

ETHNO-MEDICO-BOTANY OF TODGARH-RAOLI WILD LIFE SANCTUARY RAJASTHAN, INDIA

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Todgarh Raoli Wildlife Sanctuary lies in central position of Aravalli range of Rajasthan. The sanctuary is fortunately a cradle of medicinal plants. This region is the ecotone of both vegetational segments of Rajasthan like xerophytic vegetation as well as mesic vegetations. Rawat tribe lives dominantly in this sanctuary. A considerable amount of verbal information on medicinal properties of plant is available with Rawat tribe's of Todgarh Raoli Wildlife Sanctuary. In the present paper an attempt has been made to document the precious traditional knowledge on folk-lore medicines of Todgarh Raoli Wildlife Sanctuary and the selected important ethno-medicinal plants used by Rawat tribe's are discussed in this paper.

Keywords : Ethno-medicinal plants; Folk-medicine; Folk-lore; Traditional- knowledge; Rawat-tribes; Todgarh Raoli Wildlife Sanctuary.

Introduction

Todgarh Raoli Wildlife Sanctuary lies in central position of Aravalli range of Rajasthan. The sanctuary is fortunately a cradle of medicinal plants. This region is the ecotone of both vegetational segments like xerophytic vegetation as well as mesic vegetation. Rawat tribe lives dominantly in this sanctuary. A considerable amount of verbal information on medicinal properties of plant is available with Rawat tribe's of Todgarh Raoli Wildlife Sanctuary. These people have inherited good knowledge about cause and symptoms of common human and veterinary ailments and local flora with its hidden values from their ancestors, which is passed from one generation to another. Traditional uses of plants bio-diversity from Aravalli hill of Rajasthan were investigated¹ and unrecorded ethno-medicinal uses of biodiversity from Todgarh-Raoli wild life sanctuary, Rajasthan was reported². Ethno-botanical survey of Rajasthan - An update and plants in material culture of tribals and rural communities of Rajshmand district were reported³. Prospective of an ethnobotanical study from Rajasthan was done⁴. Although the pioneer studies on medicinal plants of Rajasthan were undertaken yet Medicinal plants of Todgarh Raoli Wildlife Sanctuary have not adequately been studied by earlier workers in details. In the present paper an attempt has been made to document the precious traditional knowledge on folk-lore medicines of Todgarh Raoli Wildlife Sanctuary and listed

(Table 1)³⁻⁹. This vital knowledge needs to be scientifically and systematically documented before it is lost due to rapid changes in the community on account of attaining modern civilization by the rural population.

Material and Method

Field surveys were made in different seasons of Todgarh Raoli Wildlife Sanctuary. Rainy season was the best time to visit many places, tribesmen and rural people to establish the reciprocal communication between ethno-medico investigations. A wide range of people were interviewed first in groups and then individually. Local herbal healers and livestock healers were also contacted. Interviews were conducted with the tribal people, local Viadys, Ojhas and Medicine men. Generally tribesmen who know about the medicinal plants do not want to share all information because they believe that medicinal plant, if disclosed, will loose its medicinal properties forever. Due to this reason, the information collection from the tribal's was an important aspect of ethno-medico studies. The information which was provided to us was verbal information and it was crossed examined at different places.

Efforts were made to identify the plant materials. The species were identified with the help of the flora of the Indian desert⁵ and the flora of Rajasthan⁶ Vol.-I, II, III.

Observations

Information on medicinal plants being used in the

Table 1.

S.No.	Name / local name/ Family	Plant Part Used	Ethno-medicinal Uses
1.	<i>Abutilon indicum</i> - Kanghi - Malvaceae	Leaves Stem Root	- Decoction of leaves is used to cure gonorrhoea. - Root is anti-inflammatory and Diuretic.
2.	<i>Achyranthes aspera</i> - Undo-Kanto -Amaranthaceae	Whole plant	-The ash of dried plant have high percentage of potash, and used as antacid. -A bath with the decoction of whole plants to cure Itching and skin disease. -Seeds mixed with milk used as tonic.
3.	<i>Adhotoda vasica</i> -Adusa -Acanthaceae	Leaves Stem	- The drug "Vasaka" is used in cough and asthma is a Juice of its leaves. -The paste of leaf and stem is beneficial in heating wounds.
4.	<i>Aegle marmelos</i> - Bil patar -Rutaceae	Fruit Leaves	-Ripe fruits are aromatic, cooling, laxative and used in constipation, and peptic-ulcer. -Unripe fruit is very effective in case of Chronic diarrhea and dysentery. -Its leaves are rich of tannin. It reduces inflammation.
5.	<i>Aloe vera</i> - Gwarpatha - Liliaceae	Juice Leaves pulp	-Drug "aloe" is prepared by the leaf of the plant. -It is externally applied on inflamed painful parts of the body. -Succulent pulp is used in eye flew.
6.	<i>Argemon mexicana</i> -Satyanasi -Papaveraceae	Leaves Flower Root	-Plant Juice is used in eye infection. -Roots are useful in chronic Skin disease. -Inflorescence juice is use as blood purifier.
7.	<i>Aristolochia bracteolata</i> -Hukka Bel -Aristolochiaceae	Leaves	-Powder of dried plant is used as an anthelmintic, and anti-inflammatroy. -Leaf juice mixed with mustard oil to cure skin disease like eczema.
8.	<i>Asparagus racemosus</i> -Satawary - Liliaceae	Tuber	-Tubers powder is an Aphrodisiac; it is used in sweet dish in winter by local peoples. -It is given to increase breast milk after delivery
9.	<i>Azardirachta indica</i> -Neem - Meliaceae	Whole plant	-The leaves applied externally for skin problems. -Washing of hair with leaf decoction stops hair loss and dandruff.
10.	<i>Baccopa monnieri</i> -Brahmi -Scrophulariaceae	Leaves Flowers	-Dried powder is use in memory enhancement. -Flowers are used for skin problems.

11.	<i>Balanites aegyptiaca</i> -Hingota -Balanitaceae	Fruit Seed root	-Seed powder & root powder used in chronic bronchitis. -Fruit pulp used in acne & vulgarism.
12.	<i>Barleria prionitis</i> -Bajardanti -Acanthaceae	Leaves Stem Flowers	-The decoction of whole plant is used in the treatment of toothache and to cure bleeding in gums. -The stem Juice is useful in fever and cough.
13.	<i>Blepharis indica</i> -Untkntablo -Acanthaceae	Seeds leaves	-Seeds are diuretic, expectorant and aphrodisiac. -Seeds boiled with milk and taken as tonic -Seeds and leaves are also given to cattle to increase milk production.
14.	<i>Boerhavia diffusa</i> -Santi -Nyctaginaceae	Whole Plant	-The "Punarnava" Ayurveda drug is prepared by whole plant. It is diuretic, antipyretic and laxative. -Fresh Juice of the plant is given as blood purifier.
15.	<i>Boswellia serrata</i> -salar -Burseraceae	Gum Bark	-Bark powder used in diarrhea. -Gum is use in chronic ulsar.
16.	<i>Butea monosperma</i> -Dhak -Fabaceae	Gum Flower	-Paste of seed & flower use for ring worm & skin disease. -Gum is given to female after delivery called "kamarkas".
17.	<i>Calligonum polygonoides</i> -Phogra -Polygonaceae	Whole Plant	-The aqueous paste of whole plant is given orally to the person, who has taken heavy dose of opium -Flower buds are effective in sun-stroke.
18.	<i>Capparis decidua</i> -Kair -Capparaceae	Fruit, Stem, Root	-Fruits are edible and used in international famous vegetable and are beneficial in cardiac problems. -The paste of branches and young leaves are used in swelling.
19.	- <i>Capparis seiparia</i> -Heens -Capparaceae	Leaves	-Leaf juice is externally use for skin problems.
20.	<i>Cardiospermum halicobum</i> -Aank Phootni ki bel -Sapindaceae	Whole Plant	-It promotes hair growth -Juice of plant cure earache. -It is applied in snake and scorpion bite. -The extract of plant is used to regular the menstrual cycle.
21.	<i>Cassia fistula</i> -Amaltas -Caesalpinaceae	Fruit Pods Seeds Flowers	-The Pulp of dried pods is well known safe purgative. -A decoction of the pods is used in dried cough. -The powdered seeds are use to cure intestinal amoebiosis.

22.	<i>Ceropegia bulbosa</i> -Suvakhadul -Ceratophyllaceae	Bulb	-Tribals eat its bulb for tonic.
23.	<i>Cissus quadrangularis</i> -Hadjod - Vitaceae	Stem	-The crushed stem is applied for bone setting in fracture of bones. It is fried in butter and eaten for a weak for early bone setting.
24.	<i>Citrullus colocynthis</i> -Tetumbo - Cucurbitaceae	Fruit Root	-The "Indrayan" Ayurveda drug is prepared by fruit. It is antipyretic, anathematic and used for gastric problem -Root powder is effective in jaundice.
25.	<i>Cleome gynandra</i> -hulhul -Capparidaceae	Whole plants	-Plant juice is given in weakness after fever. -Seed powder use for piles.
26.	<i>Cocculus hirsutus</i> - Jal Jamni ki bel - Menispermaceae	Leaf, Stem	-Leaves juice mixed with water form a jelly like substance, a cooling medicine for gonorrhoea and it is aphrodisiac. -The decoction of leaves is used in leucorrhoea.
27.	<i>Cocculus pendulus</i> -Pilwan - Menispermaceae	Root, Leaf Fruit	-Aqueous leaf mixture forms a green jelly which is used externally for skin disease. -Decoction of leaf is used in Kidney pain.
28.	<i>Clitoria ternatea</i> -Aparajita -Fabaceae	Root Leaves	-Root powder use for snake bite. -Juice is useful in jaundice.
29.	<i>Commiphora wightii</i> - Guggal - Burseraceae	Stem Gum resin	-It is source of a fragrant gum resin obtained from stem. In local medicine it is used as an antiseptic on old wounds. -The smoke from burning guggal is inhaled to cure bronchial infection.
30.	<i>Convolvulus microphyllus</i> -Shank Pushpi - Convolvulaceae	Whole Plant	-The whole plant is a source of an important drug in Ayurveda known as "Shank -Pushpi".
31.	<i>Datura metal</i> -Kala-datura - Solanaceae	Leaves	-The dried leaves and seeds are used as anti-spasmodic and in critical condition of asthma and whooping cough -Paste of leaves and seed oil is used to reduce rheumatic pains.
32.	<i>Dendrophthoe falcata</i> -Banda -Loranthaceae	Flower Leaves	-Decoction use for bronchitis and asthma
33.	<i>Dioscorea bulbifera</i> -Varahikand -Dioscoreaceae	Tuber	-Tuber powder use for colitis, dysentery & maturation.

34.	<i>Echinops echinatus</i> -Kantalo - Asteraceae	Whole Plant	-Root and seeds are aphrodisiac -Powdered roots are applied over wound of cattle's for early healing
35.	<i>Eclipta prostrata</i> -Bhrangraj - Asteraceae	Whole Plant	-Plant juice improves liver & spleen disorders. -Decoction of herb is used to rinse hair to maintain the black colors.
36.	<i>Euphorbia caducifolia</i> -Danda Thor - Euphorbiaceae	Root Latex	-The milky latex of plant is used as an expectorant. It is used locally as rube facient, digestive and abortifacient. -Latex is externally applied to skin blisters and wounds
37.	<i>Euphorbia hirta</i> -Dudhi - Euphorbiaceae	Whole Plant	-It is used in bronchial infection, cough, and asthma. -Whole Plant extract cheeks diarrhea and gonorrhoea.
38.	<i>Evolvulus alsinodes</i> -Phooli - Convolvulaceae	Whole Plant	-Decoction of Whole Plants is useful in brain tonic.- Flowers useful for treating the uterine bleeding. -Seeds oil promotes the growth of hair.
39.	<i>Fagonia indica</i> -Dhamaso - Zygothylaceae	Whole Plant	-Decoction of Whole Plants cure fever, small pox and other skin disease. -Decoction of leaves is blood purifier
40.	<i>Glycyrrhiza glabra</i> -Mulathi - Fabaceae	Rhizomes and Root	-Rhizomes and roots use as tonic. -It is useful in cough.
41.	<i>Grewia tenax</i> -Gundi - Tiliaceae	Stem, Root, Bark	-Stem bark decoction is effective in cough and muscular pain. -Fruits eaten by tribal have to quench thirst during summer season.
42.	<i>Manilkara hexandra</i> -Khirani -Sapotaceae	Fruit bark	-It is useful in epilepsy and skin disease.
43.	<i>Maytenus emarginata</i> -Kankera - Celastraceae	Leaf, Fruit	-An ointment prepared by mixing burnt leaves ash and butter heal the wound -Leaf Juice is taken for treatment jaundice and other liver disorders.
44.	<i>Mimosa pudica</i> -Lajvanti -Mimosaceae	Whole plants	-Whole plant use for vesicle calculi and externally for rheumatism. -Seeds are aphrodisiac.
45.	<i>Momordica dioca</i> -Kakora -Cucurbitaceae	Tuber Fruit	"VangaBhasma" prepare by tuber is useful for diabetes. -Paste of tuber for gland in breast.

46.	<i>Mucana pruriens</i> -Konch -Fabaceae	Seed Pod	-Tablet of hairs of pod is useful in intestinal worm -Mix powder of seed & fruit is useful in seminal weakness and erectile dysfunction of penis.
47.	<i>Pedaliium murex</i> -Gokhru - Pedaliaceae	Fruits	-Fruits are aphrodisiac-Decoction of green fruit is useful for urine problem.
48.	<i>Plumbago zeylanica</i> -Chitraka -Plumbaginaceae	Root	It is used in indigestion, diarrhea, piles and spleen enlargement.
49.	<i>Portulaca oleracea</i> -Luni Kulfo - Portulacaceae	Whole Plant	-Eaten as vegetable for the treatment of survey and diseases of kidney, spleen and bladder
50.	<i>Prosopis cineraria</i> -Khejri - Mimosaceae	Leaf, Flower and Pod	-Leaves paste is applied an injured part for early healing. -Pod is also eaten as vegetable called "Sangri" Vegetable "Pachkutta" -Decoction of young pods used for curing pneumonia.
51.	<i>Pueraria tuberosa</i> -Vidarikand -Fabaceae	Tuber	-It is used in "chyavanparash" as a tonic.
52.	<i>Salvadora oleoides</i> -Mitha Jal - Salvadoraceae	Stem Leaves Young branch	-Sweet edible fruit are eaten raw which has cooling effect. -Leaves are used to cure cough. -The young branch and roots are used as tooth brush.
53.	<i>Salvadora persica</i> -Karwa Jal, Pilu - Salvadoraceae	Whole Plant	-Decoction of leaves is used in constipation problem. -Young branches are use as toothbrush to cure the problem of toothache and gums.
54.	<i>Sida cordifolia</i> -Bal, Kungyi - Malvaceae	Leaves Root Young branch	-A tonic and aphrodisiac plant and also useful in neurological disorder. -Powder of root is used for the treatment of urinary and nervous disease.
55.	<i>Solanum nigrum</i> - Makoi - Solanaceae	Whole Plant	-Whole Plant is effective in chronic skin disease, such as acne, eczema -Decoction of dried fruits is given to mothers after delivery.
56.	<i>Solanum surattense</i> -Kateli, Ringemi - Solanaceae	Whole Plant	-It is an important constituent of well known Ayurvedic drug "Dasamula and Arkadhi" -Whole plant extract is effective in bronchial asthma.
57.	<i>Sphaeranthus indicus</i> -Gorakhmundi -Asteraceae	Whole plants	Decoction of the plants is use in chronic rheumatism.

58.	<i>Tamarindus indica</i> -Imli, Aamli - Caesapliniaceae	Fruit pulp, Flower, Seed Leaves	-Fruit pulp is used in traditional system as a refrigerant, digestive, laxative and Juice is beneficial in heat stroke. -Powdered seeds is used to treat chronic diarrhea, dysentery
59.	<i>Tecomella undulate</i> - Rohiro - Bignoniaceae	Leaf, Flower, Stem	-Paste of leaves stem is used in treatment of various skin disease -Leaf juice is mixed with water and used in pneumonia and typhoid -Flower gives an us orange colour herbal dye.
60.	<i>Tephrosia purpurea</i> - Mava, Sarphonto - Fabaceae	Root Stem	-Decoction of roots is given rheumatism. -Stem and root is used in the treatment of piles, skin disease and in stomach upset. -It is also beneficial in disease of Kidney.
61.	<i>Terminalia arjuna</i> -Arjun -Combretaceae	Bark	-Powder use in cardiac debility, hypotension and chronic fever also.
62.	<i>Tinospora cordifolia</i> - Neem Giloy - Menispermaceae	Whole Plant	-The decoction of stem is very useful in fever. -Extract of plant is hypoglycemic it is used for treatment of jaundice.
63.	<i>Tribulus terrestris</i> -Kanti, Chota - Gokhru - Zygophyllaceae	Whole Plant	-Mucilaginous water extract of Whole Plants is taken as a remedy for impotency. -Leaves are used in the treatment of stones in bladder.
64.	<i>Tricodesma indicum</i> -Adhah pushpin -Boraginaceae	Leaves	-Useful in burning sensation and skin disease.
65.	<i>Tylophora indica</i> - Damabel, Antamus - Asclepiadiceae	Leaf, Root	-Fresh roots expectorant in whooping cough & bronchitis. -Root paste is externally applied to relieve gout pain. -Leavers are effective in the treatment of allergy.
66.	<i>Uriginea indica</i> -Jangli Kando., - Liliaceae	Tubers, Bulb	-Dried powdered bulb is given in cardiac tonic in small doses. -It is used mainly in chronic bronchitis and asthma.
67.	<i>Vitex negundo</i> -Nirgundi - Verbenaceae	Leaves Flower Seed	-Decoction of leaves used to relieve body pain -Flowers are use in fever -Seeds considered cooling and used to treat skin disease.
68.	<i>Withamia somnifera</i> - Aswagandha - Solanaceae	Root, Seed, Leaf	-Plant is considered aphrodisiac -Fruits and seeds are diuretic
69.	<i>Ziziphus jujube</i> -Bada Ber -Rhamnaceae	Fruit- pulp, Leaves	-Paste of fruit pulp is use for burned skin. -Leaves are conditioning for hair.
70.	<i>Ziziphus mummularia</i> -Chota ber -Rhamnaceae	Fruit pulp, Leaves	-Useful in eczema and hiccup. -Leaf paste is used in skin problems.

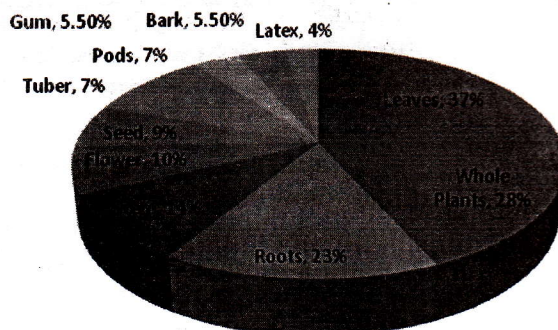


Fig. 1. Relative contributions of various plant part being used as medicine.

treatment of livestock in Todgarh Raoli Wildlife Sanctuary has been provided in Table 1.

The above check list is quite comprehensive and almost complete so far as the medicinal plants of Todgarh Raoli wild life Sanctuary are concerned. It is quite evident that the flora of Todgarh Raoli wild life Sanctuary is very rich from the point of view of medicinal properties.

Discussion

After thorough investigation in different habitat and localities of Todgarh Raoli Wildlife Sanctuary it was evident that 70 ethnobotanical important medicinal species from 65 genera belonging to 44 families were found to be widely used by Rawat tribes in different ways against various ailments in Todgarh Raoli wildlife Sanctuary Rajasthan.

Further it has been observed that the leaves are the most frequently utilized plants parts against various ailments. Preparation of leaf decoction is the most common traditional formulation prepared followed by paste and application of fresh juice. The ranking of the parts of plants being used against different is as follows- leaf > whole plants > roots > stem > flower > seeds > tuber > pods > gum > bark > latex (Fig. 1). A few parts were found to be effective against more than one disease. The data compiled was compared with pertinent published literature^{1,2,4,7,10}. The present investigation proves that ethno medicinal knowledge is also important from humanitarian point of view. It is our indigenous system of medicine among Rawat tribe. It is the rich medicinal repository of Todgarh Raoli wildlife Sanctuary.

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