

# An Ethno-pharmacological Study of Ramnagar Forest Division of Nainital District, Uttarakhand

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## Abstract

The present report deals with the results of an ethnopharmacological survey carried out during October of 2003 in the Ramnagar forest division of Nainital district in Kumaon region of Uttarakhand. In all, 26 plant species belonging to 20 families of angiosperms, used by the indigenous people against different ailments of humans as well as livestock, have been enumerated. Each entry provides the information on correct botanical and prevalent local names, the part used, claimed medicinal use(s) and mode of administration. The study has revealed new uses of many plants and highlighted the potential of ethnopharmacological research as well as the need for documentation of traditional knowledge pertaining to the utilization of plants as medicine. The data presented are first-hand and not published earlier in present form.

**Keywords:** Ethnopharmacological survey, Traditional Medicine, Ramnagar, Nainital, Kumaon region.

## Introduction

Kumaon is one of the richest floristic regions of western Himalayas in northern India and is well known for its ancient heritage of traditional herbal medicine. From different parts of Nainital district of the region, the use of diverse native floras in traditional medicine of various cultures has been extensively reported (Agnihotri *et al.*, 2003, 2012; Ali *et al.*, 2008, 2013a, 2013b, 2013c; Anonymous, 2001, 2008; Bisht *et al.*, 1999; Gupta, 1960; Mathur and Joshi, 2013; Pant and Pandey, 1998; Singh, 1993, 2003; Singh *et al.*, 1987; Singh and Maheshwari, 1990, 1993, 1994). However, no ethnopharmacological study of Ramnagar forest division, Nainital, had previously been reported. The present report, therefore, communicates first-hand information on commonly used traditional herbal preparations recorded during an ethnopharmacological survey of the study area carried out in October, 2003.

The area of study forms a part of Nainital district and lying between 29° 13' 30" - 29° 24' 15" N latitude and 79° 06' 00" - 79° 33" E longitude in the foothills of Siwalik ranges (Fig. 1). It is spread over an area of 48736.90 hectare in the Sub-Himalayan region of southern Kumaon. There are five forest ranges viz. Dechori, Fatehpur, Kaladhungi, Kosi and Kota. Dense forest areas, in which various indigenous castes and communities are living, cover the major part of the division. These people still rely on traditional medicines for their own healthcare and to treat different diseases and conditions of cattle.

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## Methodology

Fieldwork was carried out in October 2003. Information on folk medicinal uses of local plants was obtained by the authors through interviewing reliable informants who were traditional healers and other knowledgeable village elders. Data on the common name of the plant or the crude drug, medicinal use(s), part used, other ingredients added (if any), method of drug preparation, mode of administration, dosage and duration of treatment, etc. were recorded for each claim. Botanical specimens of all the plants along with relevant field information were collected. These were later identified with the help of related floras (Gupta, 1968; Hooker, 1872-1897; Osmaston, 1972). The botanical names were updated following 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, for future reference and study.

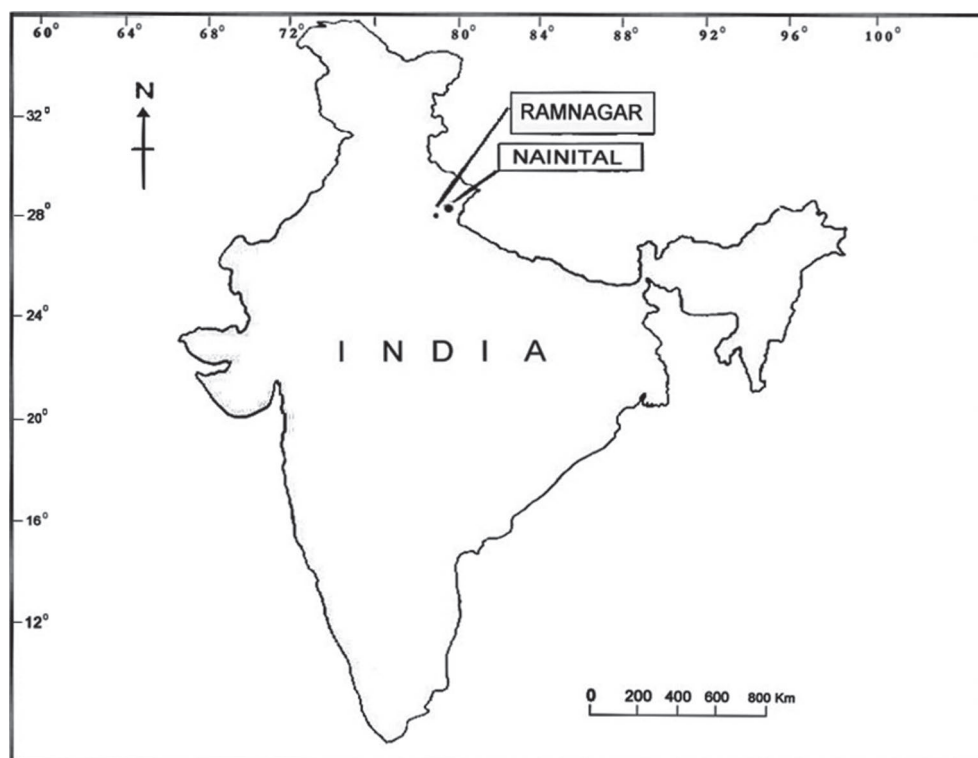


Fig. 1 : Map showing location of study area

## Observations

In the following enumeration medicinal plants are listed in alphabetic order by their scientific names together with respective family (in parentheses), local name, locality, voucher specimen number followed by folk medicinal use(s) and

mode of administration. As far as possible, the probable dosage and duration of these crude drugs are also given.

*Abutilon indicum* L. (Malvaceae), 'Kanghi', Kosi (SMPA7090). For treating piles, a freshly made paste of the leaves (10g), obtained by crushing, is given orally two times a day and also applied locally till the cure is obtained.

*Achyranthes aspera* L. (Amaranthaceae), 'Chorchitta', Baluti (SMPA6943). Ashes of the fruits mixed with honey are given in breathlessness.

*Alstonia scholaris* (L.) R. Br. (Apocynaceae), 'Chhation', Pawalgarh (SMPA7046). Pieces of the fresh stem bark mixed with fodder are given to cattle for treating pustules.

*Bombax ceiba* L. (Bombacaceae), 'Semal', Musabangar (SMPA7018). The tap root of the young plant is collected, dried and ground to make a powder. About 10g of this powder are given with milk once daily for 40 days in sexual weakness.

*Callicarpa macrophylla* Vahl (Verbenaceae), 'Daya', Kelakhur (SMPA7067). Fruit paste mixed with curd is given for stomatitis.

*Cissampelos pariera* L. (Menispermaceae), 'Pari', Baluti (SMPA6946). Leaf juice coagulates on being allowed to stand in a cup for about 4-5 hours. It is given to children as general tonic.

*Cissus repanda* Vahl (Vitaceae), 'Shikari Jar', Kelakhur (SMPA7064). Root paste is applied externally on sharp cut and wound for healing.

*Cynoglossum zeylanicum* Thunb. ex Lehm. (Boraginaceae), 'Chatkura', Fatehpur (SMPA6985). Paste, prepared by pounding the aerial parts, is applied externally on boils to speed up suppuration and healing.

*Dendrobium crepidatum* Lindl. (Orchidaceae), 'Hadjora', Narni (SMPA7064). For treating bone fracture, paste of the plant is plastered around the limb after setting the bones right. Splints and bandage are used to hold the bones and plaster in position.

*Flemingia strobilifera* (L.) Ait. & Ait. f. (Fabaceae), 'Bhatola', Kelakhur (SMPA7056). Fresh seeds are chewed to treat stomatitis.

*Holarrhena pubescens* (Buch.-Ham.) Wall. ex G. Don (Apocynaceae), 'Kura'/Dudhi', Kathgodam (SMPA6956). About 10g of the stem bark powder are mixed with water and given twice daily for 5 days to treat dysentery.

*Jatropha curcas* L. (Euphorbaceae), 'Indi', Kathgodam (SMPA6966). Latex is applied externally to treat dhobie itch.

*Lannea coromandelica* (Houtt.) Merr. (Anacardiaceae), 'Jhingan', Baluti (SMPA6959). Fresh stem bark pieces are crushed and squeezed to obtain the juice. It is applied externally on wounds.

*Litsea glutinosa* (Lour.) Robins. (Lauraceae), 'Meda', Kelakhur (SMPA7056). Inner stem bark paste is applied as plaster for treating bone fracture.

*Mallotus philippensis* (Lam.) Muell.-Arg. (Euphorbiaceae), 'Rohini', Baluti (SMPA6952). Fresh juice of vegetative buds is applied on injured hoofs of cattle.

*Mimosa pudica* L. (Mimosaceae), 'Lajjai', Fatehpur (SMPA6969). In cases of scorpion sting, root paste, prepared by grinding the root in water, is applied locally, then duly bandaged. It is claimed to provide relief from stinging pain.

*Oroxylum indicum* (L.) Vent. (Bignoniaceae), 'Pharkat', Fatehpur (SMPA6970). Powder of the seeds mixed with fodder is given to cattle for treating pustules on the body.

*Pogostemon benghalenses* (Burm. f.) Kuntze (Lamiaceae), 'Kali Basing', Baluti (SMPA6960). Fresh leaf juice is applied externally to check bleeding from fresh cuts and healing the wounds.

*Premna latifolia* Roxb. (Verbinaceae), 'Aguni', Fatehpur (SMPA6971). Dried root is rubbed in little water on stone and the resulting paste is applied on ringworm.

*Rauvolfia serpentina* (L.) Benth. ex Kurz. (Apocynaceae), 'Sarpghandha' Musabangar (SMPA7017). Root paste is administered orally in snake bite.

*Sapindus mukorossi* Gaertn. (Sapindaceae), 'Reetha', Kaladhungi (SMPA7026). The saponaceous pericarp of the dried fruits is ground to make a powder. Pills of gram size are prepared; three pills are given once daily for two week in scabies.

*Scindapsus officinalis* (Roxb.) Schott (Araceae), 'Gajpipal', Kaladhungi (SMPA7036). Powder of the fruit is mixed with honey and licked in cough.

*Solanum erianthum* D. Don (Solanaceae), 'Asidh', Sitabani (SMPA7073). Leaves are fed to cattle for worm infestation.

*Solanum nigrum* L. (Solanaceae), 'Geewian', Chonsla (SMPA7001). Leaf paste is applied externally on burns.

*Tamarindus indica* L. (Mimosaceae), 'Imli', Fatehpur (SMPA7008). About 20g of the fruit pulp mixed with leaves of 'sana' (*Cassia angustifolia* Vahl) are ground and taken orally for chronic constipation.

*Trichosanthes tricuspidata* Lour. (Cucurbitaceae), 'Elaru', Laxampur (SMPA7054). Seed paste is applied externally on lower abdomen of the children to treat anuria.

## Results and Discussion

This report documents significant information on 26 plant species from 20 families of angiosperms which are traditionally used to treat 22 common ailments of humans and a few complaints of domestic animals in the Ramnagar forest division of Nainital. The data are authentic and based on direct field interviews of reliable informants who have long been using these herbal drugs with positive effects. These traditional uses were analysed and compared with the available literature on medicinal and economic plants of the country (Anonymous, 1948-1976; 2001; Chopra et al., 1956; Jain, 1991; Kirtikar and Basu, 1935; Nadkarni, 1954; Watt, 1889-1892) and it was found that uses of many plant species (e.g. *Bombax ceiba*, *Callicarpa macrophylla*, *Holarrhena pubescens*, *Litsea glutinosa*, *Pogostemon benghalensis*, *Rauvolfia serpentina*, *Solanum erianthum*, *Tamarindus indica*) were similar to those already published. Further, only a few medicinal plants described herein were found to have similar uses as reported by earlier workers from other parts of Nainital district and its adjoining areas (Ali et al., 2013a, 2013b, 2013c; Anonymous, 2008; Mathur and Joshi, 2013; Pant and Pandey, 1998; Singh et al., 1987; Singh and Maheshwari, 1990, 1993, 1994). For other plants the reported therapeutic uses were found to be new or less known. Such medicinal plants might give some useful leads for further pharmacological investigations in the search of new drugs of plants origin.

During the course of fieldwork it was observed that traditional healers and other elderly people have good knowledge regarding the utilization and preparations of various ethnomedicines while the younger generation is not interested to hold this invaluable traditional knowledge. This may be due to the erosive effect of modernization and rapid socio-economic as well as cultural changes among the native people. In this situation the continuation of this ancestral knowledge is in danger as the transmission between the older and younger generations no longer exists. Similarly, there is a threat to some of the forest species of medicinal plants due to destruction of natural plant habitats as a result of expansion of agriculture, invasion of some foreign weed

species, excessive grazing, forest fire, over exploitation of natural resources, etc. Therefore, proper documentation of indigenous knowledge on medicinal plants through such field studies among the traditional societies of other ethnopharmacologically unexplored or under explored forest areas of this region in particular and in other areas of Uttarakhand in general is important for the conservation and sustainable utilization of biological resources.

The present study reports first-hand information on indigenous phytotherapy involving 26 medicinal plants from the Ramnagar forest division of Uttarakhand with a view to contribute material to the rich herbal heritage of Kumaon region of Uttarakhand in the search of new plant-based pharmaceuticals.

### Acknowledgements

We are highly grateful to the Director General, Central Council for Research in Unani Medicine, New Delhi, for supporting this field study. We should like to thank Mrs Neena Grewal, Divisional Forest Officer, and Mr. A.K. Kukshal, Subdivisional Forest Officer, Ramnagar Forest Division, Nainital of the Uttarakhand Forest Department for giving us facilities and permission to work in this area. We express sincere thanks to all the informants who have willingly shared their traditional knowledge with us.

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