

Ethno-medicinal Active Plants for Treating Cold and Cough in the Vicinity of Nahargarh Wildlife Sanctuary, Jaipur, India

J.B. Khan* and G.P. Singh

Department of Botany, University of Rajasthan, Jaipur- 302004, Rajasthan, India

**E-mail: khan_jangbahadur@yahoo.com*

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Abstract

The present investigation is an attempt to enumerate the ethno-medicinal plants distributed in Nahargarh Wildlife Sanctuary, Jaipur, India. Traditional medicinal knowledge on 29 plant species has been documented which have the active principles for the treatment of cold and cough. A field survey of the study area was carried out to describe for the utility of these plants. Different parts of plant (roots, stem, leaves, bark, fruits, seeds, bulb, etc.) or the whole plant/herb is used as medicinal purpose for various ailments. Short diagnostic description, systematic position and local/tribal names of plants are described.

Key words: Nahargarh wildlife sanctuary, ethnomedicinal plants, systematic position, ailments

Introduction

Ethnobiology came in to being when the earliest man observed the animals mostly the apes and monkeys eating certain plants and found heal his wounds and get rid from pain and suffering. An analysis of such observations provoked them to use of plants for maintenance of life and alleviation of diseases (Sinha, 1999). Despite of new advances in medicine, the cultural use of plant in traditional medicine continues from ancient time to this day all over the world (Bhattarai *et al.*, 2009). World Health Organization has estimated that 80% of the people in the world rely on traditional medicines for primary health care needs (Fransworth, 1990). It was also realized that till now only 5% of the herbal wealth was studied whereas the rest remained unexplored (Arya *et al.*, 2008).

India is one of the world's 12 biodiversity centers with presence of over 45000 different plant species. Of these, about 15000-20000 plants have good medicinal value. However, only 7000-7500 species are used for their medicinal values by traditional communities (Subbu and Prabha, 2009). Medicinal plants are gaining popularity because of several perceived advantages, such as fewer side effects, and better patient compliance (Brown *et al.*, 2008). Today the medicinal world is posed with complex challenges. Thus time demand an integrated and pluralistic approach towards health care to cope effectively with his situation (Sen and Batra, 2008). Establishment of herbal forms in well selected localities will exercise scientific control over the cultivation of

medicinal herbs (Kritikar and Basu, 1987). In every ethnic group there exists a traditional health care system, which prevalent and popular among community (Rai, 2007). 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 (Natesh and Mohan Ram, 1999).

The vegetation of Nahargarh Wildlife Sanctuary is varied, depending upon the climate and edaphic factors and it has impressive medicinal flora and large numbers of plants have been considered as important therapeutic aid for alleviating ailments of human kinds. These plants are being used in the vicinity of sanctuary by various tribal communities in traditional medicines for hundreds of years. The present study emphasizes on both the use as well as the conservational aspect of medicinal plants of sanctuary, because in the wake of their bioprospecting and uses as herbal medicines, they have badly exploited resulting into serious genetic erosion of their species.

Materials and methods

Nahargarh Wildlife Sanctuary is a small sanctuary and situated at Northeastern part of Aravalli hills and Northern outskirts of Jaipur city. It is confined between 26°15' to 28°45'N and 75°45' to 77°05'E. The Aravalli ranges (oldest hills of the World) traverse through sanctuary and the forest type is subsidiary edaphic type of dry tropical thorn forest.

Intensive exploration trips were conducted to document the ethno-medicinal plants of sanctuary. Field trips were made twice a week in the beginning and once in the week later during the period of January,

2008 to January, 2010. The information was gathered by direct field observations and interviews with knowledgeable villagers, folk healers and other practitioners in traditional medicines. During the periodic visits, a number of plants were located and attempt was made to find out their local/scientific names, family and ethnobotanical distributions. The collected specimens were identified taxonomically with the help of the Flora of India (Sharma and Balakrishnan, 1996), Flora of Indian Desert (Bhandari, 1990), Flora of North East Rajasthan (Sharma and Tiagi, 1979), Flora of Upper Gangetic Plain and the Adjacent Siwalic and Sub Himalaya Tract (Duthie, 1903-1929) and Flowers of Himalaya (Polunin and Stainton, 1984). The verification and authentication of collected data were made in the light of standard literature (Jain, 1963, 1991; Nadkarni, 1992).

Results

During the study, the following 29 ethno-medicinal plants belonging to 22 families were enumerated as curing agents for cold and cough. Roots and leaves were most commonly used plant parts to cure these ailments and other parts (bark, fruits, seeds, stem or whole plant) were also beneficial for treatment. The details regarding scientific name, local name, family, useful parts and medicinal values of these plants were given as follows (Tab.1).

Discussion

Cold and cough are very common among the human kind. People in the vicinity of Nahargarh Wildlife Sanctuary have been using various folk remedies for treating fever due to cold and cough. These people have been preserving this folk knowledge in

Table 1. List of medicinal plants used for cold and cough treatment in the vicinity of Nahargarh Wildlife Sanctuary

SN	Botanical name	Local name	Family	Ethno-medicinal uses
1.	<i>Abrus precatorious</i> L.	Ratti/Chirmi	Febaceae	Leaves are used to make tea which is drunk twice a day.
2.	<i>Achyranthes aspera</i> L.	Chirchita	Amaranthaceae	Root powder used with a cup of cow's milk daily twice for three days
3.	<i>Adhatoda vasica</i> Nees.	Adusa	Acanthaceae	5-8 leaves are boiled into two cups of water and when remains one forth than its take twice a day.
4.	<i>Aegle marmalos</i> (L.) Corr.	Bel	Rutaceae	Pulp of fruits is taken thrice a day.
5.	<i>Aloe vera</i> L.	Ganwar-patha/Ghi-kanwar	Liliaceae	Extract of whole plant is taken.
6.	<i>Alstonia scholaris</i> (L.) Br.	Saptarni	Apocynaceae	Bark powder is boon remedy.
7.	<i>Annona squamosa</i> L.	Sitaphal	Annonaceae	Leaves decoction is taken.
8.	<i>Asparagus racemosus</i> Wild.	Satavar	Liliaceae	Root powder is recommended twice daily.
9.	<i>Azadirachta indica</i> Juss.	Neem	Meliaceae	About 7-10 leaves are boiled in cup of water till half cup remains. Decoction is drunk twice a day.
10.	<i>Balanites roxburghii</i> Planch.	Hingota	Simaroubaceae	Decoction of bark is taken twice daily.
11.	<i>Calotropis procera</i> Br.	Aak/Aakra	Asclepiadaceae	Smoke of leaves after burning is inhaled.
12.	<i>Centella asiatica</i> (L.) Urban	Brahmi-buti	Apiaceae	Paste of whole plant is filtered and drunk in the morning.
13.	<i>Cocculus pendulus</i> (JR. & G. Forst) Diels	Jal-jamni	Menispermaceae	Root decoction is taken twice daily.
14.	<i>Cordia dichotoma</i> Forst. f.	Lasora	Boraginaceae	Fruits are recommended for fever due to cold.
15.	<i>Desmodium gangeticum</i> (L.) D.C.	Shalparni	Febaceae	Root powder is taken with water in morning.
16.	<i>Gloriosa superba</i> L.	Kalihari	Liliaceae	Leaves are boiled in water and taken thrice a day.
17.	<i>Lantana indica</i> Roxb. Ed.	Beshram	Verbenaceae	Flowers are soaked in water overnight and water is taken 3-4 times a day.
18.	<i>Leptadenia reticulata</i> (Retz.) Wt. & Arn.	Jeevanthi	Asclepiadaceae	Twigs are crushed and sap is made. 10-15 ml sap is taken twice a day.

19.	<i>Madhuca indica</i> Gmel.	Mahua	Sapotaceae	Flower juice is taken with cow's milk.
20.	<i>Moringa oleifera</i> Lam.	Sahinjana	Moringaceae	Leaves squeezed with salt on palm and added with some lime juice are applied around the neck for choked voice.
21.	<i>Ocimum canum</i> Sims.	Van-tulsi	Lamiaceae	Leaves juice is taken twice daily.
22.	<i>Plumbago zeylenica</i> L.	Chitrak	Plumbaginaceae	Paste of whole plant is taken with milk or water twice a day.
23.	<i>Prosopis cineraria</i> (L.) Druce.	Khejri/Janti	Fabaceae	Regular use of fruits is helpful for treatment.
24.	<i>Punica granatum</i> L.	Anar	Punicaceae	Powder of fruit coat is taken with honey three times a day.
25.	<i>Solanum surrattense</i> Burm. f.	Nili-kanteli/Pasal-kanteli	Solanaceae	Leaf infusion is recommended for curing.
26.	<i>Tamarindus indica</i> L.	Imli	Fabaceae	Juice of leaves is taken twice daily.
27.	<i>Terminalia arjuna</i> (Roxb.ex DC.) Wt.&Arn.	Arjuna/Ashoka	Combretaceae	Decoction of stem bark is taken thrice a day.
28.	<i>Tinospora cordifolia</i> (L.) Merr.	Giloe/Neem-giloe	Menispermaceae	Stem decoction is administrated with honey.
29.	<i>Withania somnifera</i> (L.) Dunal	Ashwagandha	Solanaceae	Root powder is taken with milk in daily morning.

their scripts. Plant preparations, that they are use for treatment of cold and cough in most cases are regarded as miracle remedies and some times only one dose is sufficient for treatment. Plant parts were generally prepared as medicine using hot and cold water as the solvent but occasionally remedies were also prepared with milk and honey. Medicines are prescribed in different forms including decoction, paste, powder, infusion, etc., but study found that decoction and paste forms are more commonly used than other forms. Due to availability of modern synthetic medicines, the new tribal generations doesn't like to practice and use the herbal preparation, because these remedies are time being practices.

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.) were mentioned by many researchers. Nahargarh Wildlife Sanctuary has heavy biotic pressure due to situated at northern part of metropolitan city Jaipur and many ethno-medicinal plants are at the verge of extinction. Therefore, conservation of these plants should be viewed seriously. Similar observations have been recorded by Borthakur (1991), Negi *et al.* (1993), Rana *et al.* (1994), Kapoor *et al.* (2008), and Khan *et al.* (2009).

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References

- Arya, S., P.K. Arya and M. Singh 2008. Bioprospecting of threatened medicinal plant biodiversity of Nawalgarh region with ethnoecological analysis. In *National Seminar on Conservation and Utilization of Natural Resources and their role in Sustainable Development*, Jhunjhunu. pp. 67.
- Bhandari, M.M. 1990. *Flora of Indian desert*. MPS Reports, Jodhpur.
- Bhattarai, S., R.P. Chaudhary, and R.S.L. Taylor 2009. Ethnomedicinal plants used by the people of Nawalparasi district, central Nepal. *Our Nature* 7: 82-99.
- Borthakur, S.K. 1981. Native phytotherapy for child and woman diseases from Assam in dye stuffs. In *Glimpses of Indian Ethnobotany*. pp. 182-190.
- Brown, L., O. Heyneke, D. Brown, J.P.H. Wylvan and J.H. Hamman 2008. Impact of traditional medicinal plant extract on antiretroviral drug absorption. *Journal of Ethnopharmacology* 119: 588-592.
- Duthie, J.F. 1903-1929. *Flora of upper Gangetic plain and the adjacent Siwalic and sub Himalayan tract*. Vol 1-3. Govt. Press of India, Calcutta.
- Fransworth, N. 1990. The role of ethnopharmacology in drug development. In *Bioactive compounds from plants*, (Eds. D.J. Chadwick and J. Marsh). John Willey and Sons, New York. pp. 2-21.
- Jain, S.K. 1963. Studies in Indian ethnobotanical plants used in medicine by tribal of Madhya Pradesh. *Bull. Regional Research Lab. Vol?:* 126-129.
- Jain, S.K. 1991. *Dictionary of Indian folk medicines and ethnobotany*. Deep Publications, New Delhi.
- Kapoor, B.B.S., J.S. Khatri, S. Sudan and Bhumika 2008. Herbal plants of Rajasthan desert: A good source of anti microbial principles. In *National Seminar on Conservation and Utilization of Natural Resources and their role in Sustainable Development*, Jhunjhunu. pp. 87-90.
- Khan, J.B., M. Kumar and G.P. Singh 2009. Medicinal plants of Nahargarh Wildlife Sanctuary (NWS) traditionally used by people in the vicinity of sanctuary. *Journal of Phytological Research* 22(1): 99-102.
- Kritikar, K.R. and B.D. Basu 1987. *Indian medicinal plants*. Vol. II, III & IV. International Book Distributors, Dehradun.
- Nadkarni, A.K. 1992. *Indian materia medica*. Vol. I & II. Popular Prakashan, Bombay.
- Natesh, S. and H.Y. Mohan Ram 1999. An update of green medicine. *Journal of Indian Botanical Society* 78: 13-23.
- Negi, K.S., J.K. Tiwari, R.D. Gour and K.C. Pant 1993. Notes on ethnobotany of five districts of Garhwal Himalaya, Uttar Pradesh, India. *Ethnobotany* 5: 73-81.
- Polunin, O. and A. Stainton 1984. *Flowers of Himalaya*. Oxford University Press, New Delhi, India.
- Rai, R. 2007. Some traditional medicinal plants used for cold, cough and fever by tribal of Bastar (Chhattisgarh). *Journal of Indian Botanical Society* 86(1-2): 27-36.
- Rana, T.S., D. Bhasker and R.R. Rao 1994. Strategies for sustainable utilisation of plant resources by the tribals of the Tona valley, western Himalaya. *Ethnobotany* 8: 96-104.
- Sen, A. and A. Batra 2008. Economically important plant system: *Melia azedarach* L. and its biotechnological approaches. In *National Seminar on Biotechnology in sustainable*

- Agriculture and Environment Management*. Jaipur. pp. 84.
- Sharma, N.P. and Balakrishnan 1996. *Flora of India*. Vol 1-4. Botanical Survey of India, Calcutta.
- Sharma, S. and B. Tiagi 1979. *Flora of north east Rajasthan*. Kalyani Publication, New Delhi.
- Sinha, S. 1999. *Ethnobotanical and biodiversity studies of plants used in medicines in Jaipur (Rajasthan)*. University of Rajasthan, Jaipur, Rajasthan. (Ph.D. Thesis).
- Subbu, R.R. and A.C. Prabha 2009. Medicinal plant diversity of Virudhnagar district, Tamil Nadu. *Current Biotica* **3(3)**: 373-385.