International Journal of Bioassays
ISSN: 2278-778X
www.ijbio.com

Research Article

ETHNO-MEDICINAL EXPLORATIONS OF SOME IMPORTANT PLANTS OF DISTRICT BANSWARA (SOUTH RAJASTHAN) UESD BY TRIBAL COMMUNITY

Shafkat Rana[1], Dilip Kumar Sharma[2]*, PP Paliwal and Nandini Sharma[2]
[1]P.G. Department of Botany, Shri Govind Guru Government College, Banswara-327001, Rajasthan, India
[2]Botany Research Lab., P.G. Department of Botany, Agrawal P.G. College, Jaipur-302003 Rajasthan, India

Received for publication: November 27, 2013; **Revised:** December 08, 2013; **Accepted:** January 04, 2014

Abstract: A floristic and ethno-botanical survey of plants of medicinal value of tehsil Bagidora (District Banswara) was done. Approximate 78% of the population mostly the tribes, still prefers to use herbs for different diagnostic purposes but the rural community used these herbal drugs along with modern medicines. Tribal cultures well versed about ethno-botanical information and uses of these medicinal plants for treatment of different diseases, wounds, fractures and other ailments. In the present study, 31 plant species listed that were used by the rural and tribal people for their various diagnostic uses. Medicinal values of these plants are largely collected and based on folk practitioners through the exhaustive interviews with local physicians practicing indigenous system of medicine, village headmen, priests and tribal folks. The study provides information that either the whole plant or different parts like leaves, stem, bark, roots, etc. directly or in different traditional formulations are used.

Keywords: Bagidora, Banswara, Ethno-botanical, Folk practitioners, Ailments, Indigenous, Tribal folks.

INTRODUCTION

It is believed that about 15-17 million species are present on the earth and 70% of them occur in tropical and sub-tropical parts of the world[15]. In India, utilization of plants for medicinal purposes has been documented in ancient literature but an actual study in this direction was initiated in 1956. Ethno-biology came in focus when the earliest man observed the animals mostly apes and monkeys eating certain plants and found heal his wounds and get rid from pain and suffering. Pushpangadan (1995) reported that in India, more than 43% of the total flowering plants are to be of medicinal importance and approx 70 percent inhabitants still rely on herbs[30]. An analysis of such observations provoked them to use of plants for maintenance of life and alleviation of diseases[31]. It was also realized that till now only 5% of the herbal wealth was studied whereas the rest remained unexplored[1]. World Health Organization has estimated 80% people rely on traditional medicines for primary health care in the world[6]. The demand for medicinal plants is increasing in both developing and developed countries for safe, effective and inexpensive indigenous remedies gaining popularity among the people especially in India and China. The tribal knowledge regarding the use of plant species for various purposes depend on the surrounding plants[24] and Plants or other living organisms have great potential to treat human diseases[32]. Thus, time demand an integrated and pluralistic approach towards health care to cope effectively with his situation[26]. The wild plant in Indian Folklore has been and is used to meet the various needs of the tribal's and poor people. Establishment of herbal forms in well selected localities will exercise scientific control over the cultivation of medicinal herbs[16]. In every ethnic group there exists a traditional health care system popular among community[23]. Information from ethnic groups or indigenous traditional medicine has played a vital role in the discovery of novel products from plants as chemotherapeutic agents[13]. The great potential of under usage of plants used by these societies especially in mankind's problem like hunger and health has been fully realized by the results of studies carried out so far.

Ethno-botanical studies have been carried out by Joshi (1995); Singh and Pandey (1998); Katewa and Guria, 1997, Katewa (2009); Meena and Yadav (2010) ; Sharma and Khandelwal (2010) in Rajasthan. The conservation and protection of medicinal plants against over exploitation by domestic and foreign commercial interest without benefits accruing to the nation are clearly our priorities[20].

The present study is towards a complete probe on the role of plants in medicines, agricultural implements, narcotics, poison, gums etc. by the people of Bagidora tehsil of Banswara district of Rajasthan, India.

The traditional healers of southern hilly region of Rajasthan having a commendable knowledge of the medicinal values of plant that grows around them[12]. In Banswara, different plant species are the major source of folk medicinal uses for new therapeutic agent. Vast knowledge on medicinal plants exists as oral among

Corresponding Author:
Dr. Dilip Kumar Sharma,
Botany Research Lab.,
P.G. Department of Botany,
Agrawal P.G. College,
Jaipur-302003 Rajasthan, India.

the folklore and primitive societies of India, where a large number of potent medicinal herbs are found growing wild. Although, a great amount of ethno-botanical research work has been undertaken in various pockets of tribal and rural population scattered throughout the country but still much is to be discovered.

MATERIALS AND METHODS

Study Area

District Banswara located in the extreme south of Rajasthan, between 23.11° N to 23.56° N latitudes and 73.58° E to 74.49° E. longitudes offers congenital climatic conditions favorable for luxuriant growth of various plants. It stretches an area of about 5037 Km^2 and exhibit remarkable topographic and edaphic diversity. Consequently, the high annual rainfall (about 1000 mm.) and humidity make this region suitable for the growth of certain medicinal plants and cryptogams. In the present study, exploration of small regions of tehsil Bagidora like Nogama, Burwa and Chokhla forest area were included for survey.

The usual physiographic characteristic of Bagidora roughly linked up hills and hill ranges followed by about 600 m. high contours basically structures of phyllites. The climate is more or less tropical, annual rainfall has been reported to be 890 to 1000 mm distributed over 58 rainy days. The percent relative humidity at 07.35 hrs were found to be varying between 42% (April) and 92% in the month of August. The district is well known for huge diurnal and seasonal temperature variations from 7°C in winters to 44°C in summers. These factors are responsible for the development of the vegetation having variable medicinal properties. This area is tribal rich and these people are well acquainted about the medicinal properties of plants [9, 14].

Methodology

The proposed study was based on personal interview with tribal and people of various age groups residing in rural areas of Bagidora tehsil of the district Banswara of Rajasthan based on field and literary research. The field tours for ethno-botanical survey were made at regular intervals in different seasons order to cover the tribal areas to collect the ethno-botanically interesting species either in flowering or fruiting stage to get maximum information. The data obtained from different localities of tribal villages were compared and cross linked to ascertain their validity and integrity. During the survey or visits of these localities, daily activities were closely observed, interpersonal contacts established by participating in several social and religious ceremonies and data collected through questionnaire in local language (BAAGRI).The method of collecting information about the plants were based on personal interview with tribal, rural and literate community of the tehsil of various age groups like village headman, spiritual leader, teacher, physicians, veterinary doctors, social worker, postal authorities and ayurvedic doctors etc. who could give correct information about the use of plant, their mode of use and collaboration to know-how the plants collected. These ethno-botanical data were collected by enquiry, observation, interview and participation. The collected specimens were identified taxonomically by the help of Flora of India[27], Flora of Indian Desert[3], Famine foods of Rajasthan desert[2], Flowers of Himalaya[21], Flora of North East Rajasthan[29], Flora of Upper Gangetic Plain and the Adjacent Siwalic and Sub Himalaya Tract (Duthie, 1903-1929). The verification and authentication of collected data were made in the light of standard literature[18, 7, 8,16,4].

RESULTS AND DISCUSSION

Ethno-botany enlightens numerous known or unknown uses of plants which have potential of wider usage and prove that everything in nature has some sort of power and spirit or its properties. So, it has relevant to conservation of genetic resources that helps to search new sources of drugs, food, fodder and other life supporting species found in nature. The survey indicates that tehsil Bagidara of Banswara district is rich in medicinal plants and covers a wide spectrum of human ailments. The plants are valued for herbal drugs, utilization for food, fodder, gums and resins, essential oil, dye, fatty oil, condiments, spices, etc.

The biodiversity data, fact sheets published globally emphasized that human authority, they invoked godly interventions in the form of rites, rituals and folk tales and lore to create a fear psychosis. The ethnic group (tribal people) around the world have developed their own culture, customs, religious rites, taboos, totems, legends and myths, folklores and songs, food and medicinal practices. Numerous wild and cultivated plants play a very important and vital role among these cultures and this interrelationship has evolved over generations of experience and practices. Now there is enough scope of amalgamation of these drugs in the mainstream of prenatal medicinal systems today after the tribal drugs are subjected to the photochemical and biological screening together with clinical trials.

In the present study, 31 species of ethno-medicinal plants were recorded belonging to 20 families used by the rural people of Bagidora of Banswara, Rajasthan for various ailments. These medicinal plants were used as simple drugs or remedies for normal and acute problems are used in the form of juice, powder, decoction or paste. The mixture of different plant parts were also used for preparing medicines. Rural people were using these to cure diseases like fever, cold & cough, skin diseases, dysentery, pain, diarrhoea,

wounds, snake bite, insect bite, asthma, burn and other various disorders (table 1).

Table 1: Ethno-medicinal uses of the plants used by the tribal of Bagidora tehsil of district Banswara, Rajasthan, India

S. No.	Name of Plant	Family	Uses of medicinal plants
1	*Acacia catechu*	Mimosaceae	The paste of the bark is applied locally in stomatitis. The exudates of the plant are given orally in case of difficult child birth.
2	*Azadirachta indica*	Meliaceae	Twigs, leaves used for boils, abscesses, adenitis, eczema, ulcers. It is considered as a divine tree and great gift of nature and as an 'all cure' for human problems.
3	*Acacia nilotica*	Mimosaceae	The fruit powder along with sugar is taken orally in case of dysentery. Bark, latex used for cholera and burn problems.
4	*Acacia senegal*	Mimosaceae	Gum used for burn, other inflamed area. Sometimes gum is taken orally in cases of inflammation of intestinal mucosa.
5	*Aerva tomentosa*	Amaranthaceae	Decoction of whole plant used for swelling.
5	*Acalypha indica*	Euphorbiaceae	Whole plant used for bronchitis, pneumonia and ulcers.
6	*Achyranthrus aspera*	Amaranthaceae	Whole plant used as diuretic and astringent.
7	*Aegle marmelos*	Rutaceae	The reputed medicinal properties of ripe fruits for curing chronic dysentery, habitual constipation and dyspepsia are widely known to the tribal communities.
8	*Amaranthus spinosus*	Amaranthaceae	Leaves, roots are used as Laxative and abortifacient.
9	*Bauhinia purpurea*	Caesalpiniacea	The decoction of the flower buds is taken orally in constipation.
10	*Boerrhaavia diffusa*	Nyctaginaceae	The leaves are consumed as vegetable in cases of kidney stones. The root paste is taken orally to cure jaundice.
11	*Calotropis procera*	Asclepiadaceae	Fresh flowers are taken orally as anti-venom against snake bite. The leaf-ash is used to cure cough and cold. Roots and flowers used in malarial fever.
12	*Cassia fistula*	Caesalpiniaceae	It is used for the treatment of constipation or as anti-helminthic.
13	*Cynodon dactylon*	Poaceae	Whole plant, roots used for piles, fistula, fissure, chronic gleet etc.
14	*Dalbergia sisoo*	Fabaceae	Leaves and bark used for Inflamed mammary glands.
15	*Datura stramonium*	Solanaceae	Whole plant used for asthma and in ophthalmology. Tribal smoke the seeds and leaves directly to cure asthma.
16	*Eclipta alba*	Asteraceae	Whole plant used as hair tonic, to cure enlarges liver and spleen and skin diseases.
17	*Emblica officinalis*	Euphorbiaceae	Bark, leaves, fruits used for sores, pimples, refrigerant, diuretic and laxative.
18	*Euphorbia hirta*	Euphorbiaceae	Whole plant used for treatment of worms, vomiting, asthma and ulcers disorders.
19	*Evolvulus alsinoides*	Convolvulaceae	Whole plant used as febrifuge, enhance memory and cure asthma.
20	*Ficus benghalensis*	Moraceae	Tender ends of aerial roots, latex, fruits, leaves, bark are obstinate, used in vomiting, piles, boil and blisters. Few drops of the latex taken orally are used to overcome sexual impotency. Leaf extract is taken orally in case of diarrhea.
21	*Ficus religiosa*	Moraceae	Leaves, fruits, bark and seeds used to prevent conception forever and inflammatory ulcers.
22	*Jatropha curcas*	Euphorbiaceae	Leaves used for dysentery and colic pain also used for promote lactation. The seed oil and seeds used as a purgative by the tribals.
23	*Lantana camara*	Verbenaceae	Leaves used for cure of rheumatism
24	*Lawsonia inermis*	Lytheraceae	The medicated water of the roots (24 hours old) taken orally for controlling birth; leaves used for spermatorrhoea and yellow fever.
25	*Momordica balsamina*	Cucurbitaceae	Fruits used to cure as cathartic and diabetes.
26	*Nerium indicum*	Apocynaceae	Bark, leaves and flowers used as cardio-tonic and diuretic. The decoction of leaves used as gargle to cure jaw ache.
27	*Phyllanthus emblica*	Euphorbiaceae	The fruits are soaked in honey and taken orally to cure leucorrhoea.
28	*Ricinus communis*	Euphorbiaceae	Leaves, seeds, caruncle used to cure rheumatism, juice of leaves mixed with mustard oil and applied locally to reduce menses pain.
29	*Tridex procumbens*	Asteraceae	The leaf juice used as dropped locally on wounds and cuts to stop bleeding.
30	*Withania somnifera*	Solanaceae	Roots and leaves used to cure sexual weakness, cough, dropsy, diuretic conditions. Roots are used in several ailments by the traditional folk healers.
31	*Ziziphus mauritiana*	Rhamnaceae	Whole plant used for pain relief and wound healing, fruits used for weakness (mineral deficiency).

The rapid degradation of forest has resulted in depletion of natural resources. So conservation of these plants should be viewed seriously and urgent need to embark on large scale cultivation of these plants through high socio-economic value and creation of herbal gardens in Rajasthan and also in other part of India. The issue of medicinal plants conservation has been focused in the last 15 years and various conservation methods (*in situ,* botanical gardens, germplasm banks, etc. and *ex situ*) were mentioned by many researchers[9]. Keeping in view the above observations the ethno botanically important plants of Bagidara were identified through a wide survey under the present investigation. There are urgent need conserve these medicinal and economical important plants because the area has important plant wealth for healthcare in Rajasthan.

The government should take sincere action to protect the forest and its wealth and need for developing a code of practices for growing, harvesting, collecting, handling; packaging, storing and exporting

these ethno-plant materials because many of them are at the verge of extinction due to over-exploitation.

ACKNOWLEDGEMENTS

Authors are grateful to Prof. B.L. Chaudhary, Ex-Vice Chancellor, M.L.S. University, Udaipur, Rajasthan for their constant help throughout the progress of this work. We are also thankful to Prof. Kailash Agrawal, Department of Botany, University of Rajasthan, Jaipur and Prof. R S Khangrot, Principal, Agrawal P.G. College, Jaipur, for their valuable support and academic guidance. Authors are highly thankful to the traditional knowledge and technical assistance provided by forest officials and Sh. Bhoodeo Bhatt, villagers of area especially Sh. Manna Lal, Sh. Amrit Lal, Sh. Kaliya ji, Sh. Vithla Bhai and Sh. Kantilal during the course of studies.

REFERENCES

1. Arya S, Arya PK, Singh M, Bioprospecting of threatened medicinal plant biodiversity of Nawalgarh region with ethno-ecological analysis, In: National Seminar on Conservation and Utilization of Natural Resources and Their Role in Sustainable Development, Jhunjhunu, 2008, 67.

2. Bhandari MM, Famine foods of Rajasthan desert, Economic Botany, 1974, 28, 73-81.

3. Bhandari MM, Flora of Indian Desert, MPS Repros, Jodhpur, 1990.

4. Chopra RN, Indigenous Drugs of India, Academic Publication, New Delhi, 1982.

5. Duthie JF, Flora of Upper Gangetic Plain and the Adjacent Siwalic and Sub Himalayan Tract. Vol. 1-3. Govt. Press of India, Calcutta, 1903-1929.

6. Fransworth N, The role of ethnopharmacology in drug development, In: Bioactive Compounds from Plants, edited by D.J. Chadwick & J. Marsh (John Willey & Sons, New York) 1990, 2-21.

7. Jain SK, Studies in Indian ethnobotanical plants used in medicine by tribal of Madhya Pradesh, Bulletin Regional Research Lab., 1963, 126-129.

8. Jain SK, Dictionary of Indian Folk Medicines and Ethnobotany, Deep Publication, New Delhi, 1991.

9. Jain SK, Defillips, Medicinal Plants of India, Reference Publication, Alogonal, Michigan, USA, 1991.

10. Joshi P, Ethnobotany of the primitive tribes in Rajasthan, Printwell Jaipur, 1995.

11. Katewa SS, Guria BD, Ethnomedicinal observations on certain wild plants from southern Aravalli hills in Rajasthan, Vasundhara, 1997, 2, 85-88.

12. Katewa SS, Galav PK, Traditional herbal medicines from Shekhawati region of Rajasthan, Indian Journal Traditional Knowledge, 2005, 4(3): 237-245.

13. Katewa SS, Indegenous people and Forests: Perspectives of an Ethnobotanical study from Rajasthan (India)-Herbal Drugs: Ethnomedicine to Modern Medicine (Springer, Berlin), 2009, 33-56.

14. Kaushik P, Dhiman AK, Medicinal plants and raw drugs of India, Bishan Singh Mahendra Pal Singh, Dehradun, 2000.

15. Krishnankutty N, Chandrasekaran S, Biodiversity hotspots: defining the indefinable? Current Science, 2007, 92 (10): 1344-1345.

16. Kritikar KR, Basu BD, Indian Medicinal Plants, Vol. II-IV. International Book Distributors, Dehradun, 1987.

17. Meena KL and Yadav BL, Some traditional ethnomedicinal plants of Southern Rajasthan, Indian Journal of Traditional Knowledge, 2010, 9 471-474.

18. Nadkarni AK, Indian Materia Medica, Vol I&II, Popular Prakashan, Bombay, 1992.

19. Nargas J, Trivedi PC, Traditional and medicinal importance of *Azadirachta indica* in India, Journal of Economic and Taxonomic Botany, 1999, 23, 33-37.

20. Natesh S, Ram HYM, An update of green medicine, Journal of the Indian Botanical Society, 1999, 78:13-23.

21. Polunin O, Stainton A, Flowers of Himalya, Oxford University Press, New Delhi, India, 1984.

22. Pushpangadan P, Ethnobiology of India: A Status Report, GOI, New Delhi, 1995.

23. Rai R, Some traditional medicinal plants used for cold, cough and fever by tribal of Bastar (Chhattisgarh), Journal Indian Botanical Society, 2007, 86(1&2) 27-36.

24. Reddy KN, Trimurthulu G, Reddy CS, Medicinal plants used by ethnic people of Medak District, Andrapradesh, Indian Journal Traditional Knowledge, 2010, 9(1) 184-190.

25. Sebastian MK, Bhandari MM, Magicoreligious beliefs about plants among the Bhils of Udaipur district of Rajasthan, Folklore April, 1984a, 77-88.

26. Sen A, Batra A, Economically important plant system: *Melia azedarach* L. and its biotechnological approaches, In: National Seminar on Biotechnology in Sustainable Agriculture and Environment Management, Jaipur, 2008, 84.

27. Sharma NP, Balakrishanan, Flora of India, Vol 1-4, Botanical Survey of India, Calcutta, 1996.

28. Sharma L, Khandelwal S, Traditional uses of plants as cooling agents by the Tribal and Traditional communities of Dang region in Rajasthan, India, Ethnobotanical Leaflets, 2010, 14 218-224.

29. Sharma S, Tiagi B, Flora of North East Rajasthan, Kalyani Publication, New Delhi, 1979.

30. Singh G, Bioresources of medicinal and aromatic plants of India, their conservation and related issues. Kurukshetra, 1997, 56 9–13.

31. Sinha S, Ethnobotanical and Biodiversity Studies of Plants Used in Traditional Medicines in Jaipur (Rajasthan), PhD Thesis, University of Rajasthan, Jaipur, 1999.

32. Subbu RR, Prabha AC, Medicinal plant diversity of Virudh nagar District, Tamil Nadu, Current Biotica, 2009, 3(3) 373-385.

Source of support: Nil
Conflict of interest: None Declared