

Ethnopharmacological Survey of West Tarai Forest Division, Ramnagar, Nainital in Kumaon Region of Uttarakhand

Abstract

A *n* ethnopharmacological survey conducted during November, 2001 in the West Tarai Forest Division, Ramnagar, Nainital, has yielded first-hand information on folk medicinal claims prevalent amongst the tribal and other rural people. In the course of this survey, a number of wild plants were found to be commonly used in the area by traditional healers as folk drugs. In this report ethnomedicinal uses of 55 plant species belonging to 38 families of angiosperms are described. For each species are given the correct botanical and prevalent local names, part used, claimed medicinal use(s) and mode of administration. An scrutiny of data obtained in this study with the available ethnobotanical literature has revealed many new and uncommon traditional phytotherapeutic uses, unreported so far.

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

Introduction

The Kumaon Himalaya of Uttarakhand has an ancient heritage of traditional herbal medicine. In Nainital district of this region, the use of plants in traditional medicine system of many cultures has been documented (Agnihotri et al., 2003; Ali et al., 2008; Anonymous, 2008; Bisht et al., 1999; Gupta, 1960; Pant and Pandey, 1998; Singh, 1993; Singh and Maheshwari, 1990, 1993, 1994). But, no such report is available on West Tarai Forest Division Ramnagar, Nainital. The only account about this area is that of Singh et al. (1987) on ethnobotany of Boxa tribe of Bajpur block, a small area in this division. Hence, the present report communicates information on most commonly used herbal preparations collected during an extensive ethnopharmacological survey carried out a few years ago in this forest tract.

The area of study forms one of the important forest divisions of Kumaon's Tarai. It covers a part of Nainital and Udham Singh Nagar districts and lying between $28^{\circ} 52' - 29^{\circ} 27' 15''$ N latitude and $78^{\circ} 46' 15'' - 79^{\circ} 33''$ E longitude along the base of outer hills of Siwalik ranges. There are seven forest ranges viz. North Jaspur, South Jaspur, Kashipur, Ampokhra, Ramnagar, Bannakhera and Belparao (Fig. 1). The division has dense tracts of intact natural forests which are mainly of northern tropical dry deciduous type. These forests are inhabited by two tribes the 'Vangujars' and the 'Boxas'. The age-old practice of traditional phytotherapy in the treatment of different disease and conditions of humans and cattle is still prevalent amongst these people.

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Methodology

An ethnopharmacological survey of the study area was undertaken during November, 2001. During the course of this field study, a number of tribal settlements and villages were visited. Data on folk medicinal uses of local plants were gathered through direct field interviews with reliable informants who were traditional healers and other knowledgeable village elders. The information collected includes 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. Plant specimens were collected and later authenticated. All the 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.

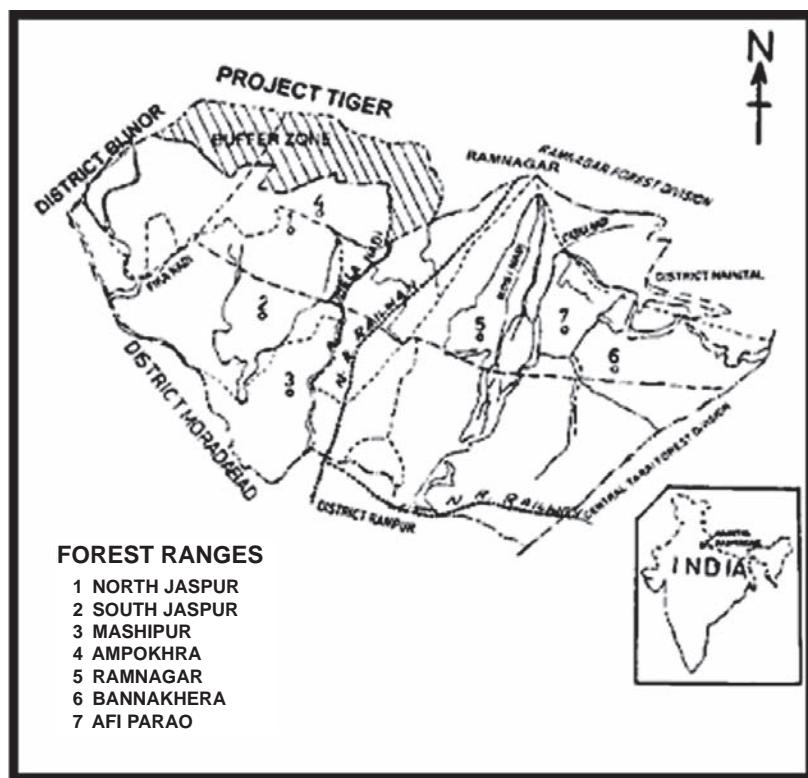


Fig. 1: Map of West Tarai Forest Division, Ramnagar, Nainital, showing the areas surveyed for present study

Results

This study reports first-hand information on contemporary folk medicinal uses of 55 plants belonging to 38 families of angiosperms from the investigated

area. In the following listing all the plants are arranged in alphabetical order by their scientific names. For each species are given correct botanical name, family, prevalent local name, locality from which a particular use was recorded, 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.

Achyranthes aspera L. (Amaranthaceae), 'Chorchitta', Jaspur (SMPUA6525). Aerial parts are crushed and boiled in water. The liquid is strained and given for burning micturition.

Acorus calamus L. (Araceae), 'Bach', Bannakhera (SMPUA6769). Dried pieces of rhizome are ground to make a fine powder. About 5 g of this powder are given with honey for hoarseness of voice.

Aegle marmelos (L.) Corr. (Rutaceae), 'Belpatri', Jaspur (SMPUA6518). Dried fruit pulp is roasted on open fire, cooled and ground to make a powder. This is given with water for diarrhoea.

Albizia odoratissima (L.f.) Benth. (Mimosaceae), 'Kala Siras', Chhoi (SMPUA6633). Bark decoction is drunk as blood purifier.

Anogeissus latifolia (Roxb. ex DC.) Wallich ex Guill. & Perr. (Combretaceae), 'Bankli', Jaspur (SMPUA6651). Plant yields gum-resin which is collected, dried and ground to make a powder. About 5g of this powder are given twice daily for one month to treat backaches.

Artemisia nilagirica (C.B. Clarke) Pamp. (Asteraceae), 'Patji', Ampokhra (SMPUA6681). Leaf powder is boiled in water till it become semisolid. Pills of gram size are prepared and two pills are given two times a day for constipation.

Asparagus racemosus Willd. (Liliaceae), 'Satmuli', Jaspur (SMPUA6598). In cases of spermatorrhoea, powdered root (10g) is given with water twice daily till the cure is obtained.

Bauhinia variegata L. (Caesalpiniaceae), 'Kachnal', Ampokhra (SMPUA6665). Decoction of stem bark is given as blood purifier in scabies.

Callicarpa macrophylla Vahl (Verbenaceae), 'Dayya', Chhoi (SMPUA6534). Ripe fruits are chewed for mouth blisters.

Calotropis procera (Ait.) R. Br. (Asclepiadaceae), 'Ankhra', Jaspur (SMPUA6647). Equal quantities of the leaves of 'ankhra', 'andi' (*Ricinus*

communis) and ‘tidhara’ (*Euphorbia royleana* Boiss.) are crushed and boiled in mustard oil. After cooling, it is lightly massaged to relieve muscular pain.

Careya arborea Roxb. (Lecythidaceae), ‘Kumbha’, Chhoi (SMPUA6582). For treating bone fracture in cases of cattle, paste of stem bark of ‘kumbha’ and ‘meda’ (*Litsea glutinosa*) is plastered around the limb after setting the bones right.

Casearia tomentosa Roxb. (Flacourtiaceae), ‘Chilla’, Ampokhra (SMPUA6707). Seed paste is applied on scalp to kill lice.

Celosia argentea L. (Amaranthaceae), ‘Shirvali’, Tirath (SMPUA6671). Seeds mixed with ‘taalmakhana’ (seeds of *Hygrophila auriculata* (Schum.) Heine) are ground to make a powder. About 10g of this powder are given three times a day for 21 days to treat spermatorrhoea.

Chlorophytum tuberosa (Roxb.) Baker (Liliaceae), ‘Safed Musli’, Jaspur (SMPUA6606). Root powder (10g) is given twice daily for one month to treat leucorrhoea.

Cissampelos pariera L. (Menispermaceae), ‘Jaljamni’, Bannakhera (SMPUA6537). Leaf juice coagulates on being allowed to stand in a cup for about 4-5 hours. It is given two times a day for 7 days to treat spermatorrhoea.

Cleome viscosa L. (Capparaceae), ‘Jakhiya’, Chhoi (SMPUA6624). Leaf juice is lightly massaged on limbs of children to strengthen the bones.

Clerodendrum cordatum D. Don (Verbenaceae), ‘Bhant’, Chhoi (SMPA6787). Aqueous decoction is drunk for common fever.

Colebrookea oppositifolia J. E. Smith (Lamiaceae), ‘Bhekmalu’, Chhoi (SMPUA6801). For treatment of pterygium in cattle, leaf juice is instilled in affected eye.

Cordia dichotoma Forst. (Boraginaceae), ‘Labhera’, Phika (SMPUA6577). Ripe fruits are given to eat in spermatorrhoea.

Crateva adansonii DC. (Capparaceae), ‘Barna’, Phanto (SMPUA6587). Fruits of ‘barna’, root of ‘satawar’ (*Asparagus racemosus*), seeds of ‘konch’ (*Mucuna pruriens* (L.) DC.) and ‘misri’ (crystalline sugar) in equal quantities are ground to make a powder; 10g of this preparation are given with milk once daily for sexual weakness.

Crotalaria prostrata Rottl. (Fabaceae), ‘Gilbichhua’, Jaspur (SMPUA6711). Decoction of aerial parts is drunk in urticaria.

Curculigo orchoides Gaertn. (Hypoxidaceae), ‘Kali Musli’, Jaspur (SMPUA6542). Root powder is used as aphrodisiac and also given for leucorrhoea.

Cuscuta reflexa Roxb. (Cuscutaceae), ‘Agasbel’, Phanto (SMPUA6540). Paste of the plant is applied locally for abdominal swelling.

Debregeasia longifolia (Burm.f.) Wedd. (Urticaceae), ‘Tushiyari’, Chhoi (SMPUA6797). Stem twigs are used as splints.

Euphorbia nivula Buch.-Ham. (Euphorbiaceae), ‘Thur’, Jaspur (SMPUA6533). Paste prepared by pounding the fresh phylloclade is applied on boil to speed up suppuration and healing.

Ficus semicordata Buch.-Ham. ex Roxb. (Moraceae), ‘Jarphal’, Jaspur (SMPUA6720). Latex is given with milk for spermatorrhoea.

Flemingia bracteata (Roxb.) Wight (Fabaceae), ‘Salparni’, Jaspur (SMPUA6600). About 50g aerial parts are boiled in one cup of water, strained and cooled. It is drunk for catarrh.

Helicteres isora L. (Sterculiaceae), ‘Marorphali’, Phanto (SMPUA6546). Fruits are crushed; boiled in water and strained the resulting decoction is given for catarrh.

Holarrhena pubescens (Buch.-Ham.) Wall. ex G. Don (Apocynaceae), ‘Kura’, Jaspur(SMPUA6541). Seed decoction is drunk for malaria fever.

Lannea coromandelica (Houtt.) Merr. (Anacardiaceae), ‘Jhingan’, Chhoi (SMPUA6585).Fresh leaves mixed with pieces of stem bark are ground and the paste is applied locally for healing wounds.

Litsea glutinosa (Lour.) Robins. (Lauraceae), ‘Meda’, Bannakhera (SMPUA6528). About 250g of the stem bark are boiled in 2l of milk till it become dried and mixed with 50g crystalline sugar. This preparation is given in the dose of 25g twice daily for 30-40 days for prolapsed uterus.

Moringa oleifera Lam. (Moringaceae), ‘Senjna’, Ampokhra (SMPUA6754). Lukewarm leaf decoction is used to take bath in joint pain.

Nyctanthes arbor-tristis L. (Oleaceae), ‘Harsinghar’, Chhoi (SMPUA6781). Leaf decoction is given orally to relieve sciatica.

Oroxylum indicum (L.) Vent. (Bignoniaceae), ‘Tarlu’, Jaspur (SMPUA6572). Seed paste is applied locally for abdominal swelling.

Ougeinia oojeinensis (Roxb.) Hochr. (Fabaceae), ‘Sanan’, Phanto (SMPUA6714). Dried gum is roasted and powdered. About 3g of this powder are given with water twice a day for spermatorhoea.

Piper longum L. (Piperaceae), ‘Piplamul’, Ampokhra (SMPUA6656). Fresh root is chewed to treat cough as well as to quench thirst.

Pterocarpus marsupium Roxb. (Fabaceae), ‘Bijasal’, Phanto (SMPUA6621).

The gum is obtained from the tree. It is mixed in water and taken once daily in diabetes.

Pueraria tuberosa (Roxb. ex Willd.) DC. (Fabaceae), ‘Bilarikand’, Chunakhan (SMPUA6767). Root paste is applied on boil for speed up suppuration and healing.

Rauvolfia serpentina (L.) Benth. ex Kurz. (Apocynaceae), ‘Sarpgandha’, Jaspur (SMPUA6639). Root paste is given for stomach-ache.

Ricinus communis L. (Euphorbiaceae), ‘Andi’, Timuria (SMPUA6722). Seed pulp is given orally to check conception.

Semecarpus anacardium L.f. (Anacardiaceae), ‘Bhilwa’, Jaspur (SMPUA6591). Seed powder (5g) mixed with crystalline sugar is given for sexual weakness.

Senna occidentalis (L.) Link (Caesalpiniaceae), ‘Kasondi’, Patrampur (SMPUA6555). Leaves mixed with seeds of ‘babchi’ (*Psoralea corylifolia* L.) are ground to make a paste and applied on vitiligo.

Shorea robusta Roxb. ex Gaertn.f. (Dipterocarpaceae), ‘Sal’, Jaspur (SMPUA6705). Equal quantities of the gum-resin of ‘sal’ and ‘babool’ (*Acacia nilotica* subsp. *indica* Benth.) Brenan) are ground to make a fine powder and mixed with honey. Pills of gram size are prepared; two pills are given two times a day to treat gastric ulcer.

Sida cordifolia L. (Malvaceae), ‘Khurenti’, Ampokhra (SMPUA6669). Leaves are boiled with mustard oil and mashed. After cooling, it is applied on cut and wounds for healing.

Spermadictyon suaveolens Roxb. (Rubiaceae), ‘Padara’, Ramnagar (SMPUA6743). Leaf paste is applied on wounds.

Sphaeranthus indicus L. (Asteraceae), ‘Mundi’, Tirath (SMPUA6612). Sherbet of flowering heads is drunk daily to improve eye vision.

Sterculia villosa Roxb. (Sterculiaceae), ‘Udal’, Jaspur (SMPUA6746). Gum of the tree is given in the dose of 5g twice daily for three consecutive days in burning micturition.

Syzygium cumini (L.) Skeels (Myrtaceae), ‘Jaman’, Patrampur (SMPUA6732). Fresh leaf juice is gargled with water against mouth blisters.

Terminalia bellirica (Gaertn.) Roxb. (Combretaceae), ‘Bahera’, Phika (SMPUA6571). Poultice of stem bark is used for joint pain.

Toona ciliata M. Roem. (Meliaceae), ‘Tun’, Chhoi (SMPUA6579). Aqueous decoction of inner stem bark is given orally for menorrhagia.

Tribulus terrestris L. (Zygophyllaceae), ‘Gokhru’, Patrampur (SMPUA6730). Infusion of the fruits is drunk for burning micturition.

Urtica dioica L. (Urticaceae), ‘Sisorn’, Ramnagar (SMPUA6737). Cooked leaves are mashed and made into pills of about 3g each with honey; two pills are given twice daily for 30-45 days to treat joint pain.

Vetiveria zizanioides (L.) Nash (Poaceae), ‘Khas’, Jaspur (SMPUA6590). Sherbet of the root is used as cooling agent.

Woodfordia fruticosa (L.) Kurz. (Lythraceae), ‘Dhawa’, Jaspur (SMPUA6566). Dried flowers are ground with gum-resin of ‘semal’ (*Bombax ceiba* L.); one spoonful of this preparation is given twice daily for leucorrhoea.

Wrightia arborea (Dennst.) Mabb. (Apocynaceae), ‘Dudhi’, Ramnagar (SMPUA6566). About 10g of the seed powder are given with water twice daily in spermatorrhoea.

Discussion

This part of the Kumaon region is blessed with congenial climate and very fertile soil. There are several population clusters of tribal spread across the division. The inhabitants of the area have much passion for medicinal plants and use them to meet their various health needs. Majority of the medicinal plants most frequently used by the natives are wild species. Although, a few are weeds e.g. *Achyranthes aspera*, *Calotropis procera*, *Celosia argentea*, *Cleome viscosa*, *Ricinus communis*, *Senna occidentalis*, *Sida cordifolia*, *Sphaeranthus indicus*, *Tribulus terrestris* which found in waste grounds near villages or cultivated fields. Many of the medicinal uses reported herein are best known to rural communities throughout the area; nevertheless these

are new and reported for the first time from the area investigated. However, knowledge on some medicinal plants is endemic to certain localities or villages. The data were collected from native informants who usually spend their much time working in the forest. These traditional uses were analyzed 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 a considerable number of plants have not previously been reported. Scientific screening of such plants is essential to evaluate their therapeutic potential. Such observations may be useful from drug discovery point of view. Since new ethnmedicinal information can serve as drug lead for discovery of novel plant-based pharmaceutical.

During the course of fieldwork it was observed that the useful areas of fertile land in many places are considerably reducing day-by-day for wild plants to spread naturally due to expansion of agriculture, dwellings and industrialisation. Moreover, this ancestral knowledge which exists as oral is in danger of being lost because of rapid cultural changes among the indigenous societies under the influence of increasing developmental activities. Therefore, urgent scientific field surveys should be conducted among the native people of other ethnopharmacologically unexplored or under explored areas of this region in particular and in other areas of Uttarakhand in general in order to rescue and document the wealth of knowledge on traditional medicine before it will be forgotten.

Acknowledgements

We are highly grateful to the Director General, Central Council for Research in Unani Medicine, New Delhi, for providing necessary facilities for this field study. We should like to thank Mr. D.J.K. Sharma, Divisional Forest Officer, West Tarai Forest Division Ramnagar, Nainital of the Uttarakhand Forest Department, for giving us 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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