaves is used in diabetes. Pulp of ripe fruit is used for dysentery, constipation and peptic ulcer.
6.	<i>Albizia lebbek</i> (L.) Benth.	Fabaceae	Siris	Tree	Bark	<ul style="list-style-type: none"> Paste of stem bark is used in boils, pimples and ulcers.
7.	<i>Argemone mexicana</i> L.	Papaveraceae	Kateli	Herb	Root Whole plant	<ul style="list-style-type: none"> Roots are useful in chronic Skin disease. Plant juice is used for eye infections.
8.	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Neem	Tree	Leaves Bark	<ul style="list-style-type: none"> Leaves are antiseptic used to wash for the healing of ulcers and wounds. Paste of bark is applied on burnt portion for early healing.
9.	<i>Balanites aegyptiaca</i> (L.) Del.	Balanitaceae	Hingot	Tree	Whole plant Seed	<ul style="list-style-type: none"> Whole plants are used for wound healing and respiratory disorder. Seed is used in earache and pimples.
10.	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Punernava	Herb	Root Leaves	<ul style="list-style-type: none"> The root is used in night blindness. Leaves are used in reducing swelling, diuretic and urinary burning sensation.
11.	<i>Boswellia serrata</i> Roxb. ex Coleb.	Burseraceae	Salar	Tree	Bark Gum	<ul style="list-style-type: none"> The bark is used in blood dysentery. Gum is used in rheumatism, skin diseases and urinary disorders.
12.	<i>Butea monosperma</i> (Lam.) Taub.	Fabaceae	Palas	Tree	Stem Seeds Fruit	<ul style="list-style-type: none"> Stem paste is applied on the affected parts for cuts & wounds. Seeds are used to cure leucoderma. Fruit is used in correcting menstruation.
13.	<i>Calotropis procera</i> (Ait.) R. Br.	Asclepiadaceae	Aakda	Shrub	Leaves Latex	<ul style="list-style-type: none"> Slightly roasted leaves are applied to rheumatism. Latex of this plant is used in the case of tuberculosis.
14.	<i>Capparis sepiaria</i> L.	Capparaceae	Jaal	Shrub	Leaves Fruit	<ul style="list-style-type: none"> Decoction of leaves is used orally in a blood purifier. The pastes of fruits are used externally on pain of joints.
15.	<i>Capparis decidua</i> (Forssk.) Edgew.	Capparaceae	Kair	Tree	Leaves Bark Fruit	<ul style="list-style-type: none"> Juice of leaves and fruits- anticystic, bactericidal and fungicidal. The root bark is given orally in fever. Dried powdered fruits are given for cough and heart disease.
16.	<i>Cassia fistula</i> L.	Fabaceae	Amaltas	Tree	Leaves Fruit	<ul style="list-style-type: none"> Leaf juice is used to cure stomachache and hepatitis. Decoction of fruit pulp is used in gastric disorders and constipation.
17.	<i>Catharanthus roseus</i> (L.) G. Don.	Apocynaceae	Sadabaha r	Herb	Whole plant Leaves	<ul style="list-style-type: none"> Whole plant extract is used for the treatment of acute leukaemia. Extract of leaves is used as an antidote for wasp stings.
18.	<i>Cordia dichotoma</i> Forst. f.	Ehretiaceae	Lisoda	Tree	Leaves Fruit	<ul style="list-style-type: none"> Leaf ashes mixed with honey are recommended for constipation. Fruits are used as vegetables and are considered good for dysentery.
19.	<i>Cyperus rotundus</i> L.	Cyperaceae	Motha	Herb	Rhizome	<ul style="list-style-type: none"> The rhizome is used in stomach troubles.
20.	<i>Dalbergia latifolia</i> Roxb.	Fabaceae	Shisham	Tree	Root Leaves	<ul style="list-style-type: none"> The root is used in gonorrhoea. Juice of leaves cure aphthous ulcers and are used as gargles in sore throat.
21.	<i>Emblica officinalis</i> Gaertn.	Euphorbiaceae	Amla	Tree	Fruit Seeds	<ul style="list-style-type: none"> Fruit is used in digestive and other disorders, is a rich source of vitamin C. Fresh juice of the fruit is used in diseases of the eye, heart, scurvy, rheumatism, and diarrhea. Seeds used in the treatment of asthma, bronchitis, leucorrhoea and syphilis.

22.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Dudhi	Herb	Root Leaves Latex	<ul style="list-style-type: none"> Paste of root is mixed with honey and given to nursing mother to increase lactation. Decoction of leaves is used in asthma, cough, bronchitis, eczema and spermatorrhoea. Latex of plants is used in warts and skin diseases (leucodermal spots).
23.	<i>Ficus benghalensis</i> L.	Moraceae	Bar, Bargad	Tree	Leaves Fruit	<ul style="list-style-type: none"> Leaf extract is taken orally in diarrhea. Fruit is used as a sexual stimulant.
24.	<i>Ficus racemosa</i> L.	Moraceae	Gular	Tree	Bark	<ul style="list-style-type: none"> Bark-decoction is used in skin diseases, inflammations, boils and ulcers.
25.	<i>Ficus religiosa</i> L.	Moraceae	Pipal	Tree	Leaves Bark	<ul style="list-style-type: none"> Leaves useful in healing wounds and treatment of skin diseases, The stem bark is used in the treatment of diarrhea, diabetes, leucorrhoea and inflammatory ulcers.
26.	<i>Holoptelea integrifolia</i> (Roxb.) Planch.	Ulmaceae	Papad	Tree	Leaves	<ul style="list-style-type: none"> Leaf's paste is used in skin disease, Leaves are chewed to cure mouth sores.
27.	<i>Justicia adhatoda</i> L.	Acanthaceae	Adusa	Herb	Leaves	<ul style="list-style-type: none"> Leaves extract mixed with ginger or honey and taken orally for bronchitis, severe asthma and cough.
28.	<i>Moringa oleifera</i> Lam.	Moringaceae	Sahejana	Tree	Leaves Flower Fruit Seeds	<ul style="list-style-type: none"> Paste of leaves heals wounds. Flowers are used as tonic and diuretic. The unripe pod is eaten as a vegetable and is useful in circulatory stimulants, arthritis and rheumatism Seed oil is applied locally in acute rheumatism.
29.	<i>Ocimum basilicum</i> L.	Lamiaceae	Marwa	Herb	Leaves	<ul style="list-style-type: none"> Leaves extract mixed with honey and taken orally to cure cough, cold and fever.
30.	<i>Ocimum tenuiflorum</i> L.	Lamiaceae	Tulsi	Herb	Leaves Seeds	<ul style="list-style-type: none"> The juice of leaves mixed with black paper is given to cure intermittent fever. Leaf's juice is used in bronchitis, skin diseases, earache, cough and cold. Seeds are useful for the urinary system.
31.	<i>Prosopis cinerarea</i> (L.) Druce	Fabaceae		Tree	Fruit Flower	<ul style="list-style-type: none"> Fruits are used as a vegetable and are useful in arthritis and rheumatism. Flowers are pounded and mixed with sugar and eaten by women during pregnancy as a safeguard against miscarriage.
32.	<i>Ricinus communis</i> L.	Euphorbiaceae	Arandi	Shrub	Leaves	<ul style="list-style-type: none"> Leaf paste is used externally in pain of joints, swelling and skin disease. Juice of the leaves is mixed with mustard oil and is applied locally to reduce menses pain. Warm leaves are applied as bandages on the sprains.
33.	<i>Senna occidentalis</i> (L.) Link.	Fabaceae		Herb	Seeds	<ul style="list-style-type: none"> Seed powder is used in case of a diabetic problem.
34.	<i>Senna tora</i> (L.) Roxb.	Fabaceae	Pawar	Herb	Root Seeds	<ul style="list-style-type: none"> The root is purgative. Seed paste is used on ringworm.
35.	<i>Solanum surattense</i> Burm. f.	Solanaceae	Kateli	Herb	Whole plant Root	<ul style="list-style-type: none"> Whole plant extract is effective in bronchial asthma. Root paste is given orally in scorpion stings.
36.	<i>Tephrosia pumila</i> (Lam.) Pers.	Fabaceae	Chhota Pawar	Herb	Whole plant Root	<ul style="list-style-type: none"> Plant extract is given in liver disorders. Decoction of root useful for diarrhea, dyspepsia, rheumatism and urinary disorders.
37.	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Gokhru	Herb	Fruit	<ul style="list-style-type: none"> Fruit powder is used in urinary disorders & sexual weakness.
38.	<i>Tridax procumbens</i> L.	Asteraceae		Herb	Leaves	<ul style="list-style-type: none"> Leaves are antiseptic applied for blood clotting.
39.	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	Beri	Tree	Bark	<ul style="list-style-type: none"> Root bark decoction is used in diarrhea, dysentery, fever and toothache.
40.	<i>Ziziphus nummularia</i> (Burm. F.) Wight & Arn.	Rhamnaceae	Jhad	Shrub	Leaves Bark Root	<ul style="list-style-type: none"> Dried leaves are used in cough and cold. The bark is used in acidity, leucorrhoea and anemia. Decoction of root is given in pyorrhoea and other tooth diseases.

Table 2: Total number of families and species found in the study area.

Sr. No.	Family	No. of Species
1.	Acanthaceae	1
2.	Achyranthaceae	1
3.	Apocynaceae	1
4.	Asclepiadaceae	1
5.	Asteraceae	1
6.	Balanitaceae	1
7.	Burseraceae	1
8.	Capparaceae	2
9.	Cyperaceae	1

10.	Ehretiaceae	1
11.	Euphorbiaceae	3
12.	Fabaceae	10
13.	Lamiaceae	2
14.	Malvaceae	1
15.	Meliaceae	1
16.	Moraceae	3
17.	Moringaceae	1
18.	Nyctaginaceae	1
19.	Papaveraceae	1
20.	Rhamnaceae	2
21.	Rutaceae	1
22.	Solanaceae	1
23.	Ulmaceae	1
24.	Zygophyllaceae	1
	Total	40

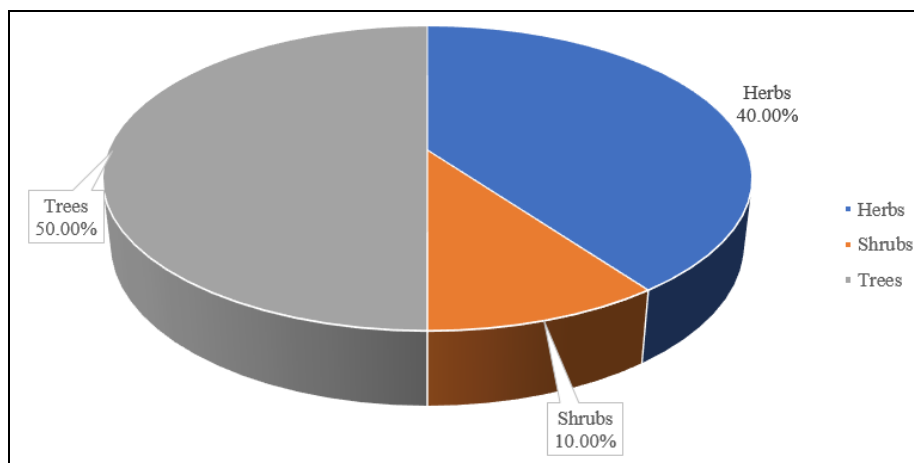


Fig 3: Habit wise distribution of ethnomedicinal plant species.

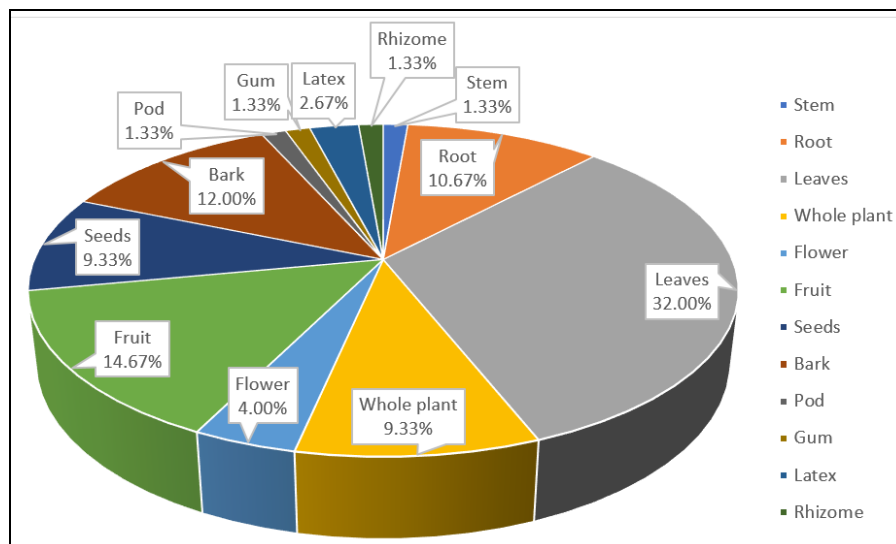


Fig 4: Percentage of different plant parts used for ethnomedicinal purposes

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