

Ethnopharmacological Study of Medicinal Plants in East Tarai Forest Division Haldwani, Uttarakhand

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Abstract

This report deals with the results of an ethnopharmacological survey of medicinal plants conducted during November, 2000, in the East Tarai Forest Division Haldwani, Nainital - one of the important divisions of Kumaon's tarai in Uttarakhand. It lists 30 plant species belonging to 24 families that are widely used by the indigenous communities of the area as folk drugs for treatment of various diseases and conditions of humans and cattle. For each plant species the correct botanical and prevalent local names, part used, claimed medicinal use(s) and mode of administration are given. The study has revealed, hitherto, many unknown traditional phytotherapeutic uses of plants from the area investigated.

Keywords: Ethnopharmacological survey, Folk medicine, Haldwani, Nainital, Kumaon.

Introduction

In Nainital district of Kumaon region (Uttarakhand), the tarai belt is well formed along the base of outer hills of Siwalik ranges. This sub-himalayan tract has super abundance of water and rich floral diversity. It is a land of diverse cultures and ethnic groups who mainly use natural products directly as drugs. From different parts of the area a wide range of plants with ethnomedicinal value against a number of important diseases have been reported by many workers (Agnihotri *et al.*, 2003; Anonymous, 2001, 2008; Pant and Pandey, 1998; Singh, 1993, 2003; Singh *et al.*, 1987; Singh and Maheshwari, 1990, 1993, 1994). No separate list, however, exists for the plants which are in therapeutic use among the tribals of East Tarai Forest Division Haldwani, Nainital. Therefore, the present report communicates information on widely used herbal preparations collected during an ethnopharmacological survey conducted in this forest tract.

The area of study forms a part of Nainital and Udham Singh Nagar districts of southernmost Kumaon region and lying between 28° 43' 07" - 29° 09' 28" N latitude and 79° 32' - 80° 06' 45" E longitude. It comprises of nine forest ranges viz. Gola, Kishanpur, Dauli, Ransali, Barakoli, South Joulasal, Surai, Khatima and Kilpura (Fig. 1) which are predominantly inhabited by 'Tharus' and 'Vangujjars'. These people have their own diverse religious culture and social traditions. They practice primitive agriculture and raise cattle. Their elders still possess good knowledge of the healing properties of local flora, acquired in the course of long experience and association with the forests.

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Methodology

Fieldwork was carried out in November 2000. During the course of this field study reliable medicine men and other knowledgeable villagers were interviewed and relevant information was collected along with plant specimens. All the plants were later taxonomically identified by the senior author with the help of related floras (Gupta, 1968; Hooker, 1872-1897; Osmaston, 1972) and nomenclature was updated according to a recent work on flowering plants of Uttarakhand (Uniyal et al., 2007). Voucher herbarium specimens were prepared and deposited in the Herbarium of the Survey of Medicinal Plants Unit, Regional Research Institute of Unani Medicine, Aligarh (U.P.), India.

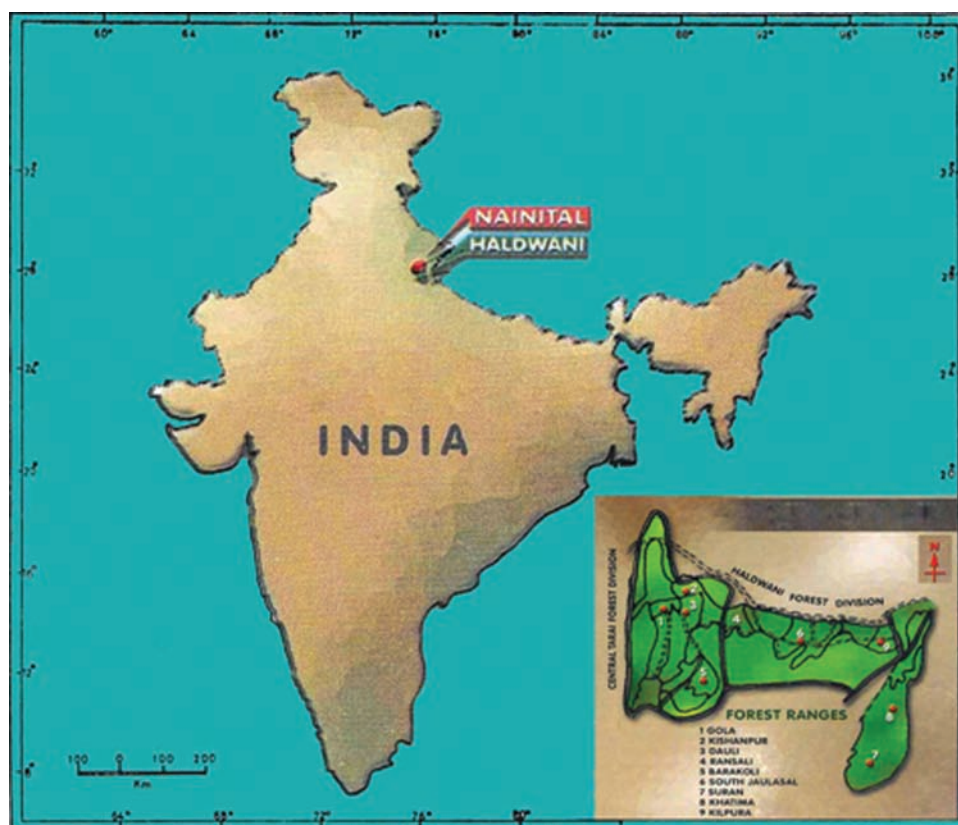


Fig. 1: Map showing the areas surveyed in the East Tarai Forest Division Haldwani, Nainital

Observations

In the following listing medicinal plants are arranged in alphabetical order by their scientific names. Each entry provides information on correct botanical name, family, prevalent local name, locality, voucher specimen number and folk medicinal use(s) with mode of administration. As far as possible, the probable dosage and duration of these crude drugs are also given.

Achyranthes aspera L. (Amaranthaceae), 'Ulta Shaji', Dauli (SMPUA6307). Aerial parts are burnt to ashes and about half teaspoon of this is mixed with honey and given for reliving chronic cough.

Adiantum lunulatum Burm. f. (Adiantaceae), 'Chandni Buti', Kishanpur (SMPUA6336). Fresh fronds with leaves of 'kasni' (*Cichorium intybus* L.) in equal quantities are boiled in water and liquid strained. One cup of the resulting decoction is drunk twice daily for irregular menses.

Asparagus racemosus Willd. (Liliaceae), 'Satawar', Surai (SMPUA6433). Root powder (10g) is given with milk twice daily for sexual debility.

Calotropis gigantea (L.) R. Br. (Asclepiadaceae), 'Akawa', Joulasal (SMPUA6329). Young vegetative buds with betel palm are given to feed on an empty stomach for 10-15 days in jaundice.

Careya arborea Roxb. (Lecythydaceae), 'Kumbha', Surai (SMPUA6398). Fresh stem bark is chewed for stomatitis.

Chlorophytum tuberosum (Roxb.) Baker (Liliaceae), 'Safed Musli', Joulasal (SMPUA6470). Roots of 'safed musli', 'kali musli' (*Curculigo orchoides* Gaertn.) and 'kamraj' (*Helminthostachys zeylanica* (L.) Hk.) in equal quantities are crushed together; one spoonful of this paste is given at bedtime for sexual weakness.

Cissus repanda Vahl (Vitaceae), 'Ghaiya', Surai (SMPUA6420). Root is ground with turmeric and placed on cut and wound for skin growth.

Colebrookea oppositifolia J. E. Smith (Lamiaceae), 'Binda', Ransali (SMPUA6469). A freshly made paste of the root, obtained by crushing, is applied on wounds as an antiseptic. Ripe fruits chewed for stomatitis.

Cuscuta reflexa Roxb. (Cuscutaceae), 'Agasbel', Sudlimath (SMPUA6388). Plant paste is applied locally for abdominal swelling.

Drimia indica (Roxb.) Jessop. (Liliaceae), 'Banpiaj', Joulasal (SMPUA6469). Fresh bulb is crushed and squeezed to obtain the juice. It is used as ear drops for otorrhoea.

Euphorbia fusiformis Buch. - Ham. ex D. Don (Euphorbiaceae), 'Banmuli', Joulasal (SMPUA6460). Root is made into small chips and given to induce conception.

Euphorbia hirta L. (Euphorbiaceae), 'Dudhi', Kishanpur (SMPUA6363). Plant paste is given orally for diarrhoea and dysentery.

Helicteres isora L. (Sterculiaceae), 'Ainthaphal', Raikhal (SMPUA6350). Dried fruits are ground to make a fine powder; about 10 g of this are given twice daily to treat dysentery.

Helminthostachys zeylanica (L.) Hk. (Helminthostachyaceae), 'Kamraj', Khatima (SMPUA6431). One spoonful root powder is given with milk two times a day for 21 days in leucorrhoea.

Holarrhena pubescens (Buch. - Ham.) Wall. ex G. Don (Apocynaceae), 'Kura', Surai (SMPUA6281). Seed decoction is administered orally against malaria fever.

Launaea procumbens (Roxb.) Ramayya and Rajagopal (Asteraceae), 'Gobhi', Surai (SMPUA6473). Plants are added to the feed of cows and buffaloes to increase lactation.

Leonotis nepetifolia (L.) R. Br. (Lamiaceae), 'Ban Talsa', Nandhaur (SMPUA6357). Leaf decoction is drunk for common fever.

Litsea glutinosa (Lour.) Robins. (Lauraceae), 'Meda', Surai (SMPUA6474). Stem bark paste is applied locally for sprain.

Miliusa velutina (Dunal) Hook. f. & Thomson (Annonaceae), 'Ellar', Surai (SMPUA6411). Fresh leaves with turmeric, mustard and slaked lime are crushed together and the paste is applied on bruises.

Mimosa pudica L. (Mimosaceae), 'Lajwanti', Kishanpur (SMPUA6335). About 5g of the seed powder are given two times a day for one month to treat spermatorrhoea. It is also used for treating backaches.

Oroxylum indicum (L.) Vent. (Bignoniaceae), 'Ullu', Banbasa (SMPUA6502). Seed paste is administered orally and simultaneously applied on forehead in high fever.

Piper longum L. (Piperaceae), 'Pipal', Kishanpur (SMPUA6352). Powder of the fruit is mixed with honey and given for cough and common cold.

Pongamia pinnata (L.) Pierre (Fabaceae), 'Kanji', Kilpura (SMPUA6478). A dried pod is tied as an amulet around the neck of healthy child to avoid effect of evil eyes.

Pterocarpus marsupium Roxb. (Fabaceae), 'Bijasal', Joulasal (SMPUA6462). The tree yields gum kino which is collected, dried and ground to make a powder. About 10g of this are given with water for abdominal pain.

Rauvolfia serpentina (L.) Benth. ex Kurz. (Apocynaceae), 'Showait Barua', Chhankaiyya (SMPUA6515). Root powder is given with water for fever, abdominal pain and snake bite.

Smilax ovalifolia Roxb, (Smilacaceae), 'Rampan', Surai (SMPUA6424). Stem twig is used daily as toothbrush to strengthen gums and teeth.

Streblus asper Lour. (Moraceae), 'Sihor', Ransali (SMPUA6393). Tender stem is used as toothbrush for dental care.

Terminalia arjuna (Roxb. ex DC.) Wight (Combretaceae), 'Arjun', Kilpura (SMPUA6481). Paste of the stem bark is applied on burns.

Trichodesma indicum (L.) R. Br. (Boraginaceae), 'Andaoli', Surai (SMPUA6419). Cooked aerial parts are given to feed as pot herb in joint pain.

Urtica dioica L. (Urticaceae), 'Kandali', Dauli (SMPUA6301). Wilted plants are added to the feed of milk producing animals for increasing lactation.

Discussion

This report documents some traditional and contemporary knowledge of the medicinal plants employed by the inhabitants of the East Tarai Forest Division Haldwani, Nainital. A total of 30 plant species from 24 families were recorded for treating or alleviating various diseases and conditions viz. Bone fracture, bruise, burns, common cold and fever, chronic cough, diabetes, diarrhoea, dysentery, irregular menses, leucorrhoea, joint pain, otorrhoea, sexual debility, sprain, stomach-ache, stomatitis and many complaints of domestic animals. The data are authentic and obtained from reliable traditional healers who have long been using these plants in their health related problems. A comparison with the available literature (Anonymous, 1948-1976, 2001, 2008; Chopra et al., 1956; Jain, 1991; Kirtikar and Basu, 1935; Nadkarni, 1954; Watt, 1889-1892) revealed that uses of many plant species (e.g. *Achyranthes aspera*, *Asparagus racemosus*, *Chlorophytum tuberosum*, *Euphorbia hirta*, *Helicteres isora*, *Holarrhena pubescens*, *Litsea glutinosa*, *Piper longum*, *Rauvolfia serpentina*, *Streblus asper* have been reported. Furthermore, a few medicinal claims described herein coincide with those of other parts of Kumaon (Ali et al., 2008; Anonymous, 2008; Arya and Prakash, 1999; Arya et al., 1999; Bhatt and Gaur, 1992; Garbyal et al., 2005; Gupta, 1960; Kalakoti and Pangtey, 1988; Shah and Jain, 1988, Shah and Joshi, 1971; Shah, 1982; Upreeti et al., 2009). Uses of other plants seem to be new or imperfectly known and deserve scientific screening.

The aim of present investigations is to report widely used medicinal species with ethnomedicinal information from Nainital's tarai with a view to contribute material to the rich herbal heritage of Kumaon region of Uttarakhand in an attempt to develop and discover novel plant-based pharmaceuticals.

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