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Research Article

ETHNO-MEDICINAL STUDIES AT SANCHOR AND MOUNT ABU REGIONS, LOCATED IN SIROHI DISTRICT OF RAJASTHAN

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ABSTRACT
Tribal areas in the district of Sirohi were visited to collect information on ethno-medicinal plants used in these regions by local medicine men (*Vaidhs*), local healers and Hindu priests (*Sadhus*). These people were interviewed; the plants samples were collected and preserved and displayed in the Ethnobotanical herbarium of Mahatma Gandhi Institute of Applied Sciences, Jaipur as herbarium sheets and museum specimens. The interviews were also recorded in video format. Current work is a part of expedition which includes database preparation of ethnomedicinal plants of southern Rajasthan which is supported by Department of Science and Technology Government of Rajasthan, India. The main objective behind the study is to conserve the traditional knowledge hidden in these regions and prepare their authentic documents. Several plants were observed, being used in ailment, infection, poison, cancerous conditions and as nutritional supplements.

Key Words*: Ethnobotany, Tribals, Herbal Medicine, Aravalli Hills, Mount Abu, Medicinal Plants, Rajasthan*

INTRODUCTION
India has a rich heritage of using medicinal plants. The knowledge of medicinal plants has been accumulated in the course of many centuries. Rigveda, which is one of the oldest books, supplies curious information on the medicinal plants. Two greatest treatises on the medicine *Charaka samhita* and *Susrutha samhita* were written by *Charaka* and *Susrutha*, respectively during 400-500 Ad (Meera 1998). The Indian subcontinents is being inhabited by over 53.8m tribal people in 5000 forest dominated by villages of tribal community and compromising 15% of the total geographical area of Indian landmasses, representing one of the greatest emporia of ethno-botanical wealth (Chowdhuri 2000). Medicinal plants have been playing an important role in the survival of the ethnic communities, who live in remote villages and forests. Traditional folk medicine, which is mostly un-documented, has been handed down orally from one generation to another. Large sections of the Indian population still rely on traditional herbal medicine (Dubey *et al.* 2004).

Rajasthan is the largest state of India, located in the north-western part of India. Geographically it lies between $23^0$30' to $30^0$12' longitude and $69^0$30' and $78^0$17' latitude. The most striking geological feature of Rajasthan are the Aravalli ranges – the oldest mountain range in the world, which runs from Khetri in north east to Khed Brahma in south west, a length of about 550 km. The variability in climate, edaphic, and topographic conditions causes diversity of vegetation in the Aravalli ranges. These hills ranges possess an abundant population of various tribes. The main tribes of the study area are Bhil, Meena, Garasia and Kathodi, which form 12% of the total population of the state. Plants growing around them form an integral part of their culture and are largely dependent on their traditional healing system for their healthcare (Meena and Yadav 2010). Ethnobotany has been defined as the study of direct interaction between humans and plants (Ford, 1978.a). Ethnobotanical studies in the tribal dominated area of Aravalli hill of Rajasthan have been carried out by Joshi and Aawasthi (1991), Joshi (1995b), Joshi (1995a), Joshi (1995), Jain (1991), Jain (1981), Katewa and Galav (2005a); Katewa and Galav (2005b), Katewa and Jain (2006), Shetty and Singh (1993), Singh and Pandey (1996); Katewa and Guria (1997); Asha (1997);

Singh and Pandey (1998), Nag and Ambika (1999); Singh and Pandey (1998). Instead of such studies a platform was seen consistently lacking where researchers, students and people could get acquainted with such traditional knowledge and vis-à-vis could see all such plants and their parts easily. Preparing herbarium of such medicinally important plants may kindle the researchers and people to come forward to preserve these valuable plants, which are fast depleting due to their overexploitation.

MATERIALS AND METHODS

Sanchor and Mt. abu regions situated in Sirohi district of Rajasthan were visited during the year 2009-10. Eight different persons including *Sadhus*, *Vaidhs* and tribal local healers, with average age more than 60 years, with hands on practices on herbal medicinal plants were interviewed. Before starting the field work, information about the priests and medicine men were gathered through local people. The local informants were persuaded to take us to them. Because without any known reference hardly anybody agrees to provide the information. Information collected during field work, were compared among different informants and with the available literature.

Information regarding the herbal knowledge was collected through discussions using a standard questionnaire. Their video shootings were done and plant samples were collected from the spot of the interview. Each of the plant species collected was photographed using field camera with powerful magnified lenses. The plants were collected, deposited and preserved as herbarium sheets and museum samples in the Ethno-botanical herbarium of our institute (Mahatma Gandhi Institute of Applied Sciences).

The collected herbal plants samples were identified from the local flora of Singh and Shetty (revised 1999), Bhandari (1990), herbarium of the University of Rajasthan, research papers published in various journals and Professors and scientists who have worked in these regions of Rajasthan. The plants were also collected from other places once they were identified. These plant samples were dried and stored for antimicrobial, antioxidant and other scientific validation work which is being carried out in our centre (Menghani *et al.,* 2010, Menghani *et al.,* 2011, Negi and Pahwa 2010, Negi and Sharma 2010). For authenticity, regarding medicinal properties of plants, the information collected from one place was closely counter compared with the information collected from other places through different informants. The information was also thoroughly cross checked and compared with the information available in the literature.

RESULTS AND DISCUSSION

The study revealed the ethno-medicinal information of 50 plants species belonging to 30 genera of 14 families. Of the total 50 species studied 35 were found growing in the wild and 10 were cultivated and 5 were found both as wild and cultivated. Most plants used in treatment were trees (22), and herbs (18 species), shrubs (9) and grasses. Further 4 species were found used as spices and vegetables. The common ailments, botanical and common names of the plants used to treat the corresponding ailment, parts used and mode of utilization are detailed (Table 1). Some of the findings were new and were not reported by earlier workers. For example stem of *Capparis decidua* used in cancer and herpes treatment etc. Similarlily *Abrus precatorius* used in mouth ulcer has been reported for the first time. Earlier Gupta *et al.,* (2008) reported its use in relieving eye pain and swelling. Most of the uses of plants, collected by us, have been reported by other workers also. Nag *et al.,* (2007) reported use of *Achyranthes aspera* in treatment of conjunctivitis in domestic animal. *Actiniopteris radiata* has been effectively used in chronic sores and wound healing by the healers, though its other use such as in unconciousness treatment by the tribal people has been reported by Jain *et al*., (2005) and in antifertility, anti-tubercular, styptic, as anthelmintic use in a book titled ‘Wealth of India (2006)’.

Table 1: Medicinal plants and their uses recommended by the priest and medicine man in Sanchor and Mount abu regions.

S. No.	*Plant Name*	Habit	Local Name	Parts Used	Uses
1.	***Achyranthes aspera***	*Herb*	*Apamarg, Lal apamag, Audha Jhara*	Whole plant	*Achyranthes aspera* is useful in migrane; juice drops are administered via nostril. Red variety is also used in impotency.
2.	***Actiniopteris radiata***	*Herb*	*Morpankhi*	Whole plant	Dry plant powder used to cure piles, boils when applied over. Only naturally dried plant should be taken.
3.	***Arachis Hypogaea***	*Herb*	*Groundnut*	Seed oil	Cures boils over entire body, itches. Wild monkey litter (dry) mixed in *Arachis*, groundnut and til oil. Grind the litter and apply upon the body after taking bath with water having neem leaves.
4.	***Boerhavia diffusa***	*Herb*	*saanthia*	Whole Plant, Root, flower	Used in stomachache. Roots are dipped in water overnight and then grinded. Filtered juice is used in stomachache and jaundice. When applied also treats sores, burning sensation. Its juice also used in eye itching. *B. diffusa* red flower variant is used in blood cancer treatment.
5.	***Cassia tora***	*Herb*	*Mradchakrak*	Whole plant, seed	Used in ring worm after grinding and applying on the affected area.
6.	***Chlorohytum borivilianum***	*Herb*	*Musli jungle*	Root	Boneache treatment; grinded root (500mg/1) if take in lukewarm milk cures bone ache.
7.	***Citrullus colocynthis***	*Herb*	*Thumbi*	Dried Fruit	Upon ripening the pulp gets dried into grey power. Its 50 gm powder is mixed with 250 gm ghee (animal butter). 50gm amount if taken daily for 10-15 days has been found useful in bone fracture.
8.	***Convolvulus arvensis***	*Herb*	*Hirankhuri*	Tonic	As tonic for kids
9.	***Curcuma amada***	*Herb*	*Ama haldi*	Root	It is mixed with sheep milk and then used for massage to cure nervine pain and swelling, and chronic pain. In urine and blood inflammation if its half teaspoon taken along with buffaloes or cow milk. It helps cure cramp and swelling in legs. Can apply its powder alone for the above effects also.
10.	***Cyanodon dactylus***	*Herb*	*Doob*	Leaf	During increased bleeding in ladies its juice can be administered via nose. Leaf juice can also be given via nostril when there is fibrosis in uterus. It stops bleeding.
11.	***Cyperus rotundas***	*Grass*	*Nagarmotha*	Root nodule /rhizomes, Root	Root nodule/rhizomes after drying are grinded into powder. If taken as capsule in morning and night help cure rheumatism. Cures stone problem. Root is sweet smelling and is used in making *agarbatti* sticks
12.	***Euphorbia hirta***	*Herb*	*Doodi*	Root Latex, Whole Plant, Leaf	Root after grinding if taken cures diarrhea, bleeding and cramp in stomach. Latex applied cures nerve bleeding, nerve inactiveness (*sunn*). Milk collected from aerial roots of *Ficus bengalensis* whe mixed with one *patasha* (Kind of sugar drop) and taken for 15 days cures *nightfall.* Paste of whole plant when applied over sores and boils cures the affected area.
13.	***Martinia annua***	*Herb*	*Bagnakh*	Fruit	Smoke, upon burning, if inhaled cures hysteria

14.	***Pedalium murex***	*Herb*	*Gokhru bada*	Stem	Stem when dipped in water makes water thick. If taken after adding some sugar and salt to it cures impotency.
15.	***Phyllanthes emblica***	*Herb*	*Bhoomi aanwla*	Whole plant	Juice useful in hepatitis B. Also used in urinary tract infection and hepatic damage.
16.	***Sesamum indicum***	*Herb*	*Til*	Seed oil	Mix camphor with *Sesamum* oil. Apply it over the area with Psorasis.
17.	***Tephrosia purpurea***	*Herb*	*Sharpunkha*	Whole plant	Used in spleen enlargement due to fever.
18.	***Tribulus terristris***	*Herb*	*Gokhru chota*	Whole plant	Used to cure stone
19.	***Tridex procumbens***	*Herb*	*Bhangra*	Whole plant	If plant juice/powder is applied over the bleeding area, blood stops coming out from the cut.
20.	***Abrus precatorious var red***	*Shrub*	*Lal chirmi*	leaves or seed	Its red variety (Lal chirmi) leaves or seed if chewed help cure tongue /mouth ulcer.
21.	***Adhatoda vasica***	*Shrub*	*Adoosa*	Flower, Leaf	Used in cough due to T.B. Its flower and Mishri are mixed to prepare Gulkand. Take 5-6 leaves, boil and filter. Add 2 *batashe* (kind of sugar drops) to it. Take before going to bed at night.
22.	***Andrographis paniculata***	*Shrub*	*Kariyata*	Leaf	Used in fever.
23.	***Asparagus racemosus***	*Shrub*	*Satavar*	Root	Roots upon grinding if applied over bald area cure baldness. If paste applied on sores then whole of the pus is dried out.
24.	***Baliospermum montanum***	*Shrub*	*Tamba Bel*	Leaf	Used in tumor treatment. Apply clarified butter (*Ghee*) over the affected area and tie the plants' leaf (ventral surface facing the affected area). This reduces the node (cancer) and the node subsides.
25.	***Calotropis gigantea***	*Shrub*	*Aankra Safed*	Root bark, Red flower	White flowered variety used to treat *baadi* (gastric problem)
26.	***Calotropis procera***	*Shrub*	*Aankada*	Root bark, Red flower	Red flower ash used to increase vision and treatment of eye infection. Its red flowered is used as stone medicine.
27.	***Capparis decidua***	*Shrub*	*Kair*	Stem	Stem grinded and its paste applied cures tumour. The stem paste if applied over the affected area also cures herpes simplex infection.
28.	***Cassia auriculata***	*Shrub*	*Amaltas*	Leaf	Bark used in curing mouth ulcer. Leaf juice cares stomachache and hepatitis.
29.	***Clerodendrum viscosum***	*Shrub*	*Arni*	Whole plant	Used in typhoid. Plant is used for massaging the body and can also be taken after boiling with water.
30.	***Datura metel***	*Shrub*	*Kala datura*	Seed	Used in asthmatic cases and *Baadi'* (gastric problem).
31.	***Evolvulus alsinoides.***	*Shrub*	*Shankhpushpi*	Whole plant	*Shankhpushpi* powder helps cure cough and diabetes, increase memory if taken 10gm twice a day.
32.	***Grewia flavescens***	*Shrub*	*Gengchi*	Root	Sweet *Gengchi* leaf and root powder if taken with water help reduce the labour pain after delivery.
33.	***Ipomoea_pes-caprae***	*Shrub*	*Samudra fini*	Whole plant	Used to cure pus problem in ears; keep it in water for some time and then add few drops in the ears.
34.	***Langenandra toxicaria***	*Shrub*	*Khadiya*	Root	If after grinding put inside nose stops running nose in winter.

35.	***Lawsonia inermis (Syn. L. alba Lam.)***	*Shrub*	*Mehendi (Henna)*	seeds	Seeds used in piles.
36.	***Leptadenia pyrotechnica***	*Shrub*	*Kheep*	Whole plant	Useful in diabetes.
37.	***Marsdenia tenacissima***	*Shrub*	*Maruwa*	Whole plant	Maruwa when boiled with tulsi and black peeper and taken useful in stomachache and dry cough.
38.	***Psoralea corylifolia***	*Shrub*	*(Bakuchi), bavchi*	Whole plant	When mixed with *Aloe veera* and grinded and then applied over stomach and cures stomach node (*Gaanth* or Tumour)
39.	***Ricinus communis***	*Shrub*	*Arand*	Oil, leaves	*Paak* of arand is used in impotency. Castor oil is used as laxative. Leaves if taken after boiling removes '*Vayoo'* from joints.
40.	***Rivea hypocrateriformis***	*Shrub*	*Phaang*	Leaf, stem	Boil in sour milk and if taken after sieving, relieves gas, cramp, loose motion, bleeding, leucorrhea. Phang leaves are used as vegetable.
41.	***Vitex negundo***	*Shrub*	*Nirgundi*	Whole plant	Used in joint pain and heat stroke. Its seed used in liver ailment
42.	***Acacia nilotica***	*Tree*	*Desi babool*	Flower Bark	Yellow flower after grinding with water applied over eczema. 50 gm flower taken with water twice a day cures hepatitis. Its 10gm bark powder taken with water can cure leucorrhea in women.
43.	***Carica papaya***	*Tree*	*Papita*	Latex	Papaya juice help cure toothache.
44.	***Cassia fistula***	*Tree*	*Amaltas*	Seed	Its 6gm seeds if boiled and taken cure stomachache, and stomach tumour.
45.	***Citrus medica***	*Tree*	*Bijora*	Fruit	Cut and add black salt, *Ajwain* (*Trachyspermum ammi*), cumin (50gm each) and prepare tablets of one spoon size. Take before going to bed. Also take preboiled and cooled water; adds *saunf* (*Foeniculum vulgare*) to it, grind it in the morning and add 2 *Batase* (sugar drops) and then taken with 250 ml water. Kidney stones get broken and come out within 5-6 days.
46.	***Dalbergia sissoo***	*Tree*	*Sheesham*	Leaf	Leaf juice used in urine inflammation.
47.	***Ficus bengalensis***	*Tree*	*Bad*	Root	Its aerial roots used to increase memory.
48.	***Mitragyna parviflora***	*Tree*	*Kadam*	Rubiaceae	Bark used as contraceptive; in fever, leucorrhoea, muscular pain, stomachache and syphilis.
49.	***Salvadora persica***	*Tree*	*Peelu*	Bark	Its bark ash (*Bhasma*) used as tooth powder. During heat if it is taken for one month one never experiences heat stroke during whole life. Leaf juice used as purgative.
50.	***Syzygium cuminii***	*Tree*	*Jamun*	Seed	*Jamun* treats diabetes. Seed powder if taken in 5-10gm twice a day help in diabetes.

Asparagus – root on grinding can be applied over bald area to cure baldness. Its other use has been reported in curing sores, diabetes as lactogogue and vaginal uterine prolapse by Choudhary *et al., (*2008). *Boerhavia diffusa* roots are used in Typhoid (Samvatsar and Diwanji 2003). *Chlorohytum borivilianum* Tuber used as anaemic and in rheumatism (Katewa *et al.,* 2003). Poultice of tuber of *Curcuma amada is* tied on fractured bone for early cure (Jain *et al.,* 2005). Use of *Martynia annua* in Pneumonia and cold fever, scabies, eczema and allergy, antidote and root and inflorescence in Eczema, stomachache menstrual disorder was reported by Jain 1991. Similarly Jain *et al.,* (2004) reported use of leaf extract of *Pedalium murex* in treatment of gonorrhea. All such findings have been summarized in the table 1. *Similarly Actiniopteris radiata* smoke inhalation is given by the tribals to recover from unconsciousness (Jain *et al.,* 2005). *Asparagus racemosus* Diabetes, Lactogogue, Vaginal uterine prolapse (Choudhary *et al.,* 2008).

From the entire study it can be concluded that it is also necessary that the tribal communities, who have provided so much of for sustainable ecological agriculture must also get the right as they played a critical role in acquainting such knowledge (Purohit and Vyas 2004). Further open access of medicinal plants in the wild is perhaps one of the reasons for the current unsustainable levels of harvesting (Nayar & Sastry 1990). Next factor that is causing un-sustainability includes lack of sufficient data on wild plant populations, marketing and trading, inadequate regulation and legal protection and poor access to appropriate technology for sound harvesting and plantation development. We recommend that the local people must be provided support and encouragement to protect their knowledge and resources.

Setting an ethno-medicinal herbarium at our institute is a boon for spreading knowledge and promoting researchers to save these valuable plants. We further recommend government to take adequate steps in protecting these resources from the drug and Pharma companies as they lure these tribal people to cut and supply the medicinal plants for meager income. We also welcome our new generation researchers to come forward and study these valuable plants for our sustainable development.

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