Medicinal Plant Resources in Chhakinal Watershed in the Northwestern Himalaya


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Abstract

Traditional knowledge, uses, monetary costs, and benefits associated with medicinal plants were analyzed in the Chhakinal watershed of Northwestern Himalaya. Of 29 plant species used in folk medicine, only 3 species, *Juglans regia*, *Picrorrhiza kurrooa*, and *Morchella esculenta* were noted to have market value. The medicinal value of four species, *Dioscorea deltoidea*, *Podophyllum hexandrum*, *Valeriana jatamansi*, and *Jurinea macrocephala*, were unknown to local people, but sold for cash income. Use of medicinal plants in the traditional health care system of the area varied, depending upon the species and ailment. A total of 11 species were used for disorders related to digestive system, six species were used for skin infections, and three species were used for joint or muscular pain. The medicinal plants grew in government owned forests and other uncultivated lands as constituents of natural vegetation. Alpine vegetation had the greatest number of medicinal plant species, while forests had the greatest density of medicinal plants. Medicinal plants contributed 1.29 percent of annual cash income of an average household in the watershed.

Keywords: Conservation, economics, traditional medicine

Medicinal plant cultivation and biosphere reserve management: A case study from the Nanda Devi Biosphere Reserve, Himalaya.


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Abstract

Conservation-induced natural resource management options are of significance for effective management of biosphere reserves where people reserve conflicts are the prime attention of management plants. Nanda Devi Biosphere Reserve (NDBR) in Garhwal, Himalaya is one such area where existing conflicts drew researcher’s attention on management of natural resources. The cultivation of medicinal plants existing in this area has become a major activity with conservation- oriented land use changes. We describe here the agronomic practice and uses of eight medicinal and aromatic plants cultivated in the NDBR buffer zone villages of Garhwal, Himalaya. The efficiency of resources use and economic returns indicate how such low-volume, high value crops which were suggested for this region have not only the potential for economic betterment of this area but also help the cause of conservation in this biosphere reserve.
Role of medicinal plants in the traditional health care system: a case study from Nanda Devi Biosphere Reserve

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Abstract

Tolchha-Bhotiya sub-community, inhabiting the buffer zone villages of Nanda Devi Biosphere Reserve, has strong faith and belief in traditional health care system, viz. herbal treatment. Twenty-five plant species are generally being used along with other materials and plant products in different combinations to cure fifteen major diseases. About eight and nine plant species are used for curing more than one disease. However, for some rare and serious diseases like tuberculosis, rheumatism, internal wounds and fractures, a few people, particularly those belonging to higher income group, prefer allopathic treatment. Since the knowledge of various medicinal plants being used in herbal treatment and their method of used is confined to local practitioner – vaidhya- it is utmost importance to record this knowledge for future generations, otherwise it will be lost forever in the process of acculturation, which is taking place in the community at an alarming rate.

Lichens of Economic Importance from the Hills of Uttar Pradesh, India

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Abstract

In India, lichens collected from the sub-mountain zones of the Himalayan region of the country are used indigenously and exported. The Uttar Pradesh Hills, a part of Indian Himalaya region, is the main area for lichen collection. The lichens are collected by local people and brought to the foothills for sorting, grading and distributing. The superior grade of trade lichens have a high percentage of Parmotrema and Everniastrum (Parmelia) species, and are usually collected from the Himalayan Oak, Rhododendron, Indian Bayberry, and Chirpine.

Keywords: Everniastrum, export, oak moss, Parmelia, Parmotrema, Ramalina, traditional collection, traditional medicine
**Status and conservation of rare and endangered medicinal plants in the Indian trans-Himalaya**

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Received 12 February 1999; received in revised form 7 July 1999; accepted 16 July 1999

**Abstract**

I studied the distribution pattern, population structure and conservation status of rare and endangered medicinal plant species in Spiti sub-division of Himachal Pradesh in the Indian trans-Himalaya. The entire study area was stratified into six zones based on geomorphological and phytogeographical variations. In each zone different habitat types for rare and endangered species were identified and sampled using quadrats. A total of 23 rare and endangered medicinal plants were found in Spiti, distributed over 10 major habitat types. All the rare and endangered medicinal plants were localised and found in patches. The patch size for different species varied greatly from 1 to 20,000 m². There were large differences in the number of rare and endangered medicinal plant species within different zones of Spiti. More species of rare and endangered medicinal plants occurred close to the Great Himalayan range in the southern part of the study area. The highest mean density was estimated for *Picrorhiza kurrooa* followed by *Saussurea gnaphaloides*. The results are discussed in the light of rare and endangered medicinal plants conservation with the strong recommendation of the establishment of medicinal plants conservation areas in this part of trans-Himalaya.

**Keywords:** Rare medicinal plants; Conservation; Protected areas; Spiti; Management

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**Indigenous knowledge of medicinal plants and wild edibles among three tribal subcommunities of the Central Himalayas, India**


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**Abstract**

The *Bhotiyas* of the Central Himalayas, who practice migratory cattle-raising and traditional agriculture, are highly dependent on the resources which they find in nature. The present article, which is based on years of research among three subcommunities of the *Bhotiyas*, documents their knowledge of medicinal plants and wild edibles, and the specific manner in which they are used. This information is presented in three tables. The article ends with a discussion of the need to conserve this knowledge in the light of the rapid acculturation now taking place within the *Tolchha, Marchha* and *Jadh* subcommunities.
Ethnobotanical Review of Medicinal Plants Used for Skin Diseases and Related Problems in Northeastern India

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Abstract
The medicinal plants used for the treatments of skin diseases and related problems in Northeastern India were reviewed based on the ethnobotanic reports. Of the 275 plant species examined, 224 species have been used for treatment of specific human ailments such as allergies, burns, cuts and wounds, inflammation, leprosy, leucoderma, scabies, smallpox and sexually transmitted diseases. Some of the plant species, including *Artemisia nilagirica* (CI) Pamp., *Calotropis gigantea* (L.) R. Br., *Cannabis sativa* L., *Cassia alata* L., *C. fistula* L., *Centella asiatica* L., *Cyclea pellata* Hk., *Datura metel* L., *Drymaria cordata* (L.) Willd.ex Roam & Schult., *Jatropha aureus* L., *Litsea cubeba* Pers., *Mimosa pudica* L., *Plantago major* L. and *Plumeria acutifolia* Ait, are used among a range of ethnic groups for disease treatment.

Keywords: Astringent, boils, burns, cuts, healing, itching, natural products, ringworm, wounds

Medicinal Plant Cultivation and Sustainable Development
A Case Study in the Buffer Zone of the Nanda Devi Biosphere Reserve, Western Himalaya, India

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Abstract
The Nanda Devi Biosphere Reserve (NDBR) in the western Himalaya has a high level of biological and cultural diversity. The Bhotiya community, whose livelihood is highly dependent on local natural resources, inhabits the buffer zone of NDBR. Bhotiya practice seasonal and altitudinal migration and stay inside the buffer zone of NDBR for only 6 months (May–October). A survey was conducted in 1996 in 5 villages in Pithoragarh District of the buffer zone, where Bhotiya cultivate medicinal plants on their agriculture fields. The aim of the survey was to understand the socioeconomics of medicinal plant cultivation and evaluate the future prospects of this practice in promoting sustainable development among the local community. Of a total of 71 families, 90% cultivated medicinal plants on 78% of the total reported cultivated area (15.29 ha). At the time of the survey, a total of 12 species of medicinal plants were under cultivation, of which 6 were being marketed while the remaining 6 were still under nursery plantation for future propagation. On average, a family earns about Rs.2423 ± 376.95 per season from the sale of medicinal plants (Rs.38 = US$1 in 1996). Based on the average productivity (kg/ha/y), we estimated that an average family could earn between Rs.4362 and Rs.86,500 from the sale of medicinal herbs. Encouragement of medicinal plant cultivation at high altitudes in the Himalayas would help to generate better monetary returns as well as conserve these herbs in the wild and preserve traditional ethnomedicinal knowledge among local people.

Keywords: Biosphere reserve; biodiversity; medicinal plants; indigenous knowledge; mountain rural economy; Nanda Devi; Himalaya; India.
Medicinal Plant Resources in Nanda Devi Biosphere Reserve in the Central Himalayas


Abstract

The traditional uses, cultivation practices, and economic contribution of medicinal plants to the rural economy in the Nanda Devi Biosphere in the central Himalayas of India were studied. Samplings were done on 16 species of plants stored and used by all the households within the sample areas. A total of eight species were cultivated on 4 percent of the private farm land, evolving as an indigenous practice in response to restrictions on traditional rights to collect in the wild and attempts to meet the increasing demand for medical products in the market place. Allium humile and Allium stracheyi accounted for 70 percent of the total land area in medicinal plant cultivation. All cultivated species except for Allium stracheyi were naturally regenerating in the forests and grazing lands. Among the cultivated species, Carum carvi yielded the highest economic returns, followed by Allium humile. Products from medicinal plant under cultivation and from species collected in the wild accounted for 3.67 percent and 6.45 percent of the total income, respectively, of an average household.

Keywords: Cultivation, conservation, India, rural economy, traditional medicine

Oroxylum indicum Vent. - A potential anticancer medicinal plant

A AMao

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Abstract

The paper presents the use of Oroxylum indicum bark decoction for cancer treatment and an interview of a cancer patient from Senapati district, Manipur, India, who has been cured by the treatment. Also, it presents the various local uses of the plant by different ethnic groups in Manipur.

Keywords: Oroxylum indicum, anticancer plant, Shakbang, Maram Naga, Senapati Manipur.
Indigenous Knowledge System of Zootherapeutic Use by Chakhesang Tribe of Nagaland, India

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Abstract

Zootherapeutic use of different animals and animal parts to treat common human ailments like wound, child delivery, burn, swelling, stomach pain, anaemia, bone fracture, gastritis, malarial fever, urethritis, constipation, cough, asthma, dysentery, chicken pox etc. among Chakhesang tribe of Phek district, Nagaland has been discussed. Detail information has been obtained on the traditional therapeutic use of twenty three different animal species of which certain become rare or endangered. The authors suggest for establishment of human-nature interaction for sustainable utilization of animal resource through domestication of wild species by means of traditional farming system.

Keywords: Indigenous Knowledge System. Chakhesang Tribe. Nagaland
Common spices and their use in traditional medicinal system of ethnic groups of Manipur state, North eastern India

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Abstract

This investigation reports on most commonly used spices and their utility in traditional medicinal system based on household and market surveys in Manipur. A total of 3X plant species were recorded used as spices: of which 42% species were used as daily kitchen food spices. Out of the total species recorded, 13 species are cultivated while 8 species were directly collected from wild habitats only, and remaining 17 species are either cultivated or collected from natural habitats. The highest market price was fetched by Piper nigrum, Curcuma caesia and Cinnamomum zeylanicum. A total of 23 spices were used to cure 21 diseases in traditional medicinal system, mainly for cough (11 spp.), fever (6 spp.), paralysis (4 spp.), infertility and urinary troubles (3 species each), toothache, menstrual disorder, snake-bite and vertigo (2 species each) and many other diseases. The production potential of cultivated spices was fairly good for Coriandrum sativum, Allium odorum, Zingiber officinale. Some of the spices such as Allium hookeri, A. odorum and A. porum are not commonly grown in any other part of the country. It is emphasized that these species should be protected in natural habitats, and multiplied for large-scale use at household level to avoid pressure in wild areas.

Keywords: Spices. Medicinal uses, Manipuri traditional medicines, Productivity, Conservation.

Utilization of medicinal plants by the rural women of Kullu, Himachal Pradesh

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Received 30 December 2002

Abstract

The present paper deals with the indigenous knowledge of women in utilization of medicinal plants for curing various diseases. 42 women (in the age group of 15 to 60 years) from three villages of Tirthan valley were interviewed using participatory methods and questionnaire surveys. The results revealed that a total of 25 plants species were utilized for various medicinal purposes.

Keywords: Indigenous knowledge, Medicinal plants, Himachal Pradesh.
Cryptolepis buchanani- A less-known medicinal plant used in bone fracture
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Received 16 December 2002

Abstract
The paper presents the use of Cryptolepis buchanani for the treatment of bone fracture by tribal people in East Siang district of Arunachal Pradesh. The information is provided on the basis of personal interview with a local herbal practitioner known as 'Bhejuyai'. Botanical description of the plant with local names, detection and nature of fracture and mode of administration by the herbal practitioner are described in detail.

Keywords: Cryptolepis buchanani, Bone fracture, Traditional medicine, Arunachal Pradesh.

Traditional knowledge of ethnomedicine in Jaunsar-bawar, Dehradun district
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Received 29 April 2002; revised 31 March 2003

Abstract
In Jaunsar-bawar area (Chakrata tehsil of Dehradun district), different kinds of medical practitioners (priests, magicians, exorcists and quacks) abound. Many cures are effected by one or more persons treating a single patient at a time or in succession. In traditional societies, herbalists and midwives frequently acquire their skills from their mothers or other close relatives. In most of these rural societies, their localities are almost bereft of modern health facilities. In such a situation, they use their traditional knowledge about the locally available plants to cure many diseases. In this paper, an attempt has been made to see how these ethnomedicines are useful in Jaunsar-bawar to maintain their healthy life.

Keywords: Ethnomedicine, Tribal groups, Jaunsar-bawar, Dehradun.
Prioritization of medicinal plants on the basis of available knowledge, existing practices and use value status in Uttaranchal, India

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Abstract

In order to understand the pattern of indigenous uses of medicinal plants available in the Uttaranchal state of the Indian Himalaya, this study was undertaken through literature survey and field work in various parts of the state. A list of all the major and most of the lesser categories of ailments was prepared and categorized with the help of medical practitioners. A total of 300 plant species used in curing 114 ailments prevailing in various ethnic and non-ethnic communities of Uttaranchal were documented. These 114 ailments were further grouped into 12 broad classes of diseases in order to project the indigenous uses of medicinal plants for various ailments. It was found that herbs contributed the highest number of medicinal plants (65%), followed by shrubs (19%) and trees (16%). The maximum numbers of plant species were used to cure generalized body aches and colic, followed by gastrointestinal and dermatological problems. Vitex negundo was the most important species, used for the treatment of more than 48 ailments. Azadirachta indica, Woodfordia fruticosa, Centella asiatica, Aegle marmelos, Cuscuta reflexa, Butea monosperma, Phyllanthus emblica, and Euphorbia hirta were among other important medicinal plants based on their high use values. The underground parts of the plant were used in the majority of cases. Of 300 medicinal plants, 35 were rare and endangered species, of which about 80% was restricted to the high altitude alpine region of Uttaranchal Himalaya. A priority list of 17 medicinal plant species was prepared on the basis of endemism, use value, mode of harvesting and rarity status. Strategies for long-term conservation of these valuable medicinal plants are discussed.

Key words: Indigenous uses, Medicinal plants, Prioritization, Status value, Uttaranchal Himalaya
Indigenous healthcare practices and their linkages with bioresource conservation and socio-economic development in Central Himalayan region of India
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Received 25 February 2003; revised 3 November 2003

Abstract
In this study, covering nineteen settlements between 800-2000 m asl and as many as 500 respondents drawn equally from both the sexes in Central Himalayan region of India, an effort was made to document indigenous knowledge system of medicine and health care practices and its relevance in physical wellbeing of the local people, resource conservation and socioeconomic development. Documentation of more than fifty indigenous healthcare practices that are in practice among the local people revealed that females are the real custodians of the indigenous knowledge system as 52% of them have the knowledge on thirty practices against that of 26% for males. This indigenous knowledge system of medicine existing as a superstructure, effectively serves the people of the region. Further, the indigenous practices being easily administrable and cheaper relieve the practitioners from time and financial hardship. However, growing requirements of the continually increasing population and associated poverty besides largescale commercial use of bioresources is resulting in their uncontrolled exploitation, leading to their erosion and extinction. Their non-availability may threaten the continuation of these practices.

Keywords: Central Himalaya, Indigenous knowledge, Indigenous healthcare practices, Bioresource conservation, Women.

Folk uses of some medicinal plants from North Sikkim
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Received 11 February 2003; revised 1 July 2003

Abstract
The local inhabitants in the North Sikkim area have inherited rich traditional knowledge of the use of many plants or plant parts for the treatment of their common diseases. They often have the information on how to use the plants and to take or to apply the medicine for different diseases and health care. Information on medicinal uses of 15 types of tubers, rhizomes or roots used by the inhabitants of North Sikkim, viz. Lepchas, Nepalese and Bhutias is presented here.

Keywords: Folk uses, Medicinal plants, North Sikkim, Lepchas, Nepalese, Bhutias.
“Sowa - Rigpa”: Himalayan art of healing

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Abstract

Sowa-Rigpa commonly known as Tibetan or Amchi medicine is among the oldest surviving well-documented medical traditions of the world. With the living history of more than 2500 years it has been popularly practiced in Himalayan regions throughout central Asia. In India it has been popularly practiced in Ladakh, Himachal Pradesh, Arunachal Pradesh, Sikkim, Darjeeling and now in Tibetan settlements all over India. Originated from India Sowa-Rigpa is based on Jung-wa-lna (Panch Mahabhuta /five elements) and Nespa gSum (Tri-dosh/ three humours) theories. According to these all animate and inanimate phenomena of this universe are composed of Jung-wa-lna (five elements). It is on the theory of five basic elements that the science of physiology, pathology and pharmacology is established. This paper gives an introductory note on history, theory and practice of Sowa-Rigpa (Science of healing) in India.

Keywords: Sowa-Rigpa, Amchi, Tibetan medicine.

Medicinal plants used as antipyretic agents by the traditional healers of Darjeeling Himalayas

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Abstract

Darjeeling Himalayan region is characterized by a rich floral diversity. Since most of the hilly terrain is devoid of modern medical facilities, the people here are dependent on Traditional Medicine Systems for their health-care. During the course of the study, it was found that 37 species of plants belonging to 29 families are utilized as antipyretic agents in the different ethnic medicine practices prevalent in the region.

Keywords: Antipyretic activity, Folk medicine, Herbal medicine, Ethnomedicine, Traditional medicine.
Ethnomedicinal survey of Uri, Kashmir Himalaya
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Abstract

In the contemporary global milieu, the documentation of the biological resources and the associated indigenous knowledge existing within a country has assumed highest priority. The present paper records ethnomedicinal value of 27 plant species belonging to 20 families, in vogue, from the study area. Each plant species included, contains information regarding crude drug preparation and its method of use. Such documentation would be helpful in terms of commercial production of drugs, readily accessible health care to larger population, sustainable use and above all, safeguard from bio-piracy.

Keywords: Indigenous knowledge, Medicinal plants, Ethnomedicine, Kashmir.

Folk herbal remedies from Meghalaya
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Received 6 June 2003; revised 10 September 2003

Abstract

Traditional methods of treatment using plants and animals are predominant in rural societies of Meghalaya, a north-eastern state of India. As a result of an ethnombotanical survey conducted during 1999-2002, information on 46 such plant species belonging to 44 genera and 34 families are presented.

Keywords: Folk herbal remedies, Traditional medicine, Meghalaya, Ethnomedicine.
**Hepatoprotective effect of few Ayurvedic herbs in patients receiving antituberculous treatment**

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Received 4 December 2003

**Abstract**

Under the antituberculosis treatment (ATT) drug therapy, inclusion of a hepatoprotective drug is not mandatory but in Indian scenario these are prescribed by most of the physicians. In present clinical trial three groups of patients receiving antituberculosis treatment have been studied to evaluate the hepatoprotective effect of few Ayurvedic herbs. The first group of 10 patients was given capsules Liv-600 containing hydroalcoholic extract of *Daruharidra* (*Berberis aristata*) roots, *Kakmachi* (*Solanum nigrum*) whole plant, *Ghritakumari* (*Aloe vera*) ariel parts. Second Group was given a standardized decoction of herb *Bhumyamalaki* (*Phyllanthus fraternus*). Third group was kept on ATT and a placebo starch capsule for equal duration. The trial was conducted for 12 weeks from initiation of ATT and liver functions were periodically evaluated to assess the hepatoprotective effect of drugs under trial. At the end of trial, Group first and second exhibited their hepatoprotective efficiency over the placebo.

**Keywords:** Hepatitis, Ayurveda, Hepatoprotective activity, Tuberculosis.

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**Ethno-medico-botany of the Zeme tribe of North Cachar Hills district of Assam**

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**Abstract**

Folklore medicinal uses of 33 plant species belonging to 22 families for various ailments among the Zeme Nagas, one of the prominent ethnic tribes of North Cachar Hills district of Assam, India is reported. The study was undertaken during 1999-2000 covering the area of Zeme inhabiting villages of N. C. Hills district of Assam.

**Keywords:** Ethno-medicine, Zemes, Herbal remedies, Folk medicines, Assam.
Observations on the traditional phytotherapy among the inhabitants of Parvati valley in western Himalaya, India

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Abstract

The present paper deals with the field observations recorded on the traditional indigenous therapeutic applications of the plants used by the inhabitants of the Parvati valley of Kullu district in western Himalaya of India. The Parvati valley is inhabited by different ethnic groups like Gujjars, Gaddis, Malanis, Kulluvis and others. These inhabitants have been dependent on the ambient plant resources for food, fuel, fiber, timber, household articles and medicines to a great extent for ages. Even today a number of plants of the local flora are used for curing various ailments and diseases. First-hand information about 50 plant species belonging to 45 genera and 28 families were recorded during extensive field surveys carried in Parvati valley during 2000–2002. The information is given in a tabular form as scientific names of plants in alphabetic order followed by family and field numbers of the voucher specimens collected. Information on local/vernacular names of plants, uses, parts used, names of ailments and modes of usage are given in detail. Information on traditional uses and commercial uses as well as biological activities of the related species is included on the basis of the existing relevant literature so as to present a comprehensive account.

Keywords: Traditional; Phytotherapy; Inhabitants; Parvati valley; Western Himalayas

Health and Hygiene of the Nahs of Arunachal Pradesh

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Abstract

The Nahs live in Taksing Circle of Upper Subansiri district, a remotest area of Arunachal Pradesh. Here communication system is too bad to maintain regular relation with outer world. The people live here principally with their traditional health care practices under the given ecological condition. The modern medicine system suddenly made its presence at this area through the Government Institutions. No doubt the people are traditional, but they accepted the system. Traditional concepts of health continues; at the same time they have grabbed new system without offering conspicuous resistance. The present paper tries to portray how the impinging modern medicine system adjusts and reacts with the traditional one in the Nah heritage.

Keywords: Health Nah; Arunanchal Pradesh; malignant spirit; modern medicine
Does the outreach programme make an impact? A case study of medicinal and aromatic plant cultivation in Uttaranchal

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Abstract

Farmers to farmers training programme (FFTP) is a tool to build and strengthen capabilities of farmers, extension workers associated with NGOs and government department in selecting potential species and enhancing the area under medicinal and aromatic plants (MAP) cultivation in the Himalaya. The programme has helped participants change their attitudes considerably towards the role and values of medicinal plant in current changing scenario at the local, regional, national and global level. This programmes are conducted in the farmers’ field itself, and this enables the participants to have better understanding of the problems faced by the farmers and how they overcome them. During these programmes, a holistic understanding of domestication (nursery raising) and cultivation and conservation of medicinal plants and exchange of indigenous knowledge are facilitated among participants.

Scientific assessment and impact analysis carried out by researchers identified the need for further research and sustained government programme interventions to strengthen the infrastructure and extension input. Furthermore, the programme has shown that there is a need to adopt appropriate policy, which must integrate the cultivation of MAPs with local people’s socio-economic development and also develop locations-specific technologies so as to maximize the use of local resources and reduce the use external inputs.
Health traditions of Buddhist community and role of amchis in trans-Himalayan region of India

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Abstract

Historically, for curing ailments, the inhabitants of Tibet, Ladakh and Lahaul-Spiti had practised shamanism that was prevalent in northern Asia under the name Ban. During the pre-Buddhist era, several forms of medicinal practice had existed in the trans-Himalayan region such as Ihaba (Shaman) and Onpo (astrologer) and the prominent system of indigenous therapy developed in this desolate area was known as the Tibetan medical system, which has evolved on the basis of available bio resources, minerals and beliefs. Amchis being the practitioners of the ethnomedical system, have enjoyed high respect and social status among the trans-Himalayan Buddhist communities. With the spread of Buddhism in the trans-Himalayan region, Ayurveda began to influence the Tibetan medical system. There is ample indigenous medical knowledge with many traditional amchis, which has been inherited from one generation to the next by word of mouth, and not yet documented. The present study deals with the Tibetan Medical System and the ingredients used in preparing various ethno medicine to kill several ailments by amchis inhabiting Ladakh and Lahaul-Spiti region of Indian trans-Himalaya. A total of 337 plant species, 38 species of animals and 6 minerals were documented during the survey period. Among 83 amchis interviewed, 36 % had disciples or students, primarily their own sons and daughters. The study reflects that the Tibetan system of medicine is declining in the study area due to shift in socio-economic patterns and unwillingness of the younger generation to adopt amchi as a profession.

Keywords: Amchis, bio-resources, Buddhist community, traditional health knowledge, trans-Himalaya.
Current Status of Medicinal Plants used by Traditional Vaidyas in Uttarakhand State of India

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Abstract

The current status of medicinal plants used by traditional Vaidyas was studied in Uttarakhand state of India. Information was gathered using semi-structured questionnaires among 60 traditional Vaidyas. They were questioned about the types of ailments treated with plants and the preparation of herbal medical formulations. A total of 243 herbal medical formulations prepared by Vaidyas treating 73 different ailments were documented. Plants were the major ingredients in these medical formulations. 156 medicinal plant species were documented during the survey. Of these 55% were cultivated and 45% were wild species. Of the cultivated species 80% were found growing in the kitchen gardens and 20% in the agricultural fields. The frequency of use of kitchen garden species was highest in preparing the medical formulations as in 243 formulations the relative frequency of use of such species was 87%. The relative frequency of use of the medicinal plants growing in the wild was 55% in preparing herbal medical formulations. There was a sharp decline in the number of traditional Vaidyas through generations. The loss of knowledge on preparing medicine was due to several reasons including the number of Vaidyas coming forward to adopt this traditional healing practice professionally.
Ethnomedicinal plants in the sacred groves of Manipur

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Abstract

Ethnobotanical studies carried out in the four sacred groves of Manipur revealed therapeutic applications of 120 plant species representing 106 genera and 57 families. Tree species contributed the maximum having 42% while herbs recorded 33% of the total medicinal plants. These plants are used for a wide range of common ailments like skin disorders, ulcer, rheumatism, bronchitis, etc. Majority of the preparations are taken orally in the form of juice extracted from the freshly collected plant parts. Leaves are the major plant parts used for the preparation of medicine by the medicine-men (Maibas). Most of the plant parts are harvested from the wild. It has been observed that the species that are scarce locally in the forest due to various developmental activities, deforestation, over-exploitation, etc. are abundant in the ‘sacred groves’. Information on medical claims was collected from the elderly people residing in the vicinity of sacred groves and also from the traditional healers called ‘Maibas’. The study describes details of botanical identity, family, local name, parts of the plant used, therapeutic uses, and mode of application of the drug.

Key words: Sacred groves, Ethnobotany, Medicinal Plants, Conservation, Ethnomedicine, Manipur.
Ethnomedicinal plants used by the tribals of Mizoram to cure cuts & wounds

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Received 14 January 2004; revised 19 July 2004

Abstract

Results of ethnobotanical studies carried out in the state of Mizoram are presented. The usage of wild plants by the native people for the cure of cuts and wounds is described. The use of 17 species, belonging to 14 families together with their local names and other uses have been enumerated. The plants not only contain antiseptic value but also have regenerative and healing properties. Sticking property of paste of bark was also observed in Laki tree. In addition, blood clotting properties of some plants has also been reported.

Key words: Cuts & Wounds, Mizoram, Ethnobotany, Ethnomedicine

Traditional medical practices of Gaddi tribes in Kangra district, Himachal Pradesh

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Received 25 November 2003; revised 22 March 2004

Abstract

The tribal people of Himachal Pradesh living close to forests and facing unfavourable climatic conditions have rich traditional knowledge, which was documented and tested on scientific scale and mostly recommended for further research. Traditional practices followed by the Gaddi tribes in Kangra district of Himachal Pradesh to cure pinworm and diarrhoeal problems among infants have been discussed.

Kew words: Gaddi Tribes, Himachal Pradesh, Pinworm, Diarrhoea, Ethnomedicine, Kangra Traditional Medical Practices.
Traditionally used medicinal plants in Dharchula Himalayas of Pithoragarh district, Uttarakhand

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Received 17 August 2004; revised 19 October 2004

Abstract

An attempt has been made to evaluate the traditionally used medicinal plants found in Dharchula areas of Kumaon Himalayas in Pithoragarh district, Uttarakhand, North India. The reported plant species are also highly valued in the Indian, Tibetan and Chinese Systems of Medicine. Based on interactions with the locals and traders and considering the potentials of some species for developing new drugs, the value of the species of medicinal importance occurring in the area has been worked out. The value is high enough for taking appropriate measures to conserve these valuable species and use them sustainable for the economic upliftment of the region.

Keywords: Dharchula, Medicinal plants, Traditional medicine, Sustainable use, Economics, Economic upliftment, Ethnomedicine, Endangered plants, Medicinal Plants trade

Traditional practices of herbal medicines in the Lahaul valleys, Himachal Himalayas

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Abstract

Observations on the traditional practices of herbal medicines were recorded in the villages of Lahaul, a semi-arid region of district Lahaul-Spiti, a dry temperate region of Himachal Himalayas. The information was recorded for the habitat, plant characteristics, plant part used of 43 plant species, belonging to 25 families and diseases treated in the Lahaul valley.

Key words: Traditional practices, Herbal medicine, Lahaul valley, Himachal Pradesh
Traditional knowledge on medicinal plants among rural women of the Garhwal Himalaya, Uttaranchal

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Abstract

The present paper deals with traditional knowledge of medicinal plants among rural women of Garhwal. Seventy women of 11 villages were interviewed on the basis of their traditional knowledge on the various uses of medicinal plants found in the adjoining forest and agricultural areas. A total of 113 medicinal plant species were recorded during the intensive surveys and discussions held with the rural women.

Keywords: Traditional Knowledge, Medicinal Plants, Garhwal, Ethnomedicine

Traditional uses of plants in curing jaundice in the Pin Valley National Park, Himachal Pradesh

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Abstract

The paper provides traditional uses of few plant species in curing jaundice by the local community residing in and around Pin Valley National Park, Lahaul & Spiti in Himachal Pradesh. Their uses along with the dosages and combination with other plants are provided.

Key words: Traditional uses, Jaundice, Pin Valley National Park, Himachal Pradesh
Ethnomedicinal botany of the Apatani in the Eastern Himalayan region of India

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Abstract

This paper investigates the wealth of medicinal plants used by the Apatani tribe of Arunachal Pradesh. Apatani have traditionally settled in seven villages in the Ziro valley of Lower Subansiri district of Arunachal Pradesh in the Eastern Himalayan region of India. The present study has resulted in the documentation of 158 medicinal plant species used by the Apatani group of villages. These medicinal plant species were distributed across 73 families and 124 genera. Asteraceae was the most dominant family (19 species, 11 genera) of medicinal plants, followed by Zingiberaceae, Solanaceae, Lamiaceae and Araceae. For curing ailments, the use of aboveground plant parts was higher (80%) than the belowground plant parts in the Apatani group of villages. Of the aboveground plant parts, leaf was used in the majority of cases (56 species), followed by fruit. Different belowground plant forms such as root, tuber, rhizome, bulb and pseudo-bulb were used by Apatanias a medicine. About 52 types of ailments were cured by using these 158 medicinal plant species. The results of this study are further discussed in the changing socio-economic contexts.

Antidiabetic plants used by Sikkim and Darjeeling Himalayan tribes, India

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Abstract

Sikkim and Darjeeling Himalayan region is characterized by a rich floral diversity and an equally rich ethnomedicinal tradition. Herbal medicine is the dominant system of medicine practiced by the local tribes of this region for the treatment of diabetes. During the course of the present studies it was found that 37 species of plants belonging to 28 families are used as antidiabetic agents in the folk medicinal practices in the region and 81% of these plants are hitherto unreported as hypoglycemic agents. This finding may lead to serious research towards developing new and efficient drugs for diabetes.

Keywords: Diabetes; Antidiabetic plants; Hypoglycemic agents; Traditional medicine
Indigenous knowledge and medicinal plants used by Vaidyas in Uttaranchal, India

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Abstract

The indigenous knowledge of Vaidyas (the traditional healers) on making the herbal drugs was studied in the Uttaranchal state of India. Interviews and semi-structured questionnaire surveys were conducted among 60 traditional Vaidyas on the preparation of various herbal drugs. The survey has resulted in compilation of 135 herbal drugs, which are used by them for curing 55 types of ailments. In Uttaranchal, generally the traditional Vaidyas follow some specific guidelines for collection of medicinal plants from wild. They frequently use Ocimum sanctum Linn., Piper nigrum Linn., Curcuma domestica Valet., Brassica campestris Hook.f. & Thoms.and Raphanus sativus Linn. for making various herbal drugs. There is a sharp decline in the number of recognized Vaidyas due to several reasons.

Keywords: Indigenous knowledge, Vaidyas, Traditional healers, Uttaranchal, Medicinal plants, Ailments, Herbal drugs.

Ecology and Health: A Study Among Tribals of Ladakh

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Abstract

In most parts of India, Multiple therapy systems and a diversity of health behaviour patterns co-exist and Ladakh is no exception. The status, growth and evaluation of co-existing therapy systems have been influenced by cultural ideology, ecology, political patronage, changing social institutions, disenchantment with and romanticization of values represented by therapy systems (or their supporters). In the present paper an attempt has been made to describe the ways in which a common Ladakhi thinks about medicine and how these perceptions effect the utilization of alternative therapy systems. This paper examines the alternative resources and treatments utilized by various population groups in Ladakh. The study reveals a multiple therapy systems. The multiple dimensions of health care are described in terms of medical behaviour of health sector and the practioners, and health care strategies employed by the patient. Medical pluralism may be defined as the synchronic existence in a society of more than one medicine system grounded in different principles or based on different world views. In the Indian context the important components of medical pluralism are allopathy, ayurvada, homeopathy, and unani. In the Ladakhi context components of medical pluralism are allopathy or bio-medicine, shamanism (Locally known as Lhawaisn), lamaism, and scholarly amchi medicine. Among Ladakhis, choice of therapy depends on illness specific patterns of resort.

Keywords: Himalaya; medical system; tribal; cold desert
Indigenous Medicinal Substances and Health Care: A Study Among Paite Tribe of Manipur, India

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Abstract

People living in tribal areas often obstacles in accessing basic health care services due to remoteness and backwardness of the areas in which they live. Understanding the health care needs of tribal people in these difficult circumstances with special focus on utilization of tribal indigenous medicinal substances is significant for devising comprehensive programs. Data on socio-economic status, knowledge on indigenous medicine, beliefs, practices, and health seeking behaviors were collected from traditional healers and service providers in the primary health centres in two villages- Mualnuam and Thuangtam in Manipur, India. The methods of data collection include survey, group discussions and social mapping. The health care services as part of the larger public health domain, is in a very poor state both in terms of infrastructure and service providers. Nearly all the women respondents indicated their preference towards indigenous medicine or homemade remedies and traditional healers at the primary stage of their illness. Thus, scope of indigenous medicine becomes important. Peoples’ belief in indigenous medicine can play a vital role in implementing Government programmes on improving and promoting Indian system of medicine in rural areas and at the same time recognizing the local tribal medicine.

Keywords: Indigenous, traditional healers, Providers, utilization.

Quantitative assessment and traditional uses of high value medicinal plants in Chhota Bhangal area of Himachal Pradesh, Western Himalaya

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Abstract

Information on eight highly traded and locally used medicinal plants was collected from the alpine zones of Chhota Bhangal. The study aimed to quantify the current status of these plants in terms of density, frequency and biomass, and also document the indigenous use of these plants for traditional health care. Quadrats of 1 x 1 m were used for quantitative assessment of the plants. Informal interviews and discussions were held with local people for recording local uses of the plants. Based on the sampling, it was found that different species had different habitat requirements. Steep slopes of Chhota Bhangal had the highest species richness and diversity, while rocky area had the least. Maximum similarity in terms of species distribution was observed between steep slopes and undulating meadows. It was found that these medicinal plants are regularly used by the local people for curing various ailments such as stomach ache, fever and kidney stones. However, illegal extractions of plants for commercial purposes seems to have effected their population in nature. However, in comparison to few alpine areas of western Himalaya, the present study area supports higher population of medicinal plants.

Keywords: Chhota Bhangal, Western Himalaya, Ethnobotany, trade, medicinal plants
Some Medicinal Weeds Associated with Terraces of Crop Fields of Pauri, India

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Issued 27 November 2006.

Abstract

An ethnobotanical survey was conducted in order to identify the medicinal weeds of crop fields in Pauri (located at an elevation of 1650m in northwest Garhwal Himalayas of Uttaranchal) and to find out the possibilities of utilizing these weeds. The information about their potential uses were collected with help of reference literature of different medicine systems. The study revealed that about 18 species of weeds in crop fields, of Pauri possessed medicinal properties. The study suggested a tremendous scope of utilizing these weeds, to promote additional income to the inhabitants.

Key Words: Garhwal, Weeds, Pauri.

Medicinal plants of the high altitude cold desert in India: Diversity, distribution and traditional uses

Chandra Prakash Kala

Abstract

Distribution patterns and traditional uses of medicinal plant species were studied in the high altitude cold desert of India (Indian trans Himalaya), with the help of indigenous medical practitioners (locally called amchis). Unstructured and semistructured questionnaire surveys were conducted with 83 amchis living in Ladakh and Lahaul Spiti. To study the distribution pattern of medicinal plants, 70 sub localities were surveyed and grouped into 8 broad localities. A total of 335 medicinal plant species were recorded, of which 45 were rare and endangered. The main plant part used in preparing medicine was the leaf, followed by the flower, root, shoot, seed and fruit. The distribution pattern of the medicinal plants was, generally, localized because most (27%) were restricted to marshy and moist areas, followed by dry scrub (13%), rocks (12%), boulders (10%) and undulating land or alpine meadows (9%). Within the study area, the highest numbers of rare and medicinal plants were found in the Pin valley, followed by the Zanskar valley and the Leh valley. Factors related to conservation and management of medicinal plants in the cold desert of India are discussed.

Keywords: medicinal plants, indigenous uses, distribution pattern, amchis, cold desert
**Medicinal plants: Potential for economic development in the state of Uttaranchal, India**

Chandra Prakash Kala

**Abstract**

The present study deals with the medicinal plant wealth of Uttaranchal state in northern India. A total of 964 medicinal plant species were documented with the help of a literature survey and fieldwork undertaken in the various parts of the state. These medicinal plants were used in curing 135 ailments, with the highest numbers of species being used for treatment of cuts and wounds, followed by fever and diarrhoea. Among the various life forms, herbs were dominant (64%), followed by 20% shrubs and 16% tree species. Taxonomically, Asteraceae was the dominant family, having 87 species of medicinal plants, followed by Fabaceae (58 species), Lamiaceae (49 species), Rosaceae (30 species), Liliaceae (29 species), Apiaceae (28 species), Euphorbiaceae (26 species), Ranunculaceae (26 species) and Orchidaceae (23 species). Such a rich resource base indicates the huge potential for economic development of the state through herb based industries.

**Keywords:** Medicinal Plants, Uttaranchal, Traditional Health Care.

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**Dicentra scandens** (D.Don) Walp.—A highly potent ethnomedicinal plant against malaria, high blood pressure and diabetes

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**Abstract**

*Dicentra scandens* (D.Don) Walp.syn*Dicentra thalictrifolia* (Wall.) Hook.f. & Thoms.is a climbing perennial herb, belonging to the family Fumariaceae. The plant thrives well in moist sandy loam or loamy or forest soils very rich in organic matter. The plant has been used for years by Naga ethnic tribal communities living in eastern Nagaland state for treating various diseases including a number of fatal diseases like malaria, high blood pressure and diabetes. Therefore, it is warranted that step needs to be taken up for laboratory research to probe for validity test as claimed by herbalists and ultimately evolve a system for bio-prospecting and bio-partnership in bringing about cultivation.

**Key words:** Malaria, High blood pressure, Diabetes, Ethnomedicine, Nagaland
Medicinal plants use in traditional healthcare systems prevalent in western Himalayas

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Received 8 February 2005; revised 11 July 2005

Abstract

The present research work was carried out in six villages of Kangra district of Himachal Pradesh to study application of plants at home scale level in treating various kinds of ailments. The information was documented using questionnaire and PRA techniques with the help of village elders, key informants and local healers. In the present study, thirty-one plant species used by the villagers for the treatment of various diseases at home scale level were identified. Twenty plant species were used for curing more than one disease. Three plants, *Aloe barbadensis* Mill., *Asparagus racemosus* Roxb. and *Tinospora cordifolia* Willd. were used against more than five diseases. It was found that elder people had more inclination towards herbal medicines followed by middle and young people. Since the knowledge of various medicinal plants being used in herbal treatment and their method of use is confined to mostly local healers, it is of utmost importance to record this knowledge for future generations, otherwise, it will be lost forever.

**Keywords:** Himachal Pradesh, Medicinal plants, Traditional healthcare system
Ethnomedicinal studies of the Khamti tribe of Arunachal Pradesh

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Abstract

An ethnobotanical study was done in Khamti dominated area of Chongkam and Namsai Circle of Lohit district of Arunachal Pradesh during 2002-2004. Khamti tribe is rich in plant based traditional knowledge. Of 45 medicinal plants studied, 5 plants were found to be used in malaria and fever, 4 in bone fractured, 3 in anemia, 2 each in snakebite, cancer, reproductive health, and rabies, 1 each in tuberculosis, diabetes, and jaundice, and rest for curing different ailments which are used either singly or in combined form. The science of orthopaedics was found to be well developed and their medicinal preparation techniques are mostly accompanied by enchanting traditional mantra.

Keywords: Arunachal Pradesh, Ethnomedicine, Folk medicine, Herbal remedies, Khamti tribe, Medicinal plants, Tribals

Ethnomedicinal plant resources of Jaunsari tribe of Garhwal Himalaya, Uttarakhand

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Abstract

An attempt has been made to evaluate plants used for medicare by the tribal people of the Jaunsar area of Garhwal Himalayas. The study reveals the indigenous medicinal uses of 66 plant species belonging to 52 genera and 41 families by the tribal people of Jaunsar. Ethnomedicinal uses of 17 species recorded in the paper are the first report from the region. Documentation of traditional knowledge on the ethnomedicinal uses of these plants is essential for conservation efforts for the plant resources and new drug development.

Key words: Conservation, Ethnomedicine, Garhwal Himalayas, Jaunsari tribe, Traditional healthcare
Ethnomedicinal observations among the inhabitants of cold desert area of Himachal Pradesh

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Abstract

The paper deals with the field observations of traditional phytotherapeutic applications used by inhabitants of Spiti valley, a cold desert in western Himalayas. The average land population ratio in the area is probably thinnest in the world. The Spitiyans (originally Mongolians) have been largely dependent on the plant resources for food, fuel, timber, household articles, and medicines to a great extent for ages. First hand information of about 26 plant species were recorded during extensive field survey carried out in cold desert area of Himachal Pradesh during 2003. The information covers scientific name, vernacular names, plant parts used and mode of usages.

Keywords: Cold desert area, Ethnomedicine, Folk medicine, Himachal Pradesh, Medicinal plants, Spitians, Traditional medicine, Western Himalayas

Medicinal plants prescribed by different tribal and non-tribal medicine men of Tripura state

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Abstract

The paper deals with 33 medicinal plants along with their local names, parts and ethnomedicinal uses prescribed by tribal and non-tribal medicine men of Tripura state. The ethnobotanical field survey was conducted around the tribal areas of the state during 2002-2003 to highlight the ethnomedicinal uses and the herbal formulation/ preparations of various traditional medicines. The survey comprised of the medicinal use of 33 species of 31 genera belonging to 25 families of flowering plants used for the treatment of various ailments either single or in combinations. The study provides immense scope for the active principles analysis and clinical studies of these plants for future drug development.

Keywords: Ethnobotany, Ethnomedicine, Medicinal plants, Santal tribe, Tripura
Traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya

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Abstract

The importance of medicinal plants in traditional healthcare practices, providing clues to new areas of research and in biodiversity conservation is now well recognized. However, information on the uses for plants for medicine is lacking from many interior areas of Himalaya. Keeping this in view the present study was initiated in a tribal dominated hinterland of western Himalaya. The study aimed to look into the diversity of plant resources that are used by local people for curing various ailments. Questionnaire surveys, participatory observations and field visits were planned to illicit information on the uses of various plants. It was found that 35 plant species are commonly used by local people for curing various diseases. In most of the cases (45%) under ground part of the plant was used. New medicinal uses of Ranunculus hirtellus and Anemone rupicola are reported from this area. Similarly, preparation of "sik" a traditional recipe served as a nutritious diet to pregnant women is also not documented elsewhere. Implication of developmental activities and changing socio-economic conditions on the traditional knowledge are also discussed.

Traditional use of medicinal plants by the Jaintia tribes in North Cachar Hills district of Assam, northeast India

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Abstract

The study of ethnobotany relating to any tribe is in itself a very intricate or convoluted process. This paper documents the traditional knowledge of medicinal plants that are in use by the indigenous Jaintia tribes residing in few isolated pockets of northeast India. The present study was done through structured questionnaires in consultations with the tribal practitioners and has resulted in the documentation of 39 medicinal plant species belonging to 27 families and 35 genera. For curing diverse form of ailments, the use of aboveground plant parts was higher (76.59%) than the underground plant parts (23.41%). Of the aboveground plant parts, leaf was used in the majority of cases (23 species), followed by fruit (4). Different underground plant forms such as root, tuber, rhizome, bulb and pseudo-bulb were also found to be in use by the Jaintia tribe as a medicine. Altogether, 30 types of ailments have been reported to be cured by using these 39 medicinal plant species. The study thus underlines the potential of ethnobotanical research and the need for the documentation of traditional ecological knowledge pertaining to the medicinal plant utilization for the greater benefit of mankind.
Indigenous Knowledge of Zootherapeutic Use of Vertebrate Origin by the Ao Tribe of Nagaland

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Abstract
The Ao tribe of Nagaland mostly use vertebrate derived medicine for a whole range of afflictions like body pain, rheumatism, asthma, liver disease, leucoderma, eczema, tuberculosis, paralysis, antidote against poison, skin disease, stomach disorder, jaundice, night blindness, bone fracture, malaria, dysentery, kidney problems, breathing problems, earache, burn injuries, stammering, piles, general weakness etc. Detailed information has been obtained on the traditional therapeutic use of twenty five different vertebrate species, of which, some have become rare. It is suggested that establishment of socioecological system through sustainable management and conservation of biodiversity may contribute tremendously to understand this indigenous system as a reliable source of medicine, food, income and other benefits.

Keywords: Zootherapeutic Use, Ao Tribe, Vertebrate, Nagaland

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Diversity, Distribution Pattern and Conservation Status of the Plants Used in Liver Diseases/Ailments in Indian Himalayan Region

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Abstract:
In the Indian Himalayan Region, the studies focused on diversity of the plants used for treating liver diseases/ailments have not been carried out so far. Therefore, the present attempt has been made to study the diversity, distribution pattern and conservation status of the plant species used for treating liver diseases/ailments in that region. A total of 138 species (35 species of trees, 22 shrubs and 81 herbs) belonging to 98 genera in 60 families have been recorded. Amongst the families, Euphorbiaceae (9 species), and altitudinal zone <1,800 m, (i.e., 115 species) are rich in species. Traditionally, various plant parts, such as roots/rhizomes/tubers (46 species), leaves (31), whole plants (30), barks (15), fruits (13), seeds and unspecified parts (8 each), and inflorescence (1) are used for the treatment of liver diseases/ailments. 34 species are native, 3 are endemic and 15 near endemic. 7 species are categorized as Critically Endangered (Betula utilis), Endangered (Podophyllum hexandrum, Ephedraerardiana, and Nardostachys grandiflora) and Vulnerable (Bergenia ligulata, B. stracheyi, and Hedychium spicatum) using new IUCN criteria. Available chemical composition of plant parts used for the treatment of liver diseases/ailments have been given. Assessment of the populations of threatened species, development of an appropriate strategy, action plan for the conservation and sustainable utilization of such components of plant diversity are suggested.

Keywords: Indian Himalayan Region; diversity; liver ailments; chemical composition; native; endemic; critically endangered; endangered
Plant used in folklore medicine by Bangnis of East Kameng, Arunachal Pradesh
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Abstract
The state of Arunachal Pradesh has 25 major tribes and many sub-tribes that belong to the Indo-Mongoloid group and comprise 63.66 % of the state's population. The district of East Kameng is home to the Bangni tribe who practice Jhum, depend on forests for supplementing their daily needs and are now taking to the newer modes of land use and settled agriculture. They have evolved their culture and tradition, myths and folktales in close association with the nature and have an intricate understanding of the forests and natural resources. This paper attempts to describe 74 traditional medicinal and healing plants of this tribe, comprising of 4 Pteridophytes and 70 Angiosperms, belonging to 37 families. These could be screened for the active principles and assessed for their medicinal potential.

Keywords: Bangni tribe, East Kameng district, Arunachal Pradesh, Ethnobotany

Aquatic/semi-aquatic plants used in herbal remedies in the wetlands of Manipur, Northeastern India
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Abstract
This paper reports on aquatic/semi-aquatic plants from the wetlands of Manipur valley in Northeastern India, which are used to cure various diseases. Empirically formulated and accepted prescriptions by the various ethnic communities of Manipur for curing 45 ailments by using 43 aquatic/semi-aquatic plant species are presented along with method of preparation, prescribed doses and administration, which were recorded from the local healers and responses obtained by the patients. Out of the 43 aquatic/semi-aquatic medicinal plants recorded, 20 plants are regularly used as vegetables in Manipur and among them 13 are sold in the market. Some of the healers sell their formulated herbal products in the market.

Keywords: Aquatic/semi-aquatic medicinal herbs, Edible, Wetlands, Manipur
Collection and conservation of major medicinal plants of Darjeeling and Sikkim Himalayas
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Abstract

The paper deals with use of certain indigenous medicinal plants among the local people of the Sikkim Himalaya (Eastern Himalaya), which includes the entire state of Sikkim and adjoining Darjeeling Hill district of West Bengal. The study highlighted the use of 28 plant species belonging to 26 genera and 19 families as herbal medicine in the treatment of various ailments. Considering the growing demand for raw materials of medicinal plants by the pharmaceutical companies and their depleting resource base, due to unscientific gathering from the wild, it is of utmost necessity to take up ex-situ cultivation and conservation of these medicinal plant species. Plant name, local name, family, along with their parts used, ethnobotanical application with active principles and conservation strategies are discussed.

Keywords: Conservation, Ethnomedicine, Medicinal plants, Darjeeling, Sikkim Himalayas, Lepcha, Bhutia, Limbus

Traditional phytomedicinal knowledge of Bhotias of Dharchula in Pithoragarh
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Abstract

Bhotias of Dharchula sub-division in Kumaon, Uttarakhand in North India have been living in isolation for centuries. They have had strong bond with the nature. They have traditionally been dependent on nature for healthcare, as they did not have access to the modern medicinal facilities until about 1960s. No serious attempts were made to document the traditional phytomedicines used by Bhotias of Dharchula areas in the past. Present attempt is the ethnomedicinal survey to document the traditional phytomedicines used by them.

Keywords: Bhotias, Dharchula, Indigenous knowledge, Pithoragarh, Traditional medicine, Tribes
**Ethnomedicinal plants from Dibru-Saikhowa biosphere reserve, Assam**

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**Abstract**

An account on medicinal usage of 61 plant species traditionally used as folk medicine to treat different ailments by the inhabitants of Dibru-Saikhowa biosphere reserve in Northeast India has been reported. For each plant species, local names, parts used, purpose of use, processing and mode of administrations are indicated.

**Keywords:** Ethnomedicine, Dibru-Saikhowa biosphere reserve, Assam, Northeast India

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**Indigenous medicinal plants knowledge of Kunihar forest division, district Solan**

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Received 25 August 2005; revised 18 December

**Abstract**

Kunihar forest division falling under district Solan boasts of rich plant diversity. The study was undertaken for making preliminary survey of the indigenous technological knowledge on the uses of medicinal plants of Kunihar forest division, district Solan, Himachal Pradesh. Important medicinal and aromatic plants with their vernacular names, family and indigenous uses have been presented.

**Keywords:** Kunihar forest, Ethnomedicine, Indigenous Technical Knowledge, Medicinal plants, Himachal Pradesh
Medicinal plants used against gastrointestinal tract disorders by the traditional healers of Sikkim Himalayas

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Abstract

Ethnomedicinal survey of various tribes in the four districts of Sikkim reveals the use of medicinal plants. The paper records ethnomedicinal values of 36 plants species belonging to 27 families having the activities in gastrointestinal tract disorders. A list of plants species along with their plant names, family, local names, plant parts used and the mode of administration has been enumerated.

Keywords: Indigenous knowledge, Medicinal plants, Gastrointestinal tract disorders, Ethnomedicine, Sikkim Himalayas

Traditional medicinal plants of cold desert Ladakh—Used in treatment of cold, cough and fever

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Abstract

This research paper presents the findings of an investigation on traditional remedies of cold, cough and fever among Boto (the Buddhists) tribal community of Leh-Ladakh region of India. Ladakh is one of the least populated regions of our country where major population lives in far-flung villages and higher elevations. Health care of tribal population is mainly dependent on traditional system of medicine which is popularly known as Amchi system of medicine. The Amchi system is principally based on Tibetan system of medicine. Fifty-six valuable species belonging to 21 families were identified with relevant information and documented in this paper with regard to their botanical name, family, collection number, local name, parts used and utilization by ‘Amchis’ (herbal practitioners) in treatment of cold, cough and fever.

Keywords: Leh-Ladakh; Medicinal plants; Cold; Cough and fever; Herbal practitioner; Amchis
Assessment of Diversity, Distribution, Conservation Status and Preparation of Management Plan for Medicinal Plants in the Catchment Area of Parbati Hydroelectric Project Stage – III in Northwestern Himalaya

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Abstract:
The developmental activities, particularly the construction of hydroelectric projects are causing a great loss of biodiversity in the Indian Himalayan Region. The Himachal Pradesh, a part of IHR is well known for the development of hydroelectric projects. The Parbati H.E. Project is amongst the major projects of the State. The different stages of the project are all causing loss of biodiversity of the area. Stage III of the Parbati H.E. Project is a run of the river scheme on the Sainj River downstream of Power House of Parbati H.E. Project Stage II. The project shall utilize regulated discharge of Parbati H.E. Project Stage II and inflow of River Sainj for power generation, and has been contemplated as a peaking station operating in tandem with Stage II. The present study has been undertaken to see the impact of hydroelectric project on the biodiversity, particularly on medicinal plants. A total of 104 species of medicinal plants, belonging to different life forms, i.e., trees (23 spp.), shrubs (22 spp.), herbs (57 spp.) and ferns (2 spp.) were recorded. The species have been analyzed and studied for their distribution, classification, altitudinal zones, part (s) used, indigenous uses, nativity, endemism and rarity. Different parts of these species, such as whole plants, roots (including rhizomes and tubers), leaves, flowers, fruits, seeds, stems, barks, spikes, nuts and insect galls are used by the inhabitants for curing various diseases and ailments. 30 species are native to the Himalayan region, 9 species native to the Himalayan region and adjacent countries also and 65 species are non-natives. 9 species are near endemics. Considering the whole Himalaya as a biogeographic unit (sensu lato), the near endemics are endemic to the Himalaya. Among these species, Zanthoxylum armatum is categorized as Endangered and Valeriana wallichii as Vulnerable. Hedychium spicatum, Rhus javanica, Berberis lycium, Thalictrum foliolossum, Salvia lanata, Rubia cordifolia and Bergenia ligulata maybe considered as threatened species due to their overexploitation for trade. 90 species are propagated byseeds, 8 species by seeds and rhizomes/roots/tubers, 4 species by seeds and cuttings, and 2 species by sori. A management plan for the cultivation and conservation of the medicinal plants in the dam submergence area, and the commercially viable medicinal plants with high value in the catchment area is suggested.

Keywords: Hydroelectric project; dam submergence area; management plan; medicinal plant; diversity; native; endemic; endangered; conservation status; indigenous uses; Indian Himalaya
Distribution, Use Pattern and Prospects for Conservation of Medicinal Shrubs in Uttaranchal State, India

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Abstract:

The present paper gives an insight into the distribution and use pattern of medicinal shrubs in Uttaranchal State. A total of 222 medicinal and aromatic shrub species have been appended based on secondary information. Euphorbiaceae, Rosaceae, Verbenaceae, and Fabaceae have the highest representatives of medicinal shrubs. Twenty one families had one species each in medicinal use. Verbenaceae and Euphorbiaceae in the sub-tropical region, Rosaceae in the temperate region, and Ericaceae and Rosaceae in the sub-alpine and alpine regions, respectively, had the highest representatives of medicinal shrubs. The distribution of medicinal shrubs was 42 % in sub-tropical, 29 % in warm temperate, 13 % in cool temperate, 9 % in sub-alpine and 7 % in the alpine region. Of the total species, 70 medicinal shrubs were native to the Himalayas and 22 native to Himalayan region including other Himalayan countries. The most frequently used plant parts for various ailments were leaves (31 %) and roots (23 %). Most shrubs are being used for the diseases, viz. skin diseases, dysentery, cough, fever, wounds, and rheumatism. The present paper will help in the execution of strategies for promotion and cultivation of medicinal shrubs in Uttaranchal State.

Keywords: Medicinal shrub; distribution; use pattern; eco-region; Uttaranchal; Himalayan region; India

A study on ethnomedicinal usage of plants among the folklore herbalists and Tripuri medical practitioners: Part-II

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Abstract

The paper deals with the ethnomedicinal applications of 50 plants by Tripuri tribes inhabiting hamlets on different hilly terrain and interior dense forest of South and West district of Tripura. These 50 plant species belong to 46 genera of 31 families. The species are enumerated in alphabetical order in tabular form. The ethnomedicinal information on the plants presented below is on the basis of folklore herbalists and Tripuri medical practitioners (Ochai) who are very familiar with different ailments, symptoms and the mode of treatment of these crude drugs. The local tribal people still believe and express their respect and honour to the knowledge of Ochai as it is essential for survival of those people who live in remote hilly terrain and cannot afford costly allopathic drugs.

Keywords: Ethnomedicinal plants, Tripuri tribes, Folklore, Ochai, Tripura state, India
Anti-inflammatory plants used by the Khamti tribe of Lohit district in eastern Arunachal Pradesh, India

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Abstract
The pristine forest of Lohit valley, about 500 km journey towards east from Arunachal’s capital city Itanagar fall within Indo-Burma Biodiversity Hotspot is mainly characterized by its rich wealth of medicinal plant diversity. This valuable medicinal plant wealth in wilderness is mostly guarded by the traditional wisdom of four ethnic communities inhabited in the valley such as Tai Khamti, Singpho, Mishmi and Chakma. The Tai Khamtis are originally belonging to the Royal Tai family of Southeast Asia and have acquired a high degree of knowledge on herbal medicines in comparison to rest of areas in the valley. The present paper contains 26 species of plants exclusively based on first hand ethnobotanical field reports and have been critically screened out as anti-inflammatory and wound healing agents.

Keywords: Anti-inflammatory plants, wound healing agents, Arunachal Pradesh, Biodiversity, Tai Khamti, Singpho, Mishmi and Chakma tribe.

Traditional Tribal knowledge and Status of some Rare and Endemic Medicinal Plants of North Cachar Hills District of Assam, Northeast India

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Abstract
An ethnobotanical survey carried out in the district of North Cachar hills, Assam, North East India during the period of February 2006 – November 2006, has revealed 34 species of plants to be threatened in several parts of the country, and in the district itself. More than 6 species of plants are included in the red Data Book of Indian Plants, 5 numbers of species have already been included in the Red Data List of the IUCN. 13 species documented in the present paper have not been reported about its threat status earlier, but are now threatened in the district. These plants are used in various ways such as, medicinal, wild edibles, ornamentals, building materials and other miscellaneous uses in their daily life. Because of the declining population of species like, Taxus baccata, Renanthera inschootiana, Swertia chirata etc, the area warrants conservation in order to preserve them from extinction. The present paper documents on the botanical name, parts used, local name, and also compares the threat status relative to other regions of the country as per IUCN Guidelines.

Key words: Traditional healthcare system, North Cachar Hills, Threat Status.
Ethnomedicinal Orchids of Uttarakhand, Western Himalaya

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Abstract

Orchids have been used in the traditional system of medicine since time immemorial. The present communication is an account of 12 species of orchids which are used in traditional medicine in Uttarakhand. The work aims at presentation of this knowledge which would be valuable for the herbal drug industry and may lead to identification of new applications or resources. Given in this paper are the scientific names of the plants, local names and the parts of the plant used in medicinal preparations.

Keywords: Orchids, Ethnomedicine, Western Himalaya, Uttarakhand.

Indigenous herbal remedies used to cure skin disorders by the natives of Lahaul-Spiti in Himachal Pradesh

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Abstract

The communication highlights the medicinal importance of some plants used to cure different skin disorders by the native people inhabiting Lahaul-Spiti district of Himachal Pradesh. Ethnomedicinal information on 18 plant species belonging to 14 families, used by the inhabitants for curing different skin disorders including boils and blisters, itching(allergy), skin infection, leprosy, skin eruptions, cuts and wounds, were recorded. Details regarding plant names, local names, family, mode of administration and ailments treated, for each species are reported.

Keywords: Indigenous knowledge, Herbal remedies, Skin disorders, Lahaul-Spiti, Himachal Pradesh
Medicinal plants used in traditional medicine in Lohit and Dibang valley districts of Arunachal Pradesh

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Abstract

The paper deals with medicinal plants used in various traditional systems of medicine in Lohit, Dibang Valley and Lower Dibang valley districts of Arunachal Pradesh. The three adjoining districts are located in the extremity of the state bounded by China in the Northeastern part, Changlang district of Arunachal Pradesh in the Southeastern part; state of Assam in the Southwest as well as East Siang and Upper Siang districts are in the western part. Lohit is inhabited by Mishmi, Khamti and Singpho tribes while the Lower Dibang valley and Dibang valley districts are inhabited by Mishmi tribe. Mishmiare divided into Idu Mishmi and Digaru Mishmi tribes. Brief account of the tribes, their mode of living and food habits along with detailed account of distribution of medicinal plants used in various systems of medicine have been described.

Key words: Ethnomedicine, Traditional medicine, Arunachal Pradesh, Folklore, Mishmi, Khamti, Singpho

Indigenous plants in traditional healthcare system in Kedarnath valley of western Himalaya

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Abstract

The study deals with the indigenous plants used in traditional healthcare in Kedarnath valley of Uttarakhnd in western Himalaya. A total 130 plant species belonging to 94 genera and 62 families have been identified. Of these, 21 species are trees, 19 species are shrubs and 90 species are herbs. These species diversity are described for their distribution, utilisation pattern, and indigenous uses. The roots, rhizomes, bulbs, stems, tubers, leaves, barks, fruits and seeds are used for treatment of different ailments. The plants are rare (30 sp), endangered (15 sp), and vulnerable (3 sp) and common (82). As per their population structure, several anthropogenic and natural causes are analysed for their threatened status. The study is a first attempt to study the medicinal plants of the Kedarnath valley area. Documentation of traditional knowledge on the ethnomedicinal use of these plants was studied.

Keywords: Kedarnath valley, Ethnomedicine, Traditional healthcare, Plant conservation
Documentation of traditional herbal knowledge of Khamptis of Arunachal Pradesh

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Abstract

In the present global milieu, documentation of the country's traditional ecological knowledge (TEK) particularly those associated with bioresources has assumed high priority. The paper records the use and ethnomedicinal values of 37 plant species belonging to 29 families, utilised by Khamptis of Arunachal Pradesh. For each plant species, the information lists plant name, crude drug preparation, and the method of use. Such documentation not only provides opportunities, but also holds potential for developing products for the pharmaceutical sector, safeguard from biopiracy and above all sustainable use. This will also act as a tool to the economic upliftment of the upland tribal communities by harnessing some of the potential and high value species.

Keywords: Traditional Knowledge, Ethnomedicine, Khamptis, Arunachal Pradesh, Lohit

Folk therapy for eczema, bone fracture, boils, sores and gingivitis in Taragtal province of Uttaranchal

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Abstract

The communication provides the findings of the folk therapy used for the treatment of eczema, bone fracture, boils, sores and gingivitis of Taragtal province at Ganai block of Almora district in Uttaranchal. The study area is extremely remote part of the district and is inhabited by majority of Kumaoni and few of them are Garhwali. The general population and the traditional herbal healers continue to rely on their folk system of medication for their healthcare. A total number of 15 participants from general public, 14 traditional herbal healers, and 24 patients suffering from above diseases were involved in the study as a source of information. The aim of the study is to explore the folklore therapy of this region for the treatment of eczema, bone fracture, boils, sores and gingivitis for the betterment of the common people and wider application.

Key words: Folk medicine, Garhwali, Kumaoni, Eczema, Bone fracture, Boils, Sores, Gingivitis, Uttaranchal
Herbal remedies among the Khasi traditional healers and village folks in Meghalaya

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Abstract

The paper provides first hand information on the herbal remedies practiced by the rural folks of Meghalaya. During the study, out of several known herbal plants 54 plant species belonging to 53 genera and 38 families were found to be used by the local medicine men and village folks to cure various ailments. The report incorporates the mode of application and dosage of these herbal drugs, which is obtained with great difficulty because in many cases these medicine men are reluctant to share their knowledge.

Keywords: Ethnobotany, Ethnomedicine, Medicinal plants, Traditional healers, Meghalaya

Traditional medicobotany of Chakma community residing in the Northwestern periphery of Namdapha National Park in Arunachal Pradesh

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Abstract

Namdapha national park in Arunachal Pradesh is one of the largest reservoirs of plant biodiversity in the Northeast India. A large number of medicinal plants occur here in the wild. The Chakma community inhabiting the Northwestern periphery of the park has been utilizing a large number of medicinal plants from the park area for their day-to-day life. The medicinal use of 63 plant species belonging to 38 families in different ailments by the Chakma community in Arunachal Pradesh has been documented. It is suggested that the traditional ecological knowledge pertaining to the medicinal plant utilization needs further exploration and warrants recognition of an incentive based community conservation of medicinal plants.

Keywords: Chakma community, Medicinal plants, Namdapha national park, Arunachal Pradesh
Indigenous medication used by Himachali women to cure pregnancy discomforts

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Abstract

The research work is an effort to document and explore the indigenous knowledge of Himachali rural women used to cure various pregnancy discomforts. Although great strides have been made in bringing modern medicines to clinics in rural areas, indigenous/traditional medication continues to flourish in this region. It is, therefore, necessary for the scientific community to adequately document and validate this knowledge, so that it merges with the scientific stream of knowledge. The paper attempts to document and scientifically validate the indigenous practices followed by rural women to cure various pregnancy discomforts. The information regarding type of food preparation, method of preparation and consumption, etc. was gathered using questionnaire based survey along with informal discussions. It was observed that for curing different pregnancy discomforts, various locally available plant parts are utilized. These plants possess certain medicinal properties, which provide the basis for further use. The data accrued is expected to serve as a tool for the development of herbal drug industries.

Keywords: Traditional knowledge, Traditional medicine, Indigenous medicine, Medicinal plants, Pregnancy discomforts, Himachal Pradesh

Ethnomedicinal plant use by Lepcha tribe of Dzongu valley, bordering Khangchendzonga Biosphere Reserve, in North Sikkim, India

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Abstract

Lepcha is the oldest and the first tribe reported from Sikkim, India; majority of its population inhabiting in Dzongu valley, an officially demarcated reserve for Lepcha community, bordering Khangchendzonga Biosphere Reserve, in north district. Lepchas of Dzongu are known for their retention of rich cultural heritage. In view of the on-going cultural and economic changes brought in by the process of globalization, the immediate need was felt to document in details the underexplored ethnomedicinal practices of Lepchas of Dzongu valley. This paper reports 118 species, belonging to 71 families and 108 genera, under ethnomedicinal utility by the Lepchas for curing approximately 66 ailments, which could be grouped under 14 broad categories. Zingiberaceaee appeared as the most used family (8 species and 5 genera). As per use pattern, maximum of 30.50% species are to cure stomach related disorders/ailments, followed by 19.49% for curing cut, wounds, inflammation, sprains and joint pains. Administration of medicine orally is recorded in 75% cases. Root and rhizome harvesting targeted 30 species. The changing scenario over time both at sociocultural front and passing traditional knowledge interests from older to younger generation and rich ethnomicinal wealth of the oldest tribe of Sikkim are discussed in the light of conservation strategies and techniques to adopt.
Ethnomedicines used against four common ailments by the tribal communities of Lahaul-Spiti in western Himalaya

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Abstract
The present study aimed to highlight the new or lesser known medicinal uses of plant bioresource along with validation of traditional knowledge that is widely used by the tribal communities to cure four common ailments in Lahaul-Spiti region of western Himalaya. The study area inhabited by Lahaulas and Bodhs (also called as Bhotias), is situated in the cold arid zone of the state of Himachal Pradesh (HP), India. During the ethnobotanical explorations (2002–2006), observations on the most common ailments like rheumatism, stomach problems, liver and sexual disorders among the natives of Lahaul-Spiti were recorded. Due to strong belief in traditional system of medicine, people still prefer to use herbal medicines prescribed by local healers. A total 58 plant species belonging to 45 genera and 24 families have been reported from the study area to cure these diseases. Maximum use of plants is reported to cure stomach disorders (29) followed by rheumatism (18), liver problems (15) and sexual ailments (9). Among plant parts used, leaves were found used in maximum herbal preparations (20) following flowers (12) and roots (11) respectively. Most of these formulations were prescribed in powder form, whereas juice and decoction forms were also used. Plants having more than one therapeutic use were represented with 24 species, however 34 species were reported to be used against single specific ailment. Validation of observations revealed 38 lesser known or new herbal preparations from 34 plant species, where 15 species were used to cure stomach disorders, 7 for rheumatism, 10 for liver disorders and 6 for sexual problems. Mode of preparation, administration and dosage are discussed along with the family and local names of plants and plant parts used.

Keywords: Traditional knowledge; Ethnomedicines; Tribal communities; Western Himalaya

Antihepatopathic Plants Used by the Lepcha Tribe of the Sikkim and Darjeeling Himalayan Region of India

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Abstract
Members of Lepcha tribe are aborigines in the Sikkim and Darjeeling Himalayan Region. Famed as born naturalists and known to be a “vanishing tribe,” the ethnomedicinal traditions of these people are characterized by multiple remedies for a single ailment. The present study revealed the Lepchas use 36 species of plants belonging to 28 families as liver related ailments. Of these plants, 53 percent have not been reported earlier as hepatoprotective agents and may be used in the development of modern antihepatopathic drugs.

Keywords: Ethnomedicine, hepatoprotective, hepatopathy, medicinal plant, traditional medicine
Medicinal plants used against dysentery, diarrhoea and cholera by the tribes of erstwhile Kameng district of Arunachal Pradesh

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Abstract

The present paper deals with 35 plant species used against dysentery, diarrhoea and cholera by the tribes of erstwhile Kameng district of Arunachal Pradesh. Personal observations on the method of utilization along with botanical names of the plants, parts used and dose regime presented here are part of the empiric knowledge confined to the ethnic groups. The paper emphasizes the conservation of the indigenous plant wealth through commercial cultivation and also for developing new and more efficacious remedies after detailed pharmacological and clinical investigations on these plants.

Keywords: Arunachal Pradesh, Kameng district, Medicinal plants, Tribes, Dysentery, Diarrhoea, Cholera, Conservation

Ethnomedical Importance of Pteridophytes Used by Reang tribe of Tripura, North East India

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Issued 01 May 2009

Abstract

The present study mainly focuses on the ethnomedical importance of Pteridophytic floras used by the Reang tribes of Tripura state, India. As many as 16 pteridophytic plants species belonging to 14 genera and 10 families are presented in this research article. The botanical name, family name, vernacular name, habit, and their ethnomedical uses are provided.

Keywords: Pteridophytes, ethnomedical plants, Reang tribes, North East India.

**Ethno-Medicinal Uses and AgroBiodiversity of Barmana Region in Bilaspur District of Himachal Pradesh, Northwestern Himalaya**

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Abstract

India is one of the richest countries in traditional knowledge, because of its ambient biodiversity, variety of habitats and rich ethnic divergence. Thus we have had well established local health tradition still relevant in indigenous healthcare system. The paper provides first hand information on the agrobiodiversity and ethnomedicinal uses of the area. In the present study 50 species belonging to 37 genera and 17 families i.e. Shrub (1 spp.), tree (1 spp.), herb (48 spp.) were recorded under the agrobiodiversity region of the area. The utilization pattern of the species indicated that leaves of 22 species, stem of 1 species and seeds of 23 species, whole part of 11 species, tubers and flowers of 4 species, fruits of 18 species, each are used. 6 species were Indian origins, while others were non-native to Indian Himalayan Region.

**Keywords:** Ethnomedicinal uses, Indian Himalayan Region, Agrobiodiversity, Traditional Knowledge.


**Indigenous Knowledge on Healthcare Practices by the Reang Tribe of Dhalai District of Tripura, North East India**

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Abstract

The present study aimed to prepare an inventory of ethnomedicinal plants used by the Reang tribe Dhalai district of Tripura state, India. Reangs are mostly residing in deep forest and depend on their own traditional health care system. The survey was conducted during 2003 to 2004 in the different villages of Dhalai district of the state covering all the seasons. In the present work a total of 58 medicinal plants species belonging to 57 genera and 39 families are presented. Out of the total collection, in maximum cases leaves (48.28%) are used which is followed by root/rhizome (29.31%), bark (10.34%), fruit/seed (8.62%), stem (3.45%) and whole plant (1.72%), against different ailments. The collected plants are mostly used in blood coagulation, cough and cold, fever and headache, diarrhoea and dysentery, stomach problem and gastritis, bone fracture and sprains, carbuncle, jaundice, leucorrhoe, rheumatism, ringworm etc. Plant parts used, their preparation, and doses are discussed along with the family and local names of the collected herbs.

**Keywords:** Ethnomedicinal plants, Reang tribe, Dhalai district, Tripura state.
Abstract

A survey in different areas of Dharchula region in Pithoragarh district of Uttarakhand was conducted in different seasons of the year to identify the nonconventional uses of plants. In India, there are about 68 million people belonging to 227 ethnic groups and comprising of 573 tribal communities. Out of which 4 tribes (Tharus, Buxas, Rajis and Bhotias) inhabit the Kumaun division of the state. The Bhotia tribe living in remote thick forest of the Dharchula region depends on nature for their basic needs of life. The 8 major Bhotia groups in the state are i.e. Johari, Juthora, Darmi, Chudans, Byansi, Marccha, Tolcha and Jad. The tribal population of Bhotia community is 8.13 % and inhabited in about 18.70 % of area of the country. The present study was carried out to document the precious indigenous traditional knowledge about the ethnomedicinal uses and properties of plants which are under Red Data List of IUCN. Ethnomedicinal information on 17 plant species belonging to 15 families, used in various ailments by the inhabitants of the community was recorded. The attempt is also made to describe the habitat, customs and economical aspects of Bhotia tribes.

Key words: Ethnomedicinal, IUCN, Indigenous Traditional Knowledge, Ailments

Abstract

Himalaya is known as an abode of medicinal plants. Climate and topographic diversity of the Sewa catchment area provides a variety of habitats for the luxuriant growth of potential medicinal plant species. Many of these are used by locals in remote and inaccessible areas. Continuous overexploitation, revival of the use of herbal drugs and degradation of the habitats has brought medicinal plants on priority for conservation. Keeping in view these aspects, the medicinal plant wealth of Sewa catchment has been explored and assessed by interaction with the local inhabitants and after surveying the literature. The results have been compiled in 182 plant species along with the families, common and local names, altitudinal range and their medicinal use.

Keywords: Medicinal plants, Sewa catchment, Northwest Himalaya, Conservation
Ethnobotanical Uses of Wild Medicinal Plants by Guddi and Gujjar Tribes of Himachal Pradesh
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Issued September 01, 2009

Abstract
India is a rich source of plant flora of 2500 documented species and 600700 species are having medicinal value1. About 150 are used commercially. It is reported that Western Himalayas are the abode of 50 percent plant drugs mentioned in the British pharmacopoeia. Medicinal plants are used for preventive, promotive and curative purposes. Eighty percent of the ingredients of drug formulation in ayurvedic are plant based. In compliance with the CBD and WTO, India too has to conserve its natural resources from unfair exploitation. The survey of the area was conducted during March, 2007 October, 2008. The two tribal communities viz. “Gaddis and Gujjars” were interviewed. These two nomadic communities were asked to identify the plant and tell its use by them. The samples of the plants were crosschecked with the qualified ayurvedic practitioners of the area and some were identified by the author himself. However, some of the samples were processed and identified with the help of literature available in the library of Dr. Y.S. Parmar University of Horticulture and forestry Nauni Solan. The plant species of the area have been enumerated below in an alphabetic order. Each species have been provided with scientific name, local name, crude drug preparation (as per details provided by the folklore) and its local use. Twenty seven species of Ethnobotanical use were identified from this backward district of Himachal Pradesh.

Key words: Ethnobotanical, uses, Forestry Plants and trees, Gujjars, Gaddis, Himachal Pradesh

An Ethnobotanical Study of Medicinal Plants used by the Locals in Kishtwar, Jammu and Kashmir, India
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Abstract
This study represents a systematic attempt to explore the knowledge of the native people about plants, which they use to cure diseases. And it is an attempt towards conserving the local knowledge of people toplants. This paper presents a list and uses of some medicinal plants distributed in the high altitude district Kishtwar in Jammu and Kashmir. The list was prepared during an ethnobotanical survey of the region from December 2007 to January, 2009. This paper provides information about 71 ethnomedicinally useful plants grown in this region. In this paper, family, botanical name, local name, ethnomedicinal uses are given for each plant.
Medicinal Plants Used in the Health Care System Practiced by Traditional Vaidyas in Alaknanda Catchment of Uttarakhand, India

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Abstract

The present study documents the indigenous knowledge of medicinal plants used in the Alaknanda catchment of Uttarakhand state in India. Ethnomedicinal uses of 100 medicinal plant species along with botanical name, vernacular name, family, habit, part used and folk medicinal uses are presented. They belong to 91 genera and 51 families. These plants have been used to cure 60 types of different ailments out of the 58 plant species used to cure more than one disease. The most widely sought after plant parts in the preparation of remedies are the underground parts such as root, tuber, bulb, rhizome etc. Most of the remedies were reported to have been from herbal species. Approximately 70% of the population was found dependent on herbal treatments and the remaining 30% of the population was dependent on an allopathic form of treatment. In this study it was found that maximum 69% veteran of female category in Berahi valley prefer to visit traditional Vaidyas (traditional herbal practitioners) for curing ailments. The study emphasizes the potentials of the ethnobotanical research and the need for the documentation of traditional knowledge pertaining to the medicinal plant utilization for the greater benefit of mankind.

Key words: Medicinal plants, Health care system, Traditional Vaidyas, Alaknanda catchment.
Diversity, indigenous uses and conservation prioritization of medicinal plants in Lahaul valley, proposed Cold Desert Biosphere Reserve, India

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Abstract

The Cold Desert of India is known for specific topography, severe climate and unique vegetation. The Lahaul valley in Himachal Pradesh, part of a proposed Cold Desert Biosphere Reserve, is rich in medicinal plants, and local people practice the Tibetan System of Medicine. A few studies are available on medicinal plants there are no integrated studies. A total of 354 medicinal plants, belonging to 208 genera and 76 families were recorded. The area ranges in altitude between 2801–3800 m, and shady moist and forested habitats were identified as having the most medicinal plant species. The occurrence of near endemic, endemic, critically endangered, endangered, vulnerable and near threatened species indicates high anthropogenic pressure and that the area has high conservation value. Most of these species are commercially viable. An assessment of populations of threatened species using standard ecological methods, and notification of key areas as medicinal plants conservation areas is suggested. Also, mass reproduction for ex situ conservation and to ensure availability of quality planting material for cultivation, together with education and awareness programmes for large scale cultivation are suggested.

Keywords: medicinal plants, diversity, native, endemic, threat categorization, conservation, prioritization, Cold Desert Biosphere Reserve.

Traditional healthcare practices among the Tagin tribe of Arunachal Pradesh

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Abstract

The Tagin tribe is an indigenous group of people living at upper Subansiri district of Arunachal Pradesh. A study on practice of Traditional Medicine (TM) was carried out among these people. The result documented 10 medicinal plants used by the Traditional Medicinal Practitioner (TMS) of Tagin tribe for use in traditional medicine. Fresh leaves, fruits, bark and stems are reported be used in TM for treatment of ailments like diarrhoea, jaundice, wound healing, fever, etc.

Keywords: Tagin tribe, Upper Subansiri, Traditional medicine, Arunachal Pradesh
Medicinal plants of cold desert Ladakh used in the treatment of stomach disorders

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Received 22 August 2006; revised 10 October 2007

Abstract

The paper deals with 57 plants species belonging to 24 families used in the treatment of stomach disorders by the Boto (the Buddhists) tribal community of Ladakh, Jammu & Kashmir state. Plants parts used in the treatment of stomach disorders along with methods of preparation, dose of administration and duration of treatment is described. The traditional practitioners are called Amchis in Ladakh and the traditional medical system is principally based on Tibetan System of Medicine. The local people of the region still rely on traditional systems of medicine for curing stomach disorders and more than 60% tribal population is dependant on herbal remedies.

Keywords: Stomach disorders, Cold desert, Amchi, Boto tribes, Herbal remedies, Ethnomedicine, Medicinal plants

Rasont – A traditional crude drug prepared from Berberis sp and its uses

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Abstract

Rasont (locally known as rasaunt or rasanjana) is a crude, concentrated extract prepared from the roots and stem bark of several species of Berberis L. Traditionally, the village folks prepare the crude extract and use it to cure several ailments. The paper describes the indigenous method of preparation of rasont and its uses in Solan and Shimla districts of Himachal Pradesh.

Keywords: Rasont, Rasanjana, Crude drug, Traditional medicine, Traditional knowledge, Berberis sp,
Diversity and indigenous household remedies of the inhabitants surrounding Morarna reserve forest in West Himalaya

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Abstract

The remote villages of the Indian Himalayan region are repository of the indigenous knowledge and practices. Documentation of such knowledge is required in view of the day-by-day disappearing knowledge in new generations. Therefore, an attempt has been made to document the indigenous uses and practices of the plants utilized in household remedies by the inhabitants surrounding the Morarna reserve forest in West Himalaya. A total of 33 plant species belonging to 31 genera and 22 families are used traditionally to cure various diseases/ailments. 31 plant species are non-natives and 02 species are natives to the Himalayan region. Various parts of the these species are used to cure cold, cough, fever, liver disorder, kidney stone, joints pain, eye and ear diseases, diabetes, healing wounds, toothache, etc. Such studies would help developing a comprehensive data base of the plants used in household remedies, strengthening the healthcare system in the villages and also in conserving the traditional knowledge and practices for posterity.

Key words: Diversity, Indigenous Knowledge, Household remedies, Medicinal plants, Ethnomedicine, Morarna reserve forest, West Himalaya
An ethnobotanical study of traditional anti-inflammatory plants used by the Lohit community of Arunachal Pradesh, India

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Abstract

Aim of the study: Most people especially in rural areas depend on herbal medicines to treat many diseases including inflammation-related ailments such as rheumatism, muscle swelling, cut wound, accidental bone fracture, insect bites, pains and burn by fire and hot water. The objectives of this study were: to catalog ethnomedicinal plants of Lohit community, ecological status, indigenous folk medicinal uses, morphological parts used and to determine their reported pharmacological studies.

Materials and methods: The ethnobotanical information on traditional medicinal plants exclusively used for management of inflammation-related ailments by the Khampti community of Arunachal Pradesh, India was based on first-hand field survey work through semi-structured interviews.

Results and conclusion: A total of 34 species in 32 genera and 22 families were encountered during the field survey. Botanical families such as Asteraceae, Euphorbiaceae, Zingiberaceae and Lamiaceae were represented by the highest numbers of species reported in this study. Thirteen plant species, namely: Bombaxceiba, Canarium strictum, Chloranthus erectus, Xanthium indicum, Lycopodium clavatum, Coleus blumei, Batrachospermum atrum, Chlorella vulgaris, Marchantia palmata, Marchantia polymorpha, Eria pannea, Sterculia villosa and Alpinia galanga are reported for the first time for the treatment of inflammation-related diseases.

Keywords: Ethnobotany, Khampti tribe, Lohit District Anti-inflammatory plants, Arunachal Pradesh
Some abortifacient plants used by the tribal people of West Bengal
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Abstract  
Use of abortifacient plants is common practice among the tribal communities of West Bengal. In the present paper a list of 22 Angiospermic plant species belonging to 21 genera under 18 families and used as abortifacient has been provided. The study was conducted with 7 native tribal communities of West Bengal, i.e. Lodha, Lohar, Munda, Oraon, Polia, Sabar and Santal. Among these, Santal and Oraon people are well-acquainted with knowledge of the plants usage. The mode of preparation, administration and the dosage of the drugs are also provided for further studies and induce early stage pregnancy termination.  

Keywords: Abortifacient plants, Tribal communities, Lodha, Lohar, Munda, Oraon, Polia, Sabar and Santal, West Bengal.

Studies on ethnomedicinal plants used by traditional practitioners, Jhankri, Bijuwa and Phedangma in Darjeeling Himalaya
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Abstract  
Biodiversity of eastern Himalayas including Sikkim and Darjeeling is well known. Many ethnic groups reside in this beautiful Himalayan region. Although the modern medicinal facilities are available in the urban areas of Darjeeling yet local population of far flung places still prefers to use traditional plant resources. An ethnobotanical study was conducted among the traditional practitioners: Jhankri, Bijuwa and Phedangma. Mostly they rely on locally available plant materials to cure many diseases and disorders. In this paper a total of 41 species of plants as used by traditional practitioners of this area are listed alphabetically by botanical names, followed by family (in parenthesis) and medicinal uses.  

Keywords: Ethnomedicinal plants, Jaributy, Jhankri, Bijuwa, Phedangma, Darjeeling Himalaya.
Wild Medicinal Plants Used by Local Communities of Manali, Himachal Pradesh, India

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Abstract

An ethnobotanical study was carried out in adjoining areas of Manali in Kullu district of Himachal Pradesh during the month of April to May 2007. The information related to medicinal species which are used to cure common ailments and diseases were gathered by personal interviews with village headmen, local healers, and shepherds. A total of 33 plants belonging to 24 families are listed in this paper. Details of medicinal plants are described alphabetically with their botanical name, family, local name, part used, disease/ailment and ethno medicinal uses.

Key Words: Medicinal plants, common ailments, Manali, Himachal Pradesh.

Ethnomedicinal Plant Resources of Mizoram, India: Implication of Traditional Knowledge in Health Care System

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Abstract

Socially, folk medicines, mainly based on plants, enjoy a respectable position today, especially in the developing countries, where modern health service is limited. Safe, effective and inexpensive indigenous remedies are gaining popularity among the people of both urban and rural society of India. A floristic survey of ethnomedicinal plants occurring in the tribal area of Mizoram was conducted over the period of last five years to assess the potentiality of plant resources for modern treatments. The information provided in this paper on medicinal uses of plants is based on the exhaustive interviews with local physicians practising indigenous system of medicine, village headmen, priests and various tribal folks/groups of Mizoram. In this paper, 159 ethnomedicinal plant species belonging to 134 genera and 56 families recorded from tropical forests, home gardens, roadsides and University Campus of Mizoram have been described. A categorical list of plant species along with their local name, scientific name, distribution status, habit, plant part/s used and the mode of administration reported for effective control of different diseases linked with humans.

Keywords: Ethnomedicines; Tribals; Asteraceae; Ethnobotany; Hotspot.
Plants Used Against Gastro Intestinal Disorders and As Anti Hemorrhagic by Three Tribes of North Tripura District, Tripura, India: A Report

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Abstract

The tribals of Tripura depend basically on different herbs for their treatment. The field work documented about nineteen plant species used against stomach disorders and as antihemorrhagic by three different tribes, the Halams, Tripuris and Chakmas of North Tripura district of Tripura state, India. Some of these have been known for ages for their medicinal properties, while, others have been recorded for the first time amongst these people. Some of the plants are reported to be in their wild state and others are domesticated.

Key words: Herbs, Stomachic, Digestive, Tripuri, Chakma, Halam.

Importance of Astavarga plants in traditional systems of medicine in Garhwal, Indian Himalaya

A. Dhyania*, B.P. Nautiyalb & M.C. Nautiyala

Abstract

This study documents the medicinal uses of Astavarga, a group of eight medicinal herbs, used in traditional medical knowledge (TMK) of the Himalaya region and in the traditional medical system (TMS) in India. Field surveys were conducted during 2006–2008 to collect data on the availability and uses of Astavarga across 21 diverse localities. During the surveys, information was collected on types of ailments treated and plant parts used in different therapies in TMK using semi structured questionnaires. Overall, information was gathered from 92 informants in the study area. These herbs are mostly used to treat sexual problems, physical disability, respiratory problems, different types of pain, fever and urinary problems, as well as antiageing agents. Information on medicinal properties of these plants was also collected from secondary sources, i.e. the traditional medical system (Ayurveda) and through a literature survey. This revealed that Astavarga in TMS is mostly used to treat sexual disorders, physical weakness, to strengthen the immune system, body pain and as a tonic. Analysis of TMK in the Himalaya reveals some new medicinal properties of Astavarga while the literature survey indicates that some of the plants, viz. Habenaria and Malaxis species, are not explored so far for their chemical constituents and biological activity. New medicinal uses, as recorded by this study, will provide insights for further investigation of pharmacology and phytochemical constituents of these species.

Keywords: Astavarga, formulations, medicinal herbs, sexual problems, traditional system.
An inventory of indigenous knowledge and cultivation practices of medicinal plants in Govind Pashu Vihar Wildlife Sanctuary, Central Himalaya, India

Abstract

This paper presents the results of a study on the indigenous knowledge of local medicinal practitioners known as Vaidhyas and other knowledgeable people of Govind Pashu Vihar Wildlife Sanctuary. The purpose was to document indigenous knowledge of medicinal plants and develop strategies for their cultivation to sustain the traditional healthcare system and livelihood of the rural inhabitants. Since knowledge of uses of various medicinal plants is confined to mostly traditional herbal healers, it is of utmost importance to document this knowledge for future generations. We have documented 33 plant species belonging to 32 genera and 28 families used traditionally to cure 28 diseases. The paper also analyses the linkages of various institutions working for medicinal plant cultivation, along with opportunities and constraints in this sector. A survey was conducted to collect information regarding medicinal plant cultivation and the possibilities of cultivating species in the area. The perception of local people on illegal harvesting and cultivation options of medicinal plants in the area is also discussed.

Keywords: traditional healthcare system, Vaidhyas, conservation, livelihood, medicinal plants, indigenous knowledge
Herbal remedies of asthma in Thoubal District of Manipur in North East India

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Abstract

The present study deals with 44 plant species belonging to 24 families; they have been utilized as herbal medicines for curing asthma by several ethnic communities of Thoubal district of Manipur in North East India. The plants were collected from different parts of this district with the help of the local practitioners of Meitei, Meitei-pangal and Loi communities who follow the traditional methods for curing asthma.

Keywords: Ethnomedicine, Asthma, Meitei, Meitei-pangal, Loi, Ethnic communities, Manipur.

Medicinal Plants and Traditional Health Care Knowledge of Vaidyas, Palsi and Others: A Case Study from Kedarnath Valley of Uttarakhand, India

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Abstract

Systematic surveys of medicinal plants and other ethnobotanical species were conducted in the Kedarnath valley of Uttarakhand state in India by using an integrated approach of botanical collections, group discussions and questionnaires. To examine the distribution of traditional knowledge of local plant species across the different informant's categories, the knowledge was categorized and assessed at three levels - plant identification, plant usefulness and plants uses as medicine. A total of 379 plant species were identified those were distributed among 221 genera and 87 families, of which59% were herbs, 17% were trees and 13% were shrubs. Results showed differences in ethnobotanical knowledge based on informant's gender, age and cultural sub-groups. In comparison to Vaidyas and Palsi low level of medicinal plant knowledge was found in other group category. Vaidyas and Palsi were the main groups in the region those maintained the traditional knowledge on local flora, especially of medicinal plants. In view of conserving the traditional knowledge of Vaidya and Palsi, it is important to improve their socio-economic conditions through networking and capacity building.

Keywords: Medicinal plants, species richness, traditional knowledge, vaidyas, palsi, indigenous people.
High altitude botanicals in integrative medicine-Case studies from Northwest Himalaya

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Abstract

Emerging trends of underutilization of high altitude medicinal plants by Indian phytopharmaceutical industry suggest that therapeutic potential of these species has been exploited to a very less extent despite availability of rich traditional knowledge and also greater possibilities of offering novel bioactive compounds. According to a recent estimate only 20% high altitude medicinal plants available in Indian subcontinent (predominantly herbs) are used in drug trade. In India, we often wake to our own therapeutic wisdom only after recognition comes from the west. High altitude herbal medicines offer therapeutics for many disorders like memory loss, osteoporosis, immune and age-related problems, etc. particularly the ones for which no modern medicines are available. Of late, these plants are also reported to offer satisfactory therapies for deadly diseases like AIDS and cancer. As high altitude plants are growing under stressful situations and exposed to high UV radiations, they are reported to have immense potential in biological radioprotection. An attempt has been made to highlight the promise that these stress-tolerant plants hold in alleviating human and veterinary ailments with less side effects. Studies on the characteristics of ethnopharmacological resources in high altitude Northwest Himalayan region revealing use of 154 botanicals in home remedy patterns of 55 common ailments as well as integration of food and medicine in several traditional herbal therapies are discussed and included in the text.

Keywords: High altitude medicinal plants, Therapeutic promise, Traditional medicine, Ethno-medico-botanical leads
Traditional knowledge of Lotha-Naga tribes in Wokha district, Nagaland

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Abstract

The paper deals with first hand information’s on 55 medicinal plants used by the Lotha-Naga tribes in Wokha district, Nagaland for the treatment of various diseases and ailments.

Keywords: Ethnomedicine, Lotha Naga tribes, Nagaland

Indigenous medicines of Raji tribes of Uttarakhand

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Abstract

The paper is an outcome of the extensive fieldwork conducted in the state of Uttarakhand among the tribals. The tribe is socially and economically backward community of Central Himalayan region of Pithoragarh and Champawat district. The paper includes the traditional knowledge of medicine, which is prevalent in the area and also aims to provide information on the concepts like health and disease and the way these simple people cure diseases and drive away illness and sickness.

Keywords: Ethnomedicine, Indigenous medicine, Raji tribes, Uttarakhand
Indigenous medicinal practices of *Bhotia* tribal community in Indian Central Himalaya

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**Abstract**

Indigenous medicine is an important component of indigenous knowledge system, which is widely practiced by tribal communities across India. The paper describes the relevance of indigenous medicine and healthcare practices prevalent among the *Bhotia* tribe in Indian Central Himalaya, in terms of their contribution to physical wellbeing of this tribal people. Documentation of more than 40 indigenous medicinal practices revealed that this indigenous knowledge system of medicine effectively serves to the tribal people. However, what is disturbing is the disappearance of the medicinal plants from their habitat under intense anthropogenic pressure and also because of high level commercial use, posing a serious threat to the continuation of indigenous medicinal practices, which may have adverse impacts on physical, social and economic wellbeing of the tribal people.

**Keywords:** Indigenous knowledge, Ethnomedicine, Indigenous medicine, Indian Central Himalaya, *Bhotia* tribe, Medicinal plants, Conservation
The lesser-known medicine Ka Dawai Ñiangsohpet of the Khasis in Meghalaya, Northeast India
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Abstract
The paper aims at focusing light on the hidden indigenous knowledge of traditional medicines of the Khasis in Meghalaya. There is an age-old belief of the Khasis in a type of germ that infects the infants and newborns known as Ñiangsohpet (Ñiang means germs and sohpet means the navel in Khasi dialect) and in administering of the herbal medicine Ka Dawai Ñiangsohpet to eliminate the germs from the body. The information presented in the paper is collected through direct field interviews with the indigenous herbal practitioners, observation of the patients to see the effectiveness of the herbal medicine, recording the testimony received from the parents whose children have been fully cured and also highlighting the view of the allopathic doctors on this matter. Ñiangsohpet is a form of infantile diarrhoea or irregular bowels and yellowness of the conjunctiva and skin during infancy known as neonatal jaundice. This herbal medicine Ka Dawai Ñiangsohpet may prove effective in reducing infant mortality.

Keywords: Ethnomedicine, Herbal medicine, Khasis, Meghalaya

Medicinal plants used by local Vaidyas in Ukhimath block, Uttarakhand
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Abstract
Throughout the Indian sub-continent, all earlier medical branches have developed and refined different treatments based on preparations made from available natural resources. Traditional knowledge of local Vaidyas (practitioners of Ayurveda) about medicinal plants and their importance in local healthcare practices is well known since Vedic time. However, mode of applications of the different medicinal plants is lacking from many remote areas of the country. The research work was initiated in the vicinity of Ukhimath (block head) of Uttarakhand state, as it has unique habitat specificity and availability of Vaidyas. Of 60 different plant species collected, 45 herbs, 8 trees, 5 shrubs and 2 climbers were used for curing a total of 34 diseases such as headache, fever and intestinal problems. Rhizome/tuber/roots (41.66%), followed by leaves (31.66%), fruits/seeds (15%), twigs/barks (6.66%), flowers (3.33%) and whole plant (1.66%) were used for curing different ailments. A total of 8 medicinal plants such as Aconitum heterophyllum, Angelica glauca, Berberis osmastonii, Dactylorhiza hatagirea, Nardostachys jatamansi, Picrorhiza kurrooa, Podophyllum hexandrum and Zanthoxylum armatum were rare and endangered species, which had high demand in the market and showed greater potential towards curing of ailments. Thus, there is an urgent need to conserve such medicinal plant species for the benefit of humankind.

Keywords: Ethnomedicine, Ayurveda, Vaidyas, Conservation, Traditional knowledge, Uttarakhand,
Ethnomedicinal plants used for gastro-intestinal diseases by Adi tribes of Dehang-Debang Biosphere Reserve in Arunachal Pradesh

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Abstract

An ethno-medico-botanical survey was carried out in Adi dominated areas of Dehang-Dehang Biosphere Reserve (DDBR) of Arunachal Pradesh during 2005-2007 to study the pattern of use, preparation, and dosage administration of drugs in treatment of various gastrointestinal diseases. A total of 44 plant species belonging to 31 families were recorded for the treatment of various gastrointestinal diseases. Among these, 25 plant species used as antidyserteric and antidiarrhoic, 9 species for stomach ache, 6 species as stomachic, 4 species as carminative, 3 species as antiemetic, 2 species as antihelmentic, 1 species each as antiflatulent and laxative.

Keywords: Dehang-Debang Biosphere Reserve, Adi tribe, Ethnomedicine, Gastrointestinal diseases, Arunachal Pradesh

Antidiabetic plants used in Thoubal district of Manipur, Northeast India

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Abstract

The ethnic communities of Thoubal district in Manipur uses various plants in alleviating various diseases that are inherited from the forefathers through oral folklores. An attempt has been made to document the precious traditionalknowledge about the uses of 54 plant species in treating diabetes by different ethnic communities in the district.

Keywords: Traditional knowledge, Ethnomedicine, Meitei, Meitei-pangal, Diabetes, Manipur
Traditional uses of ethnomedicinal plants of lower foot-hills of Himachal Pradesh-I

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Abstract
The paper documents the traditional knowledge of medicinal plants that are used by the indigenous villagers residing in remote foot-hill areas of Himachal Pradesh in household remedies. An ethnobotanical survey was conducted on lower foothills of Himachal Pradesh during 2007-08. About ten different ethnobotanical plant species were recorded for their medicinal uses and for other remedial purposes by the local inhabitants. There were seven families of which Asteraceae and Amaranthaceae families were mostly exploited by the people. Abrus precatorius is found vulnerable in Hamirpur district due to its excessive exploitation for various purposes by the local contractors. Crotolaria juncea is not only used as medicinal plant but it is also used as green manure in the fields. During survey, it is also found that some plant species such as Abrus precatorius, Eclipta alba, Deeringia amaranthoides and Physalis minima require in situ as well as ex situ conservation in the area for maintaining future germplasm source.

Keywords: Traditional uses, Ethnomedicinal plants, Lower foot-hills, Himachal Pradesh

Ethno-medico-botany of the Dimasa Kachari of North Cachar Hills district of Assam

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Abstract
Folklore medicinal uses of 25 plant species belonging to 23 families for various ailments among the Dimasa Kacharis, one of the prominent ethnic tribes of North Cachar Hills district of Assam is reported. The study was undertaken covering the area of Dimasa inhabiting villages of NC Hills district of Assam.

Keywords: Ethnomedicine, Dimasas, Dimasa Kacharis, Folk medicine, Assam
New ethnomedicinal practices by the Akas, Nepalese and Dirang Monpas of West Kameng district in Arunachal Pradesh

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Abstract

Seven new ethnomedicinal uses of seven species of Ericaceae, viz. Agapetes auriculata (Griff.)Hook. f., A. discolor C.B. Clarke, A.nuttallii C. B. Clarke, A. refracta Airy Shaw, Gaultheria fragrantissima Wall., G. discolor Nutt. ex Hook. and Rhododendron edgeworthii Hook. f., by the people of Aka tribe of Jamiri, Nepalese of Dedza village and Bomdi-La and Dirang Monpas or Drangnangpa of Bomdi-La, in Arunachal Pradesh, are being reported for the first time.

Keywords: Ethnomedicine, New uses, Ericaceae, Aka tribe, Nepalese, Dirang Monpas, Drangnangpa, Arunachal Pradesh

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Ethnomedical uses of Zingiberaceous plants of Northeast India

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Abstract

Aim of the study: Family Zingiberaceae consists of large number of medicinal plants and is well known for its use in ethnomedicine. The objective of this study is to systematically analyse and document the traditional knowledge regarding the use of Zingiberaceous plants for the treatment of various human ailments from NE India, adding information to the valuation of biodiversity and, to forward suggestions for its sustainable use, conservation and for future pharmacological studies.

Materials and methods: A survey on the utilization of medicinal plants belonging to Zingibereae of North-eastern states was carried out by interviewing herbalists followed by collecting plant specimens and identifying the specimen. Ethnobotanical information on traditional plants was catalogued through structured questionnaires in consultations with traditional healers.

Results: A total of 34 species were documented belonging to 9 genera of Zingiberaceae for about 25 types of ailments, 67.6% of which were used in curing multiple disorders. Arunachal Pradesh hosts maximum number of Zingiberaceous plant (88%). Rhizomes were found to be the primary plant material as a source for medication and poultices as the predominant mode of preparation. Gastrointestinal conditions (58%) and chest and lungs (41%) related ailments were the main categories for which these plants are used.

Conclusions: The study establishes Zingiberaceae as a medicinal family since 41% of all the available Zingiberaceous plant species in NE were found to possess medicinal value. Some new use of herbs also appeared in this study for the first time.

Keywords: Ethnomedicine, Traditional knowledge, Northeast India, Zingiberaceae
Indigenous traditional knowledge recorded on some medicinal plants in Narendra Nagar Block (Tehri Garhwal), Uttarakhand

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Received 16 February 2010; Accepted 6 October 2010

Abstract

Garhwal Himalaya has been the reservoir of enormous natural resources including vegetational wealth. Local natives and tribes who live in the vicinity of forest, being close to the nature, possess a deep practical knowledge on indigenous flora, pertaining to curatives, culture, customs, ethos, cults, religion, belief, legends, myths as well as other miscellaneous uses. The people in remote villages and tribal areas depend upon the folk medicines and household remedies to a great extent. The prevalent practice of herbal remedies has descended down from generation to generation and includes the cure from simple ailments to the most complicated one. The present communication pertains to the traditional knowledge on some medicinal plants used for the treatment of various diseases i.e. dysentery, dysmenorrhea, obstetrical problem, piles, leucorrhoea, nasal bleeding, ophthalmic disorder, alopecia, scabies, urinary disorder, bronchitis, lumbago, epilepsy, sleeplessness, splenomegaly, galactagogue, etc.

Keywords: Medicinal plants, Narendra Nagar block, Natural resources, Traditional Health Care System, Traditional knowledge, Vaidyas.
Ethno-medicinal plants from transitional zone of Nanda Devi Biosphere Reserve, District Chamoli, Uttarakhand (India)

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Abstract

The present communication deals with the ethno-medicinal plants of Nanda Devi Biosphere Reserve (NDBR). The study was carried out on montane region located in transitional zone of NDBR in district Chamoli, Uttarkhand, India. The inhabitants have great faith in traditional knowledge of plants and their uses. Ethno-medicinal information on 21 plant species belonging to 20 families has been included in this paper. Information on traditional formulations, mode of administration and the ailments for which they are effective, apart from botanical and local plant names has been provided. The medicines consist of a single drug in the form of decoction, extract, oil, powder and pellets. These are prepared from leaves, petiole, bark, stem, roots, flowers, seeds, latex or entire plants. In few cases, application of latex or fresh parts like flowers or simply contact of plant parts were noted. The inhabitants use different plants for some common health problems like skin ailments, cuts, wounds, cold, cough, chronic fever, headache, stomachache, urinary complaints, respiratory disorder and gynaecological problems.

Keywords: Ethno-medicinal plants, Transitional zone, Nanda Devi Biosphere Reserve, Himalayas.

A survey of ethnomedicinal plants of Darjeeling hills for their antimicrobial and antioxidant activities

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Abstract

The aims of this study were to document ethnomedicinal knowledge of the tribes of Darjeeling hills and evaluate antimicrobial and antioxidant activities among the sampled plants. The study reports 78 plant species (47 families and 70 genera) from the three hilly subdivisions of Darjeeling district. For antimicrobial evaluation, disc diffusion assay was used against a panel of 11 microorganisms (6 Gram positive bacteria species, 1 Gram negative bacteria species, 2 yeast species and 2 mould species). Antioxidant potential of the plants was investigated by assaying their total phenol content, total flavonoid content, DPPH•, •OH and ABTS++ scavenging activities, reducing power, metal-chelating activity and anti-lipid peroxidation activity. For statistical analysis, Pearson’s Chi Square test was used. Both PRTAU (plants with reports of traditional antimicrobial use) (40.3%) and PNRTAU (plants with no reports of traditional antimicrobial use) were equally active against the microorganisms tested. The c² test confirms that statistically there is a difference in count of PRTAU versus PNRTAU plants in different activity groups, indicating PRTAU plants have higher (P<0.05) probability (71.4% for PRTAU against 35.3% for PNRTAU) of showing lower MIC values than PNRTAU plants. In both the groups, plants displayed good antioxidant activities.

Keywords: Antimicrobial, Antioxidant, Darjeeling hills, Ethnomedicine, Folk medicine, Jaributi, Medicinal plants, Traditional medicine, Tribals.
Medicinal plants used by Nomadic tribals of Rajouri Pir Panjal Foothills of North-West Himalayas in Jammu and Kashmir, India.

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Abstract

Herbal medicines are of great importance in the primary healthcare of mankind in many developing countries. An ethno medicinal survey was undertaken through frequent field trips, interviews and discussions to collect information on the use of medicinal plants by native nomadic tribes in Pir Panjal Foothills of Kashmir Himalayas in 2009–2010. The investigation revealed that the traditional healers have been using twenty one species of medicinal plants belonging to twenty genera and nineteen families to treat various health problems. The documented medicinal plants were mostly used to cure skin diseases, diabetes, leprosy, ulcers, tumors, dysentery, diarrhea, typhoid, bronchitis, jaundice, small-pox, respiratory and eye infections. Many of these plants have been found to be very affective against several diseases and therefore, are of great medicinal value. These indigenous medicinal plants need to be studied and documented in the face of emerging threats of climate change, habitat degradation, over harvesting and bio-piracy.

Keywords: Nomadic tribes, medicinal plants, Pir Panjal Foothills, North-West Himalaya, India.

Status and traditional uses of medicinal plants in Mandal area of Western Himalaya, India

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Abstract

The medicinal plants in traditional healthcare practices are providing clues to new areas of research and are well recognized in biodiversity conservation. Traditional knowledge has been the driving force for many basic scientific developments. However, the information on the uses of various plants for medicine is lacking from many interior areas of western Himalaya. Keeping this in view, a survey was conducted to explore the diversity of medicinal plants, their status in the wild and uses by the local communities for curing various ailments, situated in the fringes of Kedarnath Wildlife Sanctuary, Uttarakhand. Study revealed that more than 46 plant species out of 137 species of medicinal values recorded from the region are commonly used by the local people for their traditional health care system viz., skin diseases, dysentery, cough, fever, wounds, female disorders, joint pain, gastric problems, nasal bleeding, cold, piles, anti-poison, ear problems, eye problems, stones and rheumatism.

Keywords: Medicinal plants, Traditional use, Western Himalaya.
Diversity, utilization and conservation of ethnomedicinal plants in Devikund – A high altitude, sacred wetland of Indian Himalaya

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Abstract

The Devikund is located in Sunderdunga Valley of Bageshwar District, Uttarakhand, India. The high altitude wetland harbors a number of medicinal plants used in different purposes in traditional healers. A total of 62 medicinal plants have been enumerated in the present communication, with correct binomials, family, life form and local name(s) with detailed ethnomedicinal uses. Out of these enumerated plants, 14 species are categorized under different threat category. The populations of these threatened plants are already depleting from the wild and the inhabiting peoples nearby wetlands are collecting the plants inevitably from the wild locations. It is also necessary to monitor such rare plants to prevent their extinction. The wetland can also be conserved through religious aspects and should be declared as a conservation area, which would lead to the preservation of many important plant species.

Keywords: Medicinal Plants, Devikund, high altitude wetlands, Sunderdunga Valley, Uttarakhand.
Natural pharmacopoeia used in traditional system of medicine for the treatment of diarrhoea in Arunachal Pradesh

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Abstract

The precise objective of the current study was to document the ethnobotanical knowledge on antidiarrhoeal plant-use by lay people in a rural community in Eastern Himalayan region of Arunachal Pradesh, India. Data was collected from 60 randomly selected indigenous households in three communities using semi-structured questionnaires. In total, 34 species of plants belonging to 31 genera in 16 families were reported to be used in the preparation of the herbal remedies for the treatment of diarrhoea in the study area. Eleven species of plants, namely, Averrhoa carambola, Citrus limon, C. medica, Clerodendron venosum, Manihot esculenta, Mikania scandens, Oxalis triangularis, O. corniculata, Piper betle, Sonchus wightianus and Swertia hookerii, were documented for the first time for their use in the treatment of diarrhoea. Herbal remedies were commonly used by people for the treatment of diarrhoea because of its cost-effectivity. The result of this study provides the basis for further pharmacological studies on the herbal remedies used. The wide variety of plants that are used to treat diarrhoea supports the traditional value that medicinal plants have in the primary healthcare system of the rural people in eastern Himalayan zone of Arunachal Pradesh.

Keywords: Arunachal Pradesh, Diarrhoea, Traditional medicine.
Herbal remedies used against arthritis in Kishtwar High Altitude National Park

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Received 28.01.09; revised 04.05.10

Abstract
Arthritis literally meaning inflammation of joints is a common ailment of cold regions caused by wear and tear on the articular cartilage (Osteoarthritis) through the natural ageing process, constant use, trauma or one of number of inflammatory processes. Regardless of the cause, the joints become inflamed, causing swelling, pain and stiffness. Although there is no cure for most forms of the arthritis, various phyto-therapies can help patients manage symptoms and improve their overall quality of life. The present communication deals with traditional remedies used against arthritis by indigenous populace in Kishtwar High Altitude National Park. During the course of study it was observed that the local populace in the Kishtwar High Altitude National Park use 13 different herbal treatments involving 14 plants/plant parts for arthritis but the choice and frequency of use for herbs is influenced by many factors such as season of the year, accessibility and knowledge of other species.

Keywords: Herbal remedies, Arthritis, Kishtwar high altitude national park

Ethnomedicinal uses of some plants in the Kashmir Himalaya

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Abstract
Recent re-emergence of herbal medicine along with the ever-escalating threats to biodiversity, and the intensifying biopiracy controversies, have necessitated for an urgent documentation of the traditional use(s) of bioresources. Thus, a survey was carried out in the far flung areas of the Kashmir Himalaya, to record the traditional healthcare remedies currently practiced by the local population. The survey, in addition to the precious ethnomedicinal information, recorded the important natural history details. These medicinal plant species dwell in a diverse array of habitats along an elevation range of 1300-4500 m (asl), spanning from valley plains to alpine peaks in the montane Himalayan region. The knowledge base obtained in the investigation, besides contributing in the documentation of treasure troves of cultural diversity, requires to be rigorously subjected to pharmacchemical analysis in order to validate their authenticity and future prospects in the drug development, with due benefit-sharing with the primary stakeholders.

Keywords: Cultural diversity, Ethnomedicine, Herbal medicine, Medicinal plants, Kashmir
**Medicinal ferns of North Eastern India with special reference to Arunachal Pradesh**

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Received 06.08.09; revised 03.11.09

**Abstract**

The Pteridophytes constitute the primitive vascular plant groups which are found scattered all over the world including India. Investigation had been made on medicinal values of higher plants but Pteridophytes are often ignored. In spite of the luxuriant growth of the plants in and around Arunachal Pradesh, North East India they had not been studied medicinally. The present study has been designed to assess the medicinal uses of 51 Pteridophyte species belongs to 28 families on the basis of field surveys and taxonomic identification of plants used by tribals of the Arunachal Pradesh of North Eastern India in their traditional methods of treatment of various diseases, and ailments like stomach disorders, poisonous bites, rheumatics cough, asthma, fever, diabetes, etc. are presented.

**Keywords:** Medicinal ferns, Arunachal Pradesh, North Eastern India

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**Traditional healthcare practices among the villages of Rawain valley, Uttarkashi, Uttarakhand, India**

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Received 21.04.09; revised 08.04.10

**Abstract**

A study on practice of traditional medicine was carried out among the people of Rawain valley, Uttarkashi. The results documented 63 plants to assess their therapeutic significance in managing various diseases in the villages of the valley. Fresh leaves, roots, fruits, bark, stems and some time whole plant are reported to be used for treatment of various ailments. Since, the knowledge of various medicinal plants being used is confined to mostly local healers, it is of utmost importance to document this knowledge for future generation, otherwise it will be lost forever with the death of local healers/knowledgeable person.

**Keywords:** Traditional healthcare system, Local healers, Indigenous knowledge, Medicinal plants
Ethnomedicinal plants used by different tribes of Arunachal Pradesh
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Abstract
The study reveals about the vast diversity of herbal medicinal plants used by the various tribes of Arunachal Pradesh. The potential of ethnobotanical research and need for documentation of traditional knowledge pertaining to the medicinal plant utilization for the greater benefit of mankind is carried out. The investigation was performed by collection of local medicinal plants in consultation with the local tribal experts. The common medicinal plants used by Apatami, Mongpa, Sinpho and Tangsa tribes were studied and around 28 species were listed where mostly herbs are used for medicine. The Padam, Ngishi and I-Idu tribes of Arunachal Pradesh commonly used about 56 plant species as medicine from 29 families. The local people believed that dreadful diseases like cancer and diabetes can be treated with local herbal plants. Thus, the study focuses on potentials of ethnobotanical research, the needs for conservation and documentation of traditional medicinal knowledge for further availability and utilization to the benefit of mankind.

Keywords: Ethnobotany, Traditional medicine, Arunachal Pradesh, Apatami, Mongpa, Sinpho, Tangsa, Padam, Ngishi, I-Idu tribes

Leucas biflora (Vahl) R. Br.( Lamiaceae ): A new distributional record and its less known ethno-medicinal usage from Tripura
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Abstract
The present communication is providing the additional distributional record of Leucas biflora (Vahl) R. Br. (Lamiaceae), a less known ethno-medicinal plant has been collected from West Tripura in course of ethnobotanical studies during 2007-2008. The species is not so far reported from Tripura. It has several ethno-medicinal values and is well known as Khomosa to most of the local traditional healers (Ochái). Tripuri community used the leaf decoction of this procumbent herb as eye drop for relief and cure from conjunctivitis, to stop nosebleed and white discharge.

Keywords: Leucas biflora (Vahl) R. Br., Ethno- medicinal usage, New record, Tripura
Diversity, Distribution, Indigenous Uses and Conservation of the Medicinal Plants of Indian Himalayan Region Used in Cancer

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ABSTRACT

Indian Himalayan Region is very well known for the medicinal plant wealth. The representative, natural and unique medicinal plants are used for curing various diseases/ailments including cancer and income generation. In view of high value of the medicinal plants of IHR, an attempt has been made to; (i) assess and review the medicinal plants with anticancerous properties; (ii) document indigenous uses and practices; (iii) analyze for nativity, endemism and rarity; (iv) review the species for chemical composition/active ingredients; and (v) suggest strategy for the conservation and management of these species. Total 36 species representing trees (18 spp.), shrubs (07 spp.), herbs (08 spp.) and ferns (01 spp.) were recorded. Different parts of these species, such as whole plants, roots (including rhizomes and tubers), leaves, flowers, fruits, seeds, stems, barks, etc. were used by the inhabitants for curing the cancer. Four (04) species were natives and 31 species non-natives to the Himalayan region. Two species i.e., Berberis aristata and Taxus baccata subsp. wallichiana were near endemic. Chemical composition of the part(s) used, if available, has been given. Due to over exploitation, habitat degradation and changing environmental conditions, the populations of many species are depleting fast. Therefore, studies on habitat ecology, development of conventional and in-vitro propagation protocols; development of agro techniques/plantation techniques and introduction in the akin habitats; and education and awareness programs for the inhabitants are suggested.

Practices of entomophagy and entomotherapy by members of the Nyishi and Galo tribes, two ethnic groups of the state of Arunachal Pradesh (North-East India)

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Abstract

We prepared a consolidated list of edible and therapeutic insects used in Arunachal Pradesh (N.E. India) by two tribal societies (i.e., the Nyishi of East Kameng and the Galo of West Siang). The list is based on thorough, semistructured field-interviews with 20 informants of each tribal group. At least 81 species of local insects, belonging to 26 families and five orders of insects, namely Coleoptera (24 species), Orthoptera (17 species), Hemiptera (16 species), Hymenoptera (15 species) and Odonata (9 species), are being used as food among members of these two indigenous societies. However, Nyishi use overall more species of insects as food than Galo people do and consume mostly Coleoptera and Hemiptera; amongst the Galo, on the other hand, Odonata and Orthoptera dominate. The selection of the food insects amongst the Nyishi and Galo is dictated by traditional tribal beliefs as well as the taste and availability of the insects. Depending on the species, only particular or all developmental stages are consumed. Some food insects may be included in the local diet throughout the year, others only when seasonally available. Commonly specimens are being prepared for consumption by roasting, frying or boiling. Twelve species of insects are deemed therapeutically valuable by the locals and are being used by the tribes investigated to treat a variety of disorders in humans and domestic animals. Members of the Galo use a greater number of insect species for remedial purposes than the Nyishi. With the degradation of natural resources, rapid population growth, and increasing influence of ‘westernization’, the traditional wisdom of entomophagy and entomotherapy is at risk of being lost. There is thus an urgent need to record the role insects play as components of local diets and folk remedies and to assess insect biodiversity in the light of these uses.
Vertebrates used for medicinal purposes by members of the Nyishi and Galo tribes in Arunachal Pradesh (North-East India)

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Abstract

Arunachal Pradesh, the easternmost part of India, is endowed with diverse natural resources and inhabited by a variety of ethnic groups that have developed skills to exploit the biotic resources of the region for food and medicines. Information on animals and animal parts as components of folk remedies used by local healers and village headmen of the Nyishi and Galo tribes in their respective West Siang and Subansiri districts were obtained through interviews and structured questionnaires. Of a total of 36 vertebrate species used in treatments of ailments and diseases, mammals comprised 50%; they were followed by birds (22%), fishes (17%), reptiles (8%) and amphibians (3%). Approximately 20 common complaints of humans as well as foot and mouth disease of cattle were targets of zootherapies. Most commonly treated were fevers, body aches and pains, tuberculosis, malaria, wounds and burns, typhoid, smallpox, dysentery and diarrhoea, jaundice, and early pregnancy pains. Very few domestic animal species (e.g., goat and cattle) were used zootherapeutically. More frequently it was wild animals, including endangered or protective species like hornbill, pangolin, clouded leopard, tiger, bear, and wolf, whose various parts were either used in folk remedies or as food. Some of the animal-based traditional medicines or animal parts were sold at local markets, where they had to compete with modern, western pharmaceuticals. To record, document, analyze and test the animal-derived local medicines before they become replaced by western products is one challenge; to protect the already dwindling populations of certain wild animal species used as a resource for the traditional animal-derived remedies, is another.
Ethnomedicinal and ecological status of plants in Garhwal Himalaya, India

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Abstract

Background: The northern part of India harbours a great diversity of medicinal plants due to its distinct geography and ecological marginal conditions. The traditional medical systems of northern India are part of a time-tested culture and honored still by people today. These traditional systems have been curing complex disease for more than 3,000 years. With rapidly growing demand for these medicinal plants, most of the plant populations have been depleted, indicating a lack of ecological knowledge among communities using the plants. Thus, an attempt was made in this study to focus on the ecological status of ethnomedicinal plants, to determine their availability in the growing sites, and to inform the communities about the sustainable exploitation of medicinal plants in the wild.

Methods: The ecological information regarding ethnomedicinal plants was collected in three different climatic regions (tropical, sub-tropical and temperate) for species composition in different forest layers. The ecological information was assessed using the quadrate sampling method. A total of 25 quadrats, 10 × 10 m were laid out at random in order to sample trees and shrubs, and 40 quadrats of 1 × 1 m for herbaceous plants. In each climatic region, three vegetation sites were selected for ecological information; the mean values of density, basal cover, and the importance value index from all sites of each region were used to interpret the final data. Ethnomedicinal uses were collected from informants of adjacent villages. About 10% of inhabitants (older, experienced men and women) were interviewed about their use of medicinal plants. A consensus analysis of medicinal plant use between the different populations was conducted.

Results: Across the different climatic regions a total of 57 species of plants were reported: 14 tree species, 10 shrub species, and 33 herb species. In the tropical and sub-tropical regions, Acacia catechu was the dominant tree while Ougeinia ooejinensis in the tropical region and Terminalia bellerica in the sub-tropical region were least dominant reported. In the temperate region, Quercus leucotrichophora was the dominant tree and Pyrus pashia the least dominant tree. A total of 10 shrubs were recorded in all three regions: Adhatoda vasica was the most common species in the tropical and sub-tropical regions, however, Rhus parviflora was common species in the sub-tropical region and Phyllanthus amarus in the sub-tropical region. Among the 33 herbs, Sida cordifolia was the most common species in the tropical and sub-tropical regions, while Barleria prionitis the least dominant in tropical and Vernonia anthelmintica was dominant in temperate regions. The index value was high (1.0) for warts, vomiting, carminative, pain, boils and antiseptic uses, and lowest index value (0.33) was found for bronchitis.

Conclusion: The medicinal plants treated various ailments. These included diarrhea, dysentery, bronchitis, menstrual disorders, gonorrhea, pulmonary affections, migraines, leprosy. The ecological studies showed that the tree density and total basal cover increased from the tropical region to sub-tropical and temperate regions. Thus species composition changed with climatic conditions. Among the localities used for data collection in each climatic region, many had very poor vegetation cover. The herbaceous layer decreased with increasing altitude, which might be an indication that communities at higher elevations were harvesting more herbaceous medicinal plants, due to the lack of basic health care facilities. Therefore, special attention needs to be given to the conservation of medicinal plants in order to ensure their long-term availability to the local inhabitants. Data on the use of individual species of medicinal plants is needed to provide an in-depth assessment of the plants availability in order to design conservation strategies to protect individual species.
An ethnobotanical survey of medicinal plants in the Eastern Himalayan zone of Arunachal Pradesh, India
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Abstract
Aim of the study: The medicinal plants are integral source of easily available remedy used in rural healthcare system. This study was conducted among three major ethnic groups namely the Nocte, the Nyishi and the Adi in the Eastern Himalayan region of Arunachal Pradesh to evaluate their comparative knowledge on medicinal plants.

Materials and methods: The three remote districts of Arunachal Pradesh namely the Tirap, the Dibang Valley and the Papum Pare were surveyed through interviewing of randomly selected 237 participants using semi-structured questionnaire and regular field visits to selected districts.

Results: We recorded the traditional use of 74 medicinal plants species belonging to 41 taxonomic plant families used for treating a total of 25 different diseases/ailments. The informant consensus factor (ICF) values demonstrated that local people tend to agree more with each other in terms of the plants used to treat malaria (0.71), jaundice (0.62), urological problems (0.56), dermatological disorders (0.45), pain (0.30), and respiratory disorder (0.33), and while the general health (0.15) and gastro-intestinal disorders category (0.28) were found low ICF values.

Conclusion: Of the total 74 species recorded, the highest number of medicinal plants (36 species) was reported from the Adi of Lower Dibang Valley followed by the Nocte of the Tirap (25 species) and the Nyishi ethnic groups of Papum Pare districts (13 species). In the present study, we found that the men, elder people and illiterate ones had better knowledge on medicinal plants as compared to women, younger and literate people. Findings of this documentation study can be used as an ethnopharmacological basis for selecting plants for future phytochemical and pharmaceutical studies.

Keywords: Folk medicine, Indigenous knowledge, Traditional health practitioner, Arunachal Pradesh

An ethnobotanical survey of medicinal plants used by ethnic people in West and South district of Tripura, India

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Abstract:
An ethno-medicinal investigation was conducted to highlights the traditional knowledge of medicinal plants being used by the tribe in West and South district of Tripura. This paper provides information about the different uses of plants used in their primary health care system. Tripura is a small north-eastern state of India and also a part of both Himalayan and Indo-Burma biodiversity region. It is a goldmine of medicinal plants and use of different plants in tribal traditional health care systems has long history. Nineteen different tribes in Tripura, depend on natural resources at a great extent. This paper documented 113 medicinal plant species from 56 families along with their botanical name, local name, family name, habit, medicinal parts used, and traditional usage of application. The dominant families are Euphorbiaceae (7 species), Apocynaceae (6 species), Fabaceae and Rubiaceae (5 species each), Caesalpiniaceae, Asteraceae, Liliaceae and Verbenaceae (4 species each), Combretaceae, Labiatae, Malvaceae, Rutaceae and Zingiberaceae (3 species each). Tribes of Tripura have rich traditional knowledge on plant based medicine. Different parts of the plants in crude form/plant extracts/decoctions/infusion or pastes are employed in diverse veterinary and human diseases by the tribe’s of Tripura in daily life.

Keyword: Tripura; tribes; traditional heath care system; medicinal plants

Traditional medicinal plants of Manipur as anti-diabetics

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Abstract
Manipur, which lies in the North-eastern part of India, is rich in its flora and fauna; and is one of the hotspots of biodiversity. The flora of this region includes aromatic and medicinal plants with a number of bioactive compounds. Before the coming of the modern pharmacological medicines, the people of Manipur use medicinal plants for the treatment of diabetes mellitus. Even today, people not only in the rural areas but those living in the urban areas are also using these traditional medicines, and give first preference to herbal treatments by consulting the medicine men. An outline of the medicinal plants of Manipur which are used for curing diabetes is reported.

Key words: Traditional, plants, Manipur, anti-diabetics.
An ethnomedicinal inventory of knotweeds of Indian Himalaya
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Accepted 22 December, 2010

Abstract
The present study aims to highlight the current knowledge of the usefulness of Knotweeds (Polygonum L.) of India as to point out what species need careful consideration for conservation rather than eradication. The present study intends to produce an inventory of the important Polygonums that needs re-evaluation for cultivation and hence increasing our accessibility to natural medicinal products. Out of about 72 species reported to occur in India, we found 34 promising species that could be utilized for medicines, ornamentals, famine food and others. Many ethno-botanical data confined to a very small niche of ethnic people residing in Eastern Himalayan region are being reported here for the first time.

Key words: Ethnomedicine, Polygonum, Himalaya, India.

Ethnomedicinal uses of plants close to rural habitation in Garhwal Himalaya, India
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Abstract
The present study was conducted in three different altitudinal zones, tropical (300 TO 400 m), subtropical (900 to 1100 m) and temperate (2000 to 2400 m) zones of Garhwal Himalaya. A total of 61 plant species that were regularly used by the local inhabitants for curing various ailments such as digestive disorders, dysentery, wounds, swellings, cold, scabies, rheumatic, cholera, malaria were recorded within the study area. Of the recorded plants, 14 were trees, 10 shrubs, and 37 herbs. The species used most frequently were Phyllanthus embelica L., Terminalia bellerica Roxb., Terminalia chebula Retz..Aegle marmelos (L.) Correa, Holarrhena antidysenterica (L.)Wall. ex A. DC., Adhatoda vasica Nees in Wallich, Berberis asiatica Roxb., Achyranthes aspera L., Boerhavia diffusa L., Sida acuta Burm.f. and Sida cordifolia L. Twenty-seven species were common to the tropical and sub-tropical zones (trees = 5, shrubs = 4, and herbs/grasses = 18), one shrub occurred both in the sub-tropical and temperate zones, and none of the species were common to both the tropical and temperate zones. A total of 32 families were recorded, of which Lamiaceae was the dominant family (with 8 species). All but three of the species reported are well known, and widely used by communities in India. This indicated that the medicinal plant repertoire of non-specialists is limited to a very small number of species.

Key words: Ethnomedicinal plants, altitudinal zones, rural habitation, Garhwal Himalaya.
Current status and potential prospects of medicinal plant sector in trans-Himalayan Ladakh

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Abstract
The study reveals that Ladakh is rich in vegetation, medicinal flora and endemic diversity. The traditional knowledge on native plant species highlights Amchi system of medicine and their traditional health-care system, both logistically as well as economically. The excessive extraction of medicinal plant resources for use in the pharmaceutical industry, has resulted in ruthless destruction of natural populations of medicinal plants. Present study, attempts to assess the current status of knowledge of medicinal plant resources of Ladakh and herbal products. It also focuses on the importance of documenting traditional knowledge and practices, related to conservation and sustainable utilization of medicinal plants of Ladakh. An approach for prioritizing strategies for action is proposed, which is a three step process, namely technology development, technology dissemination, technology assessment and refinement. Besides, the approach highlights the importance of involving indigenous communities, traditional institutions and NGOs to complement efforts of academics, scientists and government departments to ensure conservation and utilization of this resource.

Key words: Ladakh, medicinal plants, Amchi system, trans-Himalayas, conservation biology.

Some belief, practices and prospects of folk healers of Sikkim

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Abstract
Lepcha, Bhutia and Nepalis, three ethnic groups of Sikkim practicing traditional medicines have a strong belief of different supernatural forces and deities. The study is an attempt to focus on the beliefs, practices and prospects of folk healers of Sikkim. The study was conducted in whole Sikkim and the data were collected by the field survey and personal interviews of 102 identified folk healers. In the study the age, sex, educational qualification, source of knowledge, experience, generation of practice and collection of herbs in different days of 102 folk healers are presented. The treatment principles, beliefs and medical ailment are more or less similar in three different ethnic groups. The study shows a declined trend of new generation to adopt this practice as profession. There is a greatest challenge to revitalize the traditional health and to promote the folk medicine in rural poor people of Sikkim for their primary healthcare.

Keywords: Lepcha, Bhutia, Nepalis, Folk healer, Traditional medicine, Sikkim
Medicinal plants of North Cachar Hills district of Assam used by the Dimasa tribe

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Abstract

A total of 47 plants species have been reported herein to be used in the treatment of diseases like urinary disorder, diarrhoea, malaria, etc. Among the plant types, herbs species were the most frequently used. Ferns and cycad also find usage in their traditional healing system. Notable among the plants documented is the use of a threatened species like Gloriosa superba as antihelmintics, Cycas revoluta for urinary problems, Elaeagnus caudata for miscarriage, etc. A complete account of species, parts used, mode of preparation and dosage for curing diseases like diarrhoea, malaria, jaundice, diabetes, highblood pressure, snakebite, etc. have been investigated in detail.

Keywords: Dimasa tribe, Traditional healer, North Cachar Hills, Assam

Herbal remedies for sexual capability

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Abstract

Present paper document folklore medicines used by the tribal communities inhabiting in buffer zone of Nanda Devi Biosphere Reserve, Uttarakhand. The field work was carried out among the tribes viz. Bhotiyas, Tolchhas and among the general inhabitants living in the vicinity of the forests and remote localities. These communities utilize plants and plant products as aphrodisiac medicine. This paper deals with 17 significant medicinal plants belonging to 16 genera and 14families used by the local community for the treatment of sexual incapability.

Keywords: Indigenous medicine, Sexual incapability, Aphrodisiac, Sterility, Himalayas
Traditional remedies in Tarai region of Kumaun, Uttarakhand

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Abstract

A floristic survey of ethnomedicinal plants was conducted in the Tarai region of Kumaun, Uttarakhand. The study was conducted during 2008 to 2011 to assess the traditional uses of plant resources of this area. The study area was divided in three sites and eight communities and the study was conducted through extensive and intensive explorations during different seasons (i.e., summer, rainy, winter and spring) of the year. A total of 41 Angiospermic plants species belonging to 27 families being used for traditional remedies are reported. Details of plant parts, methods of preparation and mode of utilization are also presented. The information on traditional knowledge was gathered through exhaustive interviews with local people as well as migrants of distant places of different gender and class settled in the area. Although people of Tarai region used these plant species for 45 traditional remedies for a long time on trial and error basis, further research and scientific examination is recommended for these traditional remedies.

Keywords: Folk medicine, Traditional remedies, Tarai region, Kumaun division, Uttarakhand
Herbal medicines used in the treatment of diabetes mellitus in Arunachal Himalaya, northeast, India

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Abstract

**Ethnopharmacological relevance:** Medicinal plants have played an important role in treating and preventing a variety of diseases throughout the world. Khampti tribal people living in the far-flung Lohit district of the Eastern Arunachal Himalaya, India still depend on medicinal plants and most of them have a general knowledge of medicinal plants which are used for treating a variety of ailments. This survey was undertaken in Lohit district in order to inventory the medicinal plants used in folk medicine to treat diabetes mellitus.

**Materials and methods:** Field investigations were conducted in seventeen remote villages of Lohit district starting from April 2002 to May 2004 through interviews among 251 key informants who were selected randomly during our household survey. To elucidate community domains and determine differences in indigenous traditional knowledge of medicinal plants with anti-diabetic efficacy, we repeated our field survey starting from April 2008 to May 2010 with one hundred traditional healers locally called as “Chauya” in Khampti of Lohit district. “Chau ya” traditional healers who know and use medicinal plants for treating diabetes mellitus were interviewed using a semi-structured questionnaire.

**Results:** This study reports an ethnobotanical survey of medicinal plants in Lohit district of Arunachal Pradesh reputed for the treatment of diabetes mellitus. Forty-six plant species were identified in the study area to treat diabetes mellitus by the Khamptis “Chau ya” traditional healers. Comparative published literature survey analysis of this study with other ethnobotanical surveys of plants used traditionally in treating diabetes mellitus suggests that eleven plant species make claims of new reports on antidiabetic efficacy. These plant species are *Begonia roxburghii*, *Calamus tenuis*, *Callicarpa arborea*, *Cuscuta reflexa*, *Dillenia indica*, *Diplazium esculentum*, *Lectuca gracilis*, *Millingtonia hortensis*, *Oxalis griffithii*, *Saccharum spontaneum*, and *Solanum viarum*. Some of the plants reported in this study have an antidiabetic effect on rodent models but none have sufficient clinical evidence of effectiveness.

**Conclusions:** The wide variety of medicinal plants that are used to treat diabetes mellitus in this area supports the importance of plants in the primary healthcare system of the rural people of Lohit district of Arunachal Pradesh. The finding of new plant uses in the current study reveals the importance of the documentation of such ethnobotanical knowledge.

**Keywords:** Khamptis “Chau ya” traditional healers, Diabetes, Herbal medicine, Traditional knowledge, Arunachal Pradesh
The treatment of jaundice with medicinal plants in indigenous communities of the Sub-Himalayan region of Uttarakhand, India

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Abstract

**Ethnopharmacological relevance:** Inspite of tremendous advances made in allopathic medical practices, herbs still play an important role in the management of various liver diseases. A large number of plants and formulations have been claimed to have hepatoprotective activity. Jaundice is a symptom, indicative of the malfunctioning of the liver. This paper provides ethnomedicinal information on the plants used to treat jaundice by three important indigenous communities, i.e., nomadic Gujjar, Tharu and Bhoxa of Sub-Himalayan region, Uttarakhand, India.

**Aims of the study:** To record herbal preparations used by the studied indigenous communities in treatment of jaundice and discuss hepatoprotective properties of the recorded plants.

**Research strategy and methods:** The traditional knowledge of the studied indigenous communities on herbal preparations used for treating jaundice was collected through structured questionnaire and personal interviews. The interviews were conducted with 91 traditional healers (29 Bhoxa, 35 Tharu and 27 nomadic Gujjars) in Sub-Himalayan region of Uttarakhand, India. More than 250 research papers reporting ethnomedicinal information on the hepatoprotective plants used by various communities from different parts of India were extensively reviewed.

**Results:** A total of 40 medicinal plants belonging to 31 families and 38 genera were recorded to be used by the studied communities in 45 formulations as a remedy of jaundice. Bhoxa, nomadic Gujjar and Tharu communities used 15, 23 and 9 plants, respectively. To our knowledge eight plants reported in the present survey viz., *Amaranthus spinosus* L., *Cissampelos pareira* L., *Ehretia laevis* Roxb., *Holarrhena pubescens* Wall., *Ocimum americanum* L., *Physalis divaricata* D. Don, *Solanum incanum* L. and *Trichosanthes cucumerina* L. have not been reported earlier as remedy of jaundice in India. Literature review revealed that a total of 214 (belonging to 181 genus and 78 families), 19 (belonging to 18 genus and 12 families) and 14 (belonging to 14 genus and 11 families) plant species are used as internal, external and magico-religious remedies for jaundice, respectively by various communities in different parts of India. Most widely used hepatoprotective plant species for treatment of jaundice in India is *Boerhavia diffusa* L. followed by *Tinospora cordifolia* (Willd.) Miers, *Saccharum officinarum* L., *Phyllanthus amarus* Schumach.&Thonn., *Ricinus communis* L., *Andrographis paniculata* (Burm. f.) Nees., *Oroxylum indicum* (L.) Kurz, *Lawsonia inermis* L. and *Eclipta prostrata* (L.) L.

**Conclusions:** The plants recorded in the present survey have also been discussed in relation to pharmacological studies and hepatoprotective phytoconstituents present in them. Most of the recorded plants have shown hepatoprotective effects on experimental animals in earlier studies but more studies are needed to assess hepatoprotective properties of some recorded medicinal plants viz., *Averrhoa carambola* L., *Ehretia laevis* Roxb., *Holarrhena pubescens* Wall., *Mangifera indica* L., *Ocimum americanum* L., *Oroxylum indicum* (L.) Kurz, *Physalis divaricata* D. Don, *Solanum incanum* L., *Sphaeranthus senegalensis* DC. and *Tribulus terrestris* L.. The plants enumerated in this study with high number of citations and wider distributions have given some useful leads for further biomedical research. Nevertheless more phytochemical, pharmaceutical and clinical studies are needed to evaluate hepatoprotective properties, efficacy and safety of all the claimed medicinal plants.

**Keywords:** Tharu, Bhoxa, Nomadic Gujjar, Jaundice, Medicinal plants, India
Changing aspects of Traditional Healthcare System in Western Ladakh, India
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Abstract

Ethnopharmacological relevance: The Sowa-rigpa system of traditional healing has been practiced from time immemorial in western Ladakh but its existence is in jeopardy today. Documentation of information on various aspects of this system such as treatment methods, materials used for medicine and socio-cultural aspects is needed to ensure the long-term survival of this system.

Materials and methods: Extensive field surveys were conducted from March 2009 to June 2011 in three different Valleys of the Kargil district. Interviews with traditional healers, village heads and local people were conducted using semi-structured questionnaires and participatory observations to assess the current status of traditional medicine system. Plant specimens were collected from the field for identification and herbarium preparation which were later deposited in herbaria for future reference.

Results: 160 plants were recorded to be used by traditional healers of Western Ladakh. Traditional healing system (THS) is taking care of 30% of public healthcare. Only 36 traditional healers are left in this region of which 67% was found along the Wakha-chu Valley, followed by the Lower Indus Valley (17%) and the Suru Valley (16%). The transfer of knowledge to the next generation is very low (25%) in Kargil. Low income and continuously deteriorating social status of healers has contributed to the decline of this system.

Conclusions: Lack of interest in young generation in adopting this system may pose a threat to the survival of Sowa-rigpa. Integration of this system with the modern healthcare system and more government support may prove effective to enhance its deteriorating conditions.

Keywords: Western Ladakh Traditional healing system (THS) Ethno-botanical knowledge Amchis
Conservation of traditional medicinal practices and pharmaceutically important medicinal plants in Mizoram, India

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Abstract
The paper deals with ethno-medico-botanical observation in Mizoram (India) highlighting 25 species of folk medicinal plants / parts used, mode of application, uses in cure of several ailments by Mizo tribe of Mizoram. Study reveals that traditional healers are still practicing the plants as remedies of malarial fever, itching, worm infestation, dysentery, diarrhoea, vomiting, diabetes, hypertension, piles, fistula, jaundice, fever and removal of kidney stone.

There is need of further studies on their efficacy, chemical evaluation and clinical trial to find new drugs. Apart from above 58 pharmaceutically important medicinal plants were also recorded during exploration, which have good potential for sustainable harvesting of raw drug, their marketing and trade involving local inhabitants and finally setting of pharmaceutical units for formulation of medicine as well as adapting cultivation and conservation within the area. It may lead to socio economic development of the natives in the state.

Keywords: Traditional medicine, Mizoram, \textit{Gmelina arborea}, \textit{Saracaasoca}.

Lamiaceous ethno-medico-botanicals in Uttarakhand Himalaya, India

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Abstract
Based on literature and field surveys, and a collective analysis of available information, this enumeration is an attempt to draw attention to the medicinal and aromatic plants belonging to Lamiaceae family. This enumeration narrates the plants having diverse ethno-medico-botanical values. Findings of this exercise indicated that, plants belonging to 25 genera and 46 species are used by native communities for treating 40 common ailments, especially those, which are prevalent in the mountain environment. An attempt has been made to accumulate the information on the distribution, habit and habitat of important plants. Also, scientific documentation of the plants such as prior reporting with ethno-botanical notes has been provided in this study. It is thought that, these endeavours will be helpful for utilization of such plants for mass benefits of locally communities as locally available and time tested renewable resource for generating income.

Key words: Lamiaceae, medicinal, aromatic, ethno-medico-botany, Uttarakhand.
Ethnomedicinal uses of some traditional medicinal plants found in Tripura, India
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Accepted 12 June, 2012

Abstract
The tribal people of Tripura are accustomed to a wide variety of medicinal plants used in their herbal medicinal practices. A field study carried out on some tribal villages of Tripura (north) reported several plants having multiple applications as herbal medicines. A total of 25 of such plants were recorded from the medicine men and aged villagers of various villages. Some important plants include Oroxylum indicum, Euphorbia nerifolia, Scoparia dulcis, Jatropha curcas and Kaempferia rotunda.

Key words: Tripura, herbal, medicinal plant.
Ethnobotanical Study towards Conservation of Medicinal and Aromatic Plants in Upper Catchments of Dhauli Ganga in the Central Himalaya


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Abstract

The present study broadly focused on medicinal plant species collected from wild by the villagers for different purposes in the upper catchment of Dhauli Ganga in Nanda Devi Biosphere Reserve (NDBR), in the central Himalaya. A schedule based survey was conducted during the years 2003-2005 in 15 villages of Chamoli district part of the NDBR. Information was collected from collectors, vaidya (medicine man) and those dealing with domestication and marketing of the medicinal plants. The aim of the study was to understand the prioritised medicinal plants, their mode of collection and document their ethnobotanical uses by the Bhotiya tribal communities, in this world heritage site. During the survey, 50 medicinal plants belonging to 31 families and 44 genera were documented. Out of these, 70% were harvested from the wild, 22% were cultivated and 8% were cultivated as well as wild harvested. Of the cultivated species, 8% were found growing in the kitchen gardens and 14% in the agricultural fields. However, 42% of the plants had their roots and rhizomes used followed by leaves (26%), seeds (10%), seed and leaf (8%), bark and whole plant (6%) and flower (1%). Most plants were reported to be used for rheumatism (16), followed by stomach disorder (14), cold and cough (11), and jaundice (9). Thirty three plants species were reported to have more than one therapeutic uses, while 17 species were reported to be used against single ailment. The distance of villages from road head was one of the factors contributing to the decline in the medicinal plant population in their natural habitats. The availability of medicinal plants increased with increase in distance from road head and also the peoples’ dependence on them. Documentation of the traditional knowledge will help in conservation of knowledge and also opportunity for using it for future training and use. The result of this study will help in promoting sustainable cultivation and implementation in conservation protocol of those species, which are in the verge of extinction in this region.

Keywords: Conservation strategy; Ethnobotany; Medicinal plants; Traditional communities; Central Himalaya
Herbal-based Traditional Medicinal Knowledge of Local Inhabitants in Rudraprayag District of Uttarakhand, India
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Abstract
Traditional medicinal knowledge has gained much attention recently due to rejuvenation of faith in traditional system of medicines. The Indian Himalaya is a source of plant based indigenous medicinal knowledge based on local plant diversity. Surveys were conducted in Rudraprayag district of Uttarakhand, India to collect indigenous information on primary health care. 29 formulations using 159 plant species were recorded treating 119 ailments in 13 broad therapeutic classes. Results have been compared with traditional knowledge from other parts of India.

Traditional and indigenous uses of medicinal plants by local residents in Himachal Pradesh, North Western Himalaya, India
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Abstract
In the hilly areas of Indian Himalaya, the inhabitants largely depend on plants for curing various diseases. The indigenous knowledge and traditional practices of medicinal plants are vanishing fast. Therefore, we aimed to document indigenous uses of some important medicinal plants of Kullu district; analyze distribution pattern, nativity and endemism of these medicinal plants; and suggest conservation strategies. We recorded information on 75 species of medicinal plants. The recorded species represent trees (12 spp.), shrubs (15), herbs (47), and fungi (1). Of these, 29 medicinal plants were native, 1 endemic, 11 near endemic, and 46 nonnative. Of all species, various plant parts such as leaves (32 spp.), roots (29), tubers (2), seeds (8), fruits (10), flowers (8), fruiting body (1), bark (8), stem (3), and wood (2) were used in curing various diseases. We recommend further studies on habitat ecology of the species, mass multiplication of commercially viable species through conventional and in vitro methods, and their establishment in the in situ and ex situ conditions. Furthermore, it is important to develop farming techniques of commercially viable species and disseminate knowledge among stakeholders through education and awareness raising.

Keywords: indigenous use, endemism, medicinal plants, conservation, Himachal Pradesh, North Western Himalaya
Ethnomedicinal plants used by Adi-Minyong tribe of Arunachal Pradesh, eastern Himalaya

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Abstract

The paper deals with folklore medicinal uses of 31 plant species belonging to 25 families for various ailments among the Adi-Minyong tribe of Arunachal Pradesh. It is also recorded that some of the species like Solanum spirale Roxb., Pueraria thunbergiana Benth., Calicarpa arborea Roxb., etc, having multiple uses among the local people and their use in their festival and rituals have been recorded for the first time in the present study.

Keywords: Ethnomedicinal plants, Adi-Minyong tribe, Arunachal Pradesh, Eastern Himalaya.

Faith herbal healer knowledge document of Nanda Devi Biosphere Reserve, Uttarakhand, India

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Abstract

The aim of the study was to identify and document medicinal plants used by the faith herbal healers of Nanda Devi Biosphere Reserve along with their uses and preparation. Ethnomedicinal surveys were conducted in the remote villages of Nanda Devi Biosphere Reserve (NDBR) district Chamoli during the years 2004-2010. The study revealed uses of 90 plant species (87 Angiosperms and 3 Gymnosperms) belonging to 45 families and 80 genera. These plants were found to be used for treating diabetes, arthritis, cardiac complaints, asthma, leucorrhoea, infertility, mental disorder, flatulence, abdominal complaints and chronic fever, etc.

Keywords: Traditional knowledge, Herbal healers, Biodiversity, Himalayas
Plants used in healthcare practices by Limboo tribe in South –West of Khangchendzonga Biosphere Reserve, Sikkim, India

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Abstract

The study aimed in exploring indigenous knowledge of Limboo tribe on plant use practices for local healthcare in Khangchendzonga Biosphere Reserve, Sikkim. Use of 124 ethnomedicinal plants to cure 77 ailments, grouped into 13 broad categories, was recorded. Maximum number of species (31) was used to cure stomach related problems. Oral administration(71.77%) was the common practice. Artemesia vulgaris and Swertia chirayita (1.00 each) recorded the highest use value. Cut and wound problems recorded the highest Informant Consensus Factor (0.91). Paper also discussed the conservation aspects.

Keywords: Indigenous knowledge, Informant Consensus Factor, Khangchendzonga Biosphere Reserve, Limboo tribe, Sikkim
Traditional herbal medicines used for the treatment of skin disorders by the Gujjar tribe of Sub-Himalayan tract, Uttarakhand

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Abstract

In the present investigation, an attempt has been made to explore the traditional knowledge on herbal medicines used as remedy for skin disorders by the Gujjar tribe of Sub-Himalayan tract, Uttarakhand. The purpose of this study is to assess traditional knowledge on medicinal plants which forms a baseline data for future pharmacological and phytochemical studies, to identify the important species used for skin medicine, finding out methods for various preparations, and calculate the % informants in relation to medicinal plant use. In this study frequent field trips were made for the collection of plant specimens and information on medicinal aspects from traditional healers and women folk through questionnaire and interviews. The knowledge of herbal preparation, parts used, mode of administration and local name was also taken during the study period. The present study has resulted in the documentation of 109 medicinal plant species belonging to 57 families and 102 genera used by the Gujjars for treatment of different skin ailments, viz. allergy, blisters, boils, chilblain, cracked feet, cuts, eczema, leprosy, leucoderma, ringworms, sore and wounds. The findings of present study shows documentation of 22 plant species which are found little known or less reported in available published literature. The Gujjar tribe lives interiorly in the forest localities and Government is making policies to rehabilitate them outside of forest areas, it is necessary to tap their rich heritable traditional knowledge on medicinal plants within time before it become vanished due to modernization. A comprehensive detailed search and report on the pattern of utilization of medicinal plants by this tribe has not evidenced in the earlier publications. Therefore, present attempt has been made to document traditional knowledge of Gujjar tribe used to treat different skin disorders by making various herbal preparations.

Keywords: Gujjar tribe, Herbal medicines, Skin disorders, Sub-Himalayan tract, Traditional knowledge
Ecological status and traditional knowledge of medicinal plants in Kedarnath Wildlife Sanctuary of Garhwal Himalaya, India

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Abstract

Background: Himalayan forests are the most important source of medicinal plants and with useful species for the local people. Kedarnath Wildlife Sanctuary (KWLS) is situated in the interior part of the Garhwal Himalayan region. The presented study was carried out in Madhmeshwar area of KWLS for the ecological status of medicinal plants and further focused on the ethnomedicinal uses of these plants in the study area.

Methods: Ecological information about ethnomedicinal plants were collected using random quadrats in a random sampling technique along an altitudinal gradient in the KWLS. Information on medicinal properties of plants encountered in the present study was generated by questionnaire survey and was also compared with relevant literature.

Results: A total of 152 medicinally important plant species were reported, in which 103 were found herbs, 32 shrubs and 17 were tree species which represented 123 genera of 61 families. A total of 18 plant species fell into the rare, endangered (critically endangered) and vulnerable status categories.

Conclusion: The present study documented the traditional uses of medicinal plants, their ecological status and importance of these plants in the largest protected area of Garhwal Himalaya. This study can serve as baseline information on medicinal plants and could be helpful to further strengthen the conservation of this important resource.

Keywords: Ethnomedicinal plants use, Ecological status, Resources, Altitudinal zone
Comparative Survey of Entomophagy and Entomotherapeutic Practices in Six Tribes of Eastern Arunachal Pradesh (India)

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Abstract

A consolidated list of edible insects used in the eastern part of Arunachal Pradesh (N.E. India) by Wangcho (Wancho) and Nocte tribes of the Tirap District and the Shingpo, Tangsa, Deori and Chakma of the Changlang District has been prepared. The list is based on thorough, semi-structured field-interviews with 20 informants of each tribal group. At least 51 insect species, belonging to 9 orders were considered edible. The largest number of the edible species belonged to the Coleoptera (14), followed by 10 each of the Orthoptera and Hymenoptera, 9 of the Hemiptera, 3 Lepidoptera, 2 Isoptera and one each of Ephemeroptera, Odonata and Mantodea. As far as therapeutic uses of insects are concerned, 4 species (Hemiptera) were mentioned by the Wangcho (Wancho). Food insects are chosen by members of the various tribes according to traditional beliefs, taste, regional and seasonal availability of the insects. Depending on the species, only certain, but sometimes all, developmental stages are consumed. Preparation of the food insects for consumption involves mainly roasting or boiling. With the degradation of natural resources, habitat loss, rapid population growth, and increasing ‘westernization’, the traditional wisdom of North-East Indian tribals related to insect uses is at risk of being lost.

Keywords: Edible insects, Wangcho (Wancho), Nocte, Singpho, Tangsa, Deori, Chakma, Traditional wisdom, Biodiversity
Indigenous knowledge of zootherapeutic use among the Biate tribe of Dima Hasao District, Assam, Northeastern India

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Abstract

Background: The present study addresses the use of zootherapy in the traditional healthcare system of the Biate tribe of Dima Hasao district, Assam, India. It sought to identify the different species used for zootherapeutic use with the detailed methods of usages to create awareness and contribute to the conservation and sustainable utilization of the resources.

Method: 15 Biate villages within the district of Dima Hasao were surveyed through semi-structured questionnaires and informal interviews. Detailed information on the uses of each animal was recorded. Species were identified using standard literature. Fidelity level (FL) was calculated to demonstrate the percentage of respondents claiming the use of a certain animal for the same major purposes.

Result: The study documents 34 species for the treatment of about 34 different ailments. The largest number of species reported was mammals with 17 species. Maximum number of species has been reported for the treatment of diabetes and its high fidelity levels warrants in-depth studies to establish its pharmacological activity. The usages documented herein are unique to the Biate tribe. Very often, these animals are hunted and sold openly at the local markets in the lure of quick money. A 300 gm live Gekko gecko may fetch a sum of 250,000 Indian Rupees (INR), and smoked meat of Hoolock hoolock cost approximately 250–300 INR per kg. Animals are also hunted for its hide. The unrestricted hunting of species like Capricornis sumatraensis has almost wiped out the population within the district. Some species are also reared as pets while some are used for display as a sign of expertise in hunting. The present study has documented the usage of at least 15 animals listed in the IUCN Red List.

Conclusion: The study illustrates the in-depth knowledge of the Biate tribe on zootherapy. Systematic investigation to identify the active ingredient may lead to the development of new drugs, which would prompt protection of these valuable resources.

Keywords: Ethnozoology, Zootherapy, Biate, Dima Hasao, North Cachar Hills
Traditional uses of herbal vapour therapy in Manipur, North East India: An ethnobotanical survey
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Abstract
Ethnopharmacological relevance: Vapour-based medicines are an aspect of traditional medicine in North East India. However, no collective studies on this therapy in the region have been attempted. With the changing perception of traditional knowledge, documenting these herbal preparations and the subsequent development of baseline data for applications in further ethnopharmacological research are needed.

Aims of the study: To survey and document the plant species associated with vapour therapy in Manipur, North East India, and to evaluate these traditional practices.

Materials and methods: Semi-structured questionnaires were used to collect information from the Meitei community in the Imphal valley and the Jiribam area in Manipur. Traditional disease concepts were studied along with their corresponding medical terminologies. Plant samples collected from fields, healers’ private collections and home gardens were identified. Evaluation of the ethnobotanical data was performed with a modified fidelity level index.

Results: In the study, 41 traditional disease complexes were treated by 13 different routes of administration using 48 mono-ingredient and 17 multi-ingredient compositions. Preparation methods included boiling in water (28%), burning the materials (48%), crushing the materials to release the aroma (21%) and slight heating of the materials (3%). Some of the mono-ingredient recipes reported in the study were observed to have similar uses in other parts of the world, whereas polyherbal remedies were found to be unique without any similar report.

Conclusion: Many compositions mentioned in the paper are still used by the Meitei community. Traditional healers follow their own criteria for selecting medicinal plants. Plants recorded in this ethnobotanical study can suggest methods for selecting and identifying potentially effective plants for future drug candidates. Scientific characterisation of the herbal remedies can contribute to the endorsement of traditional vapour-based therapies in the modern health care systems. Findings from these “new usage” reports of plants and unique combinations of polyherbal compositions indicate the importance of such documentation efforts.

Keywords: Traditional medicine, Medicinal plant, Medicinal smoke, North East India, Manipur, Vapour inhalation.
Ethnomedicinal plants used for treating epilepsy by indigenous communities of sub-Himalayan region of Uttarakhand, India

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Abstract

**Ethnopharmacological relevance:** Although many plants are claimed to possess anticonvulsant/antiepileptic (AC/AE) properties, but there is very little information available about plants used by various ethnic communities in different parts of India to treat epilepsy, one of the most common disorders of central nervous system (CNS); this communication provides significant ethnomedicinal information on the plants used by indigenous communities: Bhoxa, Tharu and nomadic Gujjar of sub-Himalayan region, Uttarakhand, India to treat epilepsy, so that it could be used as a baseline data for studying chemical constituents and biological activities of these promising plants.

**Aims of the study:** To record herbal preparations used by the presently studied communities for treating epilepsy and discuss AC/AE properties of the recorded plants.

**Research strategy and methods:** Ninety one traditional healers (29 Bhoxa, 35 Tharu and 27 nomadic Gujjars) in sub-Himalayan region of Uttarakhand, India were interviewed to collect information on herbal preparations used by them for treating epilepsy. For each recorded species the use value (UV) and fidelity level (FL) was calculated.

**Results:** A total of 24 plants belonging to 24 genera and 22 families were used by the presently studied communities in 26 formulations to treat epilepsy. According to FL and UV values, most preferred species for the treatment of epilepsy by Bhoxa community are *Ricinus communis* L. and *Datura stramonium* L.; by nomadic Gujjar community are *Martynia annua* L., *Bacopa monnieri* (L.) Wettst. and *Ricinus communis* L.; and by Tharu community are *Allium sativum* L., *Asparagus racemosus* Willd. and *Achyranthes aspera* L. Eight plants viz., *Allium sativum* L., *Boerhavia diffusa* L., *Cassia fistula* L., *Clerodendrum viscosum* Vent., *Datura stramonium* L., *Inula cappa* DC., *Oroxylum indicum* (L.) Kurz and *Pavetta indica* L. recorded in the present survey have been reported for the first time in treatment of epilepsy by these indigenous communities in India. Five out of these eight newly reported plants viz., *Cassia fistula* L., *Clerodendrum viscosum* Vent., *Inula cappa* DC., *Oroxylum indicum* (L.) Kurz and *Pavetta indica* L. have not been pharmacologically evaluated yet for their possible AC/AE properties.

**Conclusions:** Detailed research on the listed plants and their derivatives may be undertaken to provide new alternative treatments and therapeutic uses for epilepsy or other diseases of CNS. We hope that this article will stimulate further investigations into natural products for new AC/AE agents from the recorded ethnomedicinal plants.

**Keywords:** Anticonvulsant, Antiepileptic, Bhoxa, Nomadic, Gujjar, Tharu, Treatment
Study on Medicinal Resources of Protected Areas of Mandi District, North West Himalaya
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Abstract
The Himalaya is considered as the repository of the biological diversity due to its unique climatic conditions, topography and diverse habitats. Northwest Himalaya and Himachal Pradesh in particular has a rich and varied heritage of medicinal plants, encompassing a wide spectrum of habitats from tropical to alpine vegetation. For conservation of biodiversity, establishment of protected areas has been a vanguard step. The present study encompasses the wild medicinal plant wealth of two Wildlife Sanctuaries of Mandi district, India. This study incorporates 66 species of medicinal plants belonging to 49 families in which 5 trees, 8 Shrubs, 52 Herbs and 1 is climber. Furthermore, 31 species are native to the Himalayan region and rests are alien to the Himalayan region. Various plant parts used are, roots of maximum plants (16), followed by leaf (15), seed (08), stem (06), tuber, flower (05 each) etc. Maximum plants used in curing fever (16), followed by asthma and jaundice (15 each), for rheumatism, piles and skin complaints (12 each) etc.

Keywords: Medicinal Plants, Biodiversity, Indian Himalayan Region, Nativity

Medicinal Plant Diversity in Dhundsir Gad Watershed of Garhwal Himalaya, Uttarakhand, India
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Abstract
The present study was carried out in the Dhundsir Gad Watershed of Garhwal Himalaya, Uttarakhand (India) to document the diversity and utility of medicinal plants. The inhabitants of the region are dependent up to a large extent on wild resources for their remedial needs. The region is rich in medicinal plant diversity having 125 species belonging to 111 genera and 57 families. Out of the documented plant species 48 were herbs, 39 shrubs, 18 trees and 20 climbers in this area. Plant parts of the species were used to cure different diseases such as cuts and wounds (24 species), fever (19), skin diseases (18), cough (14), asthma and bronchitis (12), stomach troubles/constipation (12), arthritis/muscular/joint pain (11), diarrhea (10), urinary troubles (10), etc. A list of ethno-medicinal plants along with their local name, plant part(s) used and mode of administration for effective control in different ailments has been given. This study will be helpful in developing a comprehensive data base on the medicinal plant resources to strengthen the health care system in the area and in conserving the traditional knowledge for the prosperity of the region.

Keywords: Medicinal plant diversity, ethnomedicine, traditional knowledge, Dhundsir Gad Watershed, Garhwal Himalaya.
Informants’ consensus on ethnomedicinal plants in Kedarnath Wildlife Sanctuary of Indian Himalayas

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Abstract
The present study was carried out in the protected area of Greater Himalayas, Uttarakhand, India. The study was carried out to understand the consensus on medicinal plants by inhabitants of Kedarnath Wildlife Sanctuary. The study documented 21 plant species that are used medicinally in 17 ailment categories. Out of 21 plant species, 12 species were reported for a single ailment separately and 8 species were reported by informants for more than one ailment. The consensus of informants for the roots and rhizomes were the most frequently used plant parts (68%). The plants which are under rare list in IUCN Red List category observed in the study area are Picrorhiza kurrooa, Aconitum heterophyllum and Podophyllum hexandrum. The Consensus index factor (Fic) was found to be higher in the Haematological illness category (1.00) followed by Dermatological and Ophthalmological category which was (0.98).

Key words: Ethnomedicinal plants, consensus, informants, ailments, Himalaya.

Traditional use of medicinal plants in district Chamoli, Uttarakhand, India

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Abstract
Uttarakhand has a rich wisdom of traditional system of medicine since time immemorial. There is urgent need to document the medicinal and aromatic plants associated traditional knowledge which is vulnerable to shrink. Present study is an attempt to document the traditional system of medicine; used by the native communities of district Chamoli, Uttarakhand, India. On the basis of semi-structural questionnaire and in consultation with the local herbal practitioner (Vaidyas), 124 species belonging to 59 families and 108 genera, used for the treatment of 39 diseases were documented. About 38% of the species were used for their roots/rhizomes, followed by leaves (28%), fruits/seeds (10%) and whole plant (6%). Seeds, barks, flowers, twigs/branch and gum of less than 5% species were used for curing diverse form of diseases. About 16% of the recorded species were used for treating fever (20 spp.), 14% for skin diseases, 12% for Joint pains, 8% for cough and cold and stomach related disorders and 7% for blood pressure. 58 plants were used to cure more than one ailment, while 66 plants were used for single therapeutic application. Most of the species used in traditional healthcare in the region were harvested from wild. As a result of destructive harvesting, 13 species out of 124 recorded species are enlisted as threatened in Uttarakhand. Among these, 5 are critically rare, 5 are endangered and 3 are in vulnerable category. This study thus underlines the importance of traditional knowledge associated with medicinal and aromatic plants used for the treatment of different diseases.

Key words: Ethnobotany, Himalaya, primary healthcare, traditional knowledge, conservation, Asteraceae.
Ethnobotanical notes on 30 medicinal polypetalous plants of district Kangra of Himachal Pradesh

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Accepted 15 May, 2013

Abstract

District Kangra is the most populous district, located on the South-Western end of the Himachal Pradesh, a hilly state of the Western Himalayas. The geographical area of district Kangra is 5,739 km2, making 10.31% of the total area of the state. The importance of medicinal plants in traditional healthcare practices, providing clues to new areas of research and in biodiversity conservation, is now well recognized. However, information on the uses of plants for medicine is lacking from many interior areas of district Kangra. Keeping this in view, the present study was initiated in a tribal vicinity of district Kangra. The study aimed to look into the diversity of plant resources that are used by local people for curing various ailments. It was found that 30 polypetalous plant species are commonly used by local people for curing various diseases. In most of the cases (34.37%), leaves were used for curing the various health problems.

Key words: Ethnobotany, polypetalous medicinal plants, district Kangra, Himachal Pradesh.

An ethnobotanical survey of medicinal plants used by Gujjar Community of Trikuta Hills in Jammu and Kashmir, India

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Abstract

Plants are integral source of medicine in the rural areas, particularly in the tribal communities. An ethnobotanical survey on the medicinal plants used by the Gujjar community of the Trikuta hills, one of the least explored areas of the Jammu and Kashmir state of India, was undertaken. Information on the medicinal plants was mainly gathered from local people and traditional healers through questionnaires, and formal and informal discussions by undertaking frequent field trips. Seventy plants belonging to 43 different taxonomic families were recoded in the study area. Majority of the plants were herbs, though trees, shrubs, climbers and some epiphytes were also found. Leaves were ranked as the commonest part being used followed by roots and whole plants. More than one plant part was in use for the cure of different ailments. Most of these plants were used as decoctions, pastes, herbal teas or tonics and administered orally. Some of the plants encountered in the study area were rare and endangered thus inviting the attention for their conservation and preservation.

Key words: Folk herbal remedies, Gujjar community, traditional medicines, Trikuta hills (Jammu and Kashmir).
Indigenous uses of medicinal plants by the Vanraji tribes of Kumaun Himalaya, India

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Accepted 19 September, 2013

Abstract

The uses of medicinal plants in traditional healthcare practices and its importance in providing clues to new areas of research and in biodiversity conservation is now well recognized. This study aimed to look into the diversity of plant resources that are used by Raji people for curing various ailments. Questionnaire surveys, participatory observations and field visits were elicited information on the uses of various plants. It was found that 48 plant species were used by local people for curing various diseases, which are categorized under 14 broad classes.

Key words: Plant population, Raji, disease, ethno-medicines, medicinal plants.

Ethnomedicinal plants of Chamba district, Himachal Pradesh, India

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Abstract

Importance of medicinal plants in traditional healthcare practices provides clues to new areas of research and biodiversity conservation is now well known. However, information on the use of plants for medicinal purpose is lacking from many tribal areas of Himachal Pradesh. Keeping this in view, the present study was undertaken in a tribal dominated area of Chamba district, to look for the diversity of plant resources, used by local people for curing various ailments. Questionnaire surveys, field visits and participatory observations were planned to collect information about the uses of various plants. It was found that 50 plant species are being commonly used by local people to cure 26 diseases. In most of the cases, leaves (40%) followed by roots (24%) were used to cure many health problems. New medicinal uses of Achyrantes bidentata, Cannabis sativa and Stellaria monosperma were also reported for the first time.

Key words: Medicinal plants, Chamba district, Himachal Pradesh.
Study on ethnomedicinal plants of Kibber Wildlife Sanctuary: A cold desert in Trans Himalaya, India

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Abstract
The present study aimed to document the use of ethnomedicinal plants by Bodh or Bhotia tribe residing around Kibber Wildlife Sanctuary, a cold desert protected area in trans Himalayan Region. First-hand information on traditional knowledge was collected from Amchis (Folk healers) and local knowledgeable people of age groups that are between 30 and 75 years along with thorough review of previous studies in Indian Himalayan Region. Informants citations were also recorded for various ailments for which the species were used by which authenticity of the uses made can be assessed. The study provides information on the indigenous uses of 69 plant species, which are distributed among 25 families and 54 genera, that is, Angiosperms (24 families, 53 genera and 68 species), Gymnosperms (1 family, 1 genus and 2 species). Out of the total plants, 65 were herbs and four were shrubs.

Key words: Cold desert, ethnomedicinal, medicinal plants, traditional knowledge, Indian Himalaya.

Assessment of Ethnomedicinal Plants in Shivalik Hills of Northwest Himalaya, India

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ABSTRACT
This study was conducted to document the traditional knowledge on the utilization pattern of medicinal plants from the Shivalik hills of north western Himalaya. The local stakeholders were interviewed and data on the species such as the botanical name, family, local name, habit, part used and their traditional methods of drugs administration in different ailments was presented. The informant consensus factor (ICF) and use value (UV) was calculated to know the relative importance of each species. The paper enumerated 143 species belonging to 123 genera and 59 families. Ailments were categorized into 17 categories. Most of the species were used for treating dermatological disorders followed by gastrointestinal, skleto-muscular, respiratory and common fever etc. 58 % species were reported from wild sources, 16 % were from cultivated home gardens and 26 % were collected from both cultivated and wild sources. The use value of plant species were ranged from 0.15 to 1.70. The informant consensus factors for different ailment category ranged from 0.67 to 0.83. The study concluded that the systematic documentation and conservation of local medicinal plants and traditional herbal knowledge will be helpful for botanical and pharmacological research in future.

Keywords- Ethnomedicinal plants, Himalaya, Informants consensus factor, Shivalik hills, Use value.
ETHNO MEDICINAL SURVEY OF PLANTS FROM KUPWARA, J&K, INDIA

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Abstract

The present study was carried out around the selected areas of Kupwara District (Chowkibal, karnah, keran, jumagand). The study was aimed to document the traditional folk knowledge of local people about the use of medicinal plants as ethno medicines. A floristic and ethno botanical survey was carried out in selected areas of Kupwara J & K, India during 2011-13. Field surveys were conducted during the different seasons of the area to collect data about the knowledge and practice of using wild plant species by local people. The data collected reveals that about 70 plant species belonging to 41 families find use in day to day life. Plant parts are used to cure cold, cough, piles, blood purifier, toothache, stomach disorders etc.

Key words: Disease, Ethno botany, Folk knowledge, Medicinal plants, Survey.

TRADITIONAL USES OF SOME MEDICINAL PLANTS OF HAMIRPUR DISTRICT OF HIMACHAL PRADESH FOR THE TREATMENT OF DIABETES

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Abstract

Diabetic problem is the common problem among the people of this region. This region is well developed by all means; still the peoples of this zone have a good deal of knowledge on local plants used for many diseases such as jaundice, piles, skin diseases and diabetes etc. The traditional healers have a huge amount of knowledge of medicinal plants which are used for diabetic problems and other health problems. The present study reveals the use of 19 plants especially used to cure diabetic problem.

**Diversity and uses of ethno-medicinal plants associated with traditional agroforestry systems in Kumaun Himalaya**

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Received: 11 April 2014; Revised accepted: 8 October 2014

**Abstract**

Uttarakhand state is bestowed with great diversity of medicinally important plants which are used frequently by the local people/inhabitants to cure various ailments in their daily life. Traditional agroforestry is a common land use pattern in Uttarakhand which supports various indigenous medicinal plants. The present study provides comprehensive information on the diversity and utilization of medicinally important plants in existing traditional agroforestry systems. The information was gathered using semi-structured questionnaires about the types of ailments treated by the traditional use of medicinal plants, preparation of herbal medicine and formulations. A total of 68 plant species belonging to 38 families and 63 different genera, were reported from agroforestry systems of this region. The families; Rosaceae, Asteraceae, and Verbenaceae were represented by more than 3 species each and dominated the floral composition while remaining 35 families were represented by single species. Different plant parts such as roots/rhizomes/bulbs, leaves, bark, fruits, seeds, flowers, stem and whole plant were used for the treatment of various diseases.

**Key words:** Agroforestry, Biodiversity, Ethno-botany, Indigenous knowledge; Local communities.


**SURVEY ON TRADITIONAL USES OF MEDICINAL PLANTS OF BAGESHWAR VALLEY (KUMAUN HIMALAYA) OF UTTARAKHAND, INDIA**

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**Abstract**

This paper communicates the traditional uses of medicinal plants of Bageshwar valley of Uttarakhand. Aims of the study were to document the medicinal plant and their indigenous traditional use patterns by local population. A total of 158 taxa belonging to 83 families were reported as locally used for various medicinal purposes. These medicinal plants used against various diseases e.g. asthma, cough, malaria, tuberculosis, cancer, abdominal pain, cholera, piles, tumor, headache, snakebites, jaundice, diarrhea, dysentery etc. Observation of the site showed that vegetation of the area was generally threatened due to deforestation, over grazing, habitat fragmentation, un-scientific extraction, and habitat loss. Measures for the conservation of plant resources especially medicinal plants of Bageshwar valley (Kuamun Himalaya) are urgently needed.

**Keywords:** Kumaun Himalaya; Medicinal Plants; Vegetation; Conservation; Bageshwar Valley.
Abstract

Liver is the largest organ inside human body and its diseases are some of the major causes of morbidity and mortality all across the globe. Traditional medicines are very important part of rural healthcare in the developing counties and may provide important clue for development of new drugs. Jammu & Kashmir (J&K), a predominantly Himalayan state in the north-western part of India is bestowed with a variety of natural resources including various important medicinal plants and is home to large numbers of indigenous communities. Aim of the present review is to provide a comprehensive list of hepatoprotective medicinal plants used by indigenous communities of J&K for treatment of liver ailments. Scientific literature on ethnomedicinal field studies conducted in J&K state of India was searched to record the hepatoprotective plants used by the indigenous communities of the region. Review of literature revealed that, a total of 103 plant species belonging to 94 genera and 52 families were used by indigenous communities of J&K to treat various liver diseases. Maximum number of species used to treat liver diseases belonged to family Asteraceae (13 spp.) followed by Apiaceae (9 spp.), Ranunculaceae (5 spp.), Lamiaceae (5 spp.), Leguminosae (4 spp.) and Amaranthaceae (4 spp.). Whole plant (57) was used in maximum number of preparations followed by root (56), leaf (28), flower (20), fruit (19), seed (12) and stem (10). Bupleurum was the most preferred genus for treatment of liver related ailments with maximum number of four species used, whereas 2 species each of genus Delphinium, Adiantum, Iris, Viola, Berberis and Saussurea were used. Some of the listed plants have also showed antioxidant as well as hepatoprotective properties in the earlier studies. The presented information will serve as a baseline data to initiate further research for discovery of new hepatoprotective compounds from these potential plants.

Keywords: Jammu & Kashmir, Ladakh, Jaundice, hepatoprotective.
Pattern of traditional medicine usage in East Khasi Hills of Meghalaya

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Abstract
The present paper reports the usage trend of traditional medicine among the indigenous Khasi population of East Khasi Hills district, Meghalaya. The study recorded a high percentage of usage of herbal home remedies for common and minor ailments. Between the C & RD blocks, there is some difference with respect to usage. Further, for all three blocks studied distance and literacy did not influence usage of herbal medicine. A highly significant difference (p< 0.01) was observed on the frequencies of herbal medicine consultation per year, by the respondents. A large majority of the respondent shows duality vis-à-vis allopathic versus local health practices. Allopathy comes into play when home remedies fails. The difference in the preferences of respondents between these two systems of medicine is significant at p<0.01. Amongst the different population categories consulting the LHPs, adults record the maximum number, in all the three C & RD blocks. The difference between the three population categories is significantly high (p<0.01) in Mylliem block whereas the difference are insignificant (p>0.01) in Mawkynrew and Shella-Bholaganj blocks.

Keywords: Usage trend, Herbal medicine, Khasi tribe, East Khasi Hills district, Meghalaya

Pharmacology, phytochemistry and traditional uses of Cordyceps sinensis (Berk.)Sacc: A recent update for future prospects

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Abstract
This review highlights the pharmacology, biological properties and traditional uses of a very important folklore medicine, known as ‘Keeda jadi’. In nature, it is found at high altitudes of 3500-5000 m on the high Himalayan mountains in India, Nepal and Tibet. It is an entomo-fungal combination of a larva of small moth, Hepialus armoricanus and a parasite fungus Cordyceps sinensis. Cordyceps is best known medicine for increasing physical stamina and sexual functions. It has been traditionally used to treat patients with heart disease and also shown to increase liver, kidney and lung functions. C. sinensis is unique and valuable for its medicinal properties. Many studies support that it has diverse biological activities and pharmacological potential, while it is not extracted sustainable in planned way. So, awareness and scientific knowledge is very necessary for the future prospects of Cordyceps such as conservation, sustainable harvesting, cultivation practices and trade.

Keywords: Cordyceps sinensis, Pharmacology, Traditional uses, Cordycepin
Gewai saag: A folk medicine used by the tribal people of Central Himalayan region

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Abstract

Gewai saag is a folk medicine prepared by the leaves and the young stem of the Solanum nigrum L. This medicine is frequently used by the tribal and the local community of Uttarakhand state to relief of various sort of body pain. The medicine is highly effective in the joint pain and rheumatism. This article describes the method of preparation of the medicine and its applications along with an objective to conserve the practices of traditional knowledge of plant and plant’s products.

Keywords: Solanum nigrum, Traditional knowledge, Folk medicine, Uttarakhand, Tribal people
Ethnomedicinal plants used by the villagers of district Udhampur, J&K, India

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Abstract

Plants are an integral part of life in many indigenous communities. Besides, being the source of food, fodder, fuel, etc., the use of plants as herbal medicines in curing several ailments goes parallel to the human civilization. Ethnopharmacology involves the investigation of the plants used by the traditional communities and further understand the pharmacological basis of these culturally important medicinal plants. Present study was conducted to enlist the medicinal plants used by the local inhabitants of Udhampur district of Jammu and Kashmir, India.

Material and methods: Direct interviews of the 182 informants were conducted. The data generated through interviews was analysed using quantitative tools like use-value, factor informant consensus and fidelity level.

Results: A total of 166 species of flowering plants belonging to 63 families and 145 genera were observed to be medicinal and used to cure 78 ailments. Medicinal plants were mainly from Asteraceae, Solanaceae, Lamiaceae, Poaceae, Fabaceae and Amaranthaceae families. Leaves were the most used plant part in the medicinal preparations. The most important medicinal species of the present study site as per the use-value (UV) were: Achyranthes aspera, Zanthoxylum armatum, Acorus calamus, Syzygium cumini, Phyllanthus emblica, Plumbago zeylanica etc. The important ailment categories classified on the basis of factor informant consensus (Fic) were diabetes, external parasite, liver complaints and gastrointestinal disorders. The maximum number of species was utilized to cure gastrointestinal and dermatological ailments. Important species for each ailment category were also assessed using fidelity level. It was found that the older informants provided more information about the ethnomedicinal plants, but this valuable treasure of traditional knowledge is depleting significantly with the decrease in age and increase in educational level.

Conclusion: The results of present ethnobotanical survey reveal the rich wealth of indigenous knowledge associated with the villagers of Udhampur district. A number of plants with a high citation values have given some leads for the further pharmacological research. Apart from these highly cited plants, studies need to be done on some other promising plants like Anagallis arvensis, Euphorbia hirta, Ficus benghalensis, Fumaria indica, Prunus persica, Rubus ellipticus, Taraxacum officinale, Tribulus terrestris etc.

Keywords: Ethnopharmacology field study, Traditional medicine, Use-value Factor informant consensus, Fidelity level
Indigenous knowledge of medicinal plants used by the Reang tribe of Tripura state of India

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Abstract

**Ethnopharmacological relevance:** Traditional remedies used for the treatment of various ailments are considered to be very important in the primary health care of Reang people living in Tripura state of Northeast India. Novel information gathered from the present investigation is important in preserving folk indigenous knowledge of Reang tribe.

**Methods:** Systematic and exhaustive field surveys were conducted during 2003 to 2004 in Reang inhabited areas of Tripura state of Northeast India covering all the seasons, to gather information on medicinal herbs used by them in the treatment of various ailments. Information was collected from 55 traditional herbalists of different age through structured questionnaires and personal observations made during the field visit. The data obtained was analyzed through informant consensus factor ($F_{IC}$) to determine the homogeneity of informant's knowledge on medicinal plants also the fidelity level (FL) to authenticate the uniqueness of a species to treat a particular ailment.

**Results:** In the present study a total of 125 medicinal plant species belonging to 116 genera and 59 families were presented, used for treating 42 different ailments. The major plant parts used are leaves and most of the remedies are suggested to take orally. The greatest parts of plants used for curing various ailments were found locally. The consensus analysis revealed that the fever and gastro-intestinal diseases have the highest informant consensus factor ($F_{IC}$) of 0.79 followed by the dermatological problems ($F_{IC}$0.78). It is equal ($F_{IC}$ 0.77) for both general health problems and inflammation and pain while urinogenital problems showed relatively low levels of consensus ($F_{IC}$ 0.63). The level of informants' consent was high for most ailment categories indicating greater homogeneity among informants. In the present study we analyzed the disease categories to highlight some of the important plant species in terms of Fidelity level. Greater parts of the plant species achieve highest fidelity level, while only 4% acquire lower FL. The species with high citation and informant concurrence value are reasonably significant. *Cyathea*, a rare tree fern used for major cuts or wounds for immediate blood coagulation. Extensive local application may threaten the species if not judiciously managed.

**Conclusion:** The traditional pharmacopoeia of the Reang ethnic group incorporates a myriad of diverse flora available locally. Traditional knowledge of the remedies is passed down through oral traditions without any written document. This traditional knowledge is however, currently threatened mainly due to acculturation and deforestation. Therefore, documenting medicinal plants and associated indigenous knowledge can be used as a basis for developing management plans for conservation and sustainable use of medicinal plants of the study area. In addition, findings of this study can be used as an ethnopharmacological basis for selecting plants for future phytochemical and pharmaceutical studies.

**Keywords:** Ethnomedicinal plants, Traditional knowledge, Reang tribe, Tripura state, Informant consensus factor, Fidelity level
An ethnobotanical study of medicinal plants used in sacred groves of Kumaon Himalaya, Uttarakhand, India

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Abstract

**Ethnopharmacological relevance:** International organizations recognize the importance of sacred groves and place them into the context of sustainable development and also emphasize to conserve biodiversity through protection of sacred groves and sties. The significance of medicinal plants from Himalayan region is well known to the world. Therefore, present study was conducted in identified sacred groves of Kumaon Himalaya to investigate and document the utilization of medicinal plants by various local communities and tribal people.

**Materials and methods:** The study was conducted during 2008–2011 in four seasons of the year. Information was collected from 70 locals from different sacred groves by using free listing interviews with randomly selected informants and semi-structured questionnaires; plant specimens were collected, identified and deposited at the CSIR-NBRI herbarium (LWG), Lucknow, India.

**Results:** Seven sacred groves viz., Dhwaj, Haat Kali, Hokra, Malay Nath, Nakuleshwar, Narayan Swami Ashram and Patal Bhuvneshwar were identified from the Pithoragarh district of Kumaon Himalaya. 89 medicinal plants belonging to 52 families and 77 genera of which, 2 are lichens, 4 are pteridophytes, 3 are gymnosperms and remaining 80 plant species are angiosperms. 6 plant species are reported with new therapeutic uses for the first time in this paper. Highest informant's consensus factor value was found in liver disorder (0.55) and least by body pains (0.23). 55 ethnomedicinal plants are showing 100% fidelity level against various diseases.

**Conclusion:** Sacred groves in Kumaon region of Indian Himalaya are rich sources and best repository of ethno-medicinally important plants with many rare, endangered and threatened species. It is an excellent example of unique traditional way of in situ conservation of different plant species.

**Keywords:** Kumaon Himalaya, Sacred grove, Ethnobotany, Traditional knowledge, Conservation.
A cross-cultural analysis of Jammu, Kashmir and Ladakh (India) 
medicinal plant use

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Abstract

Ethnopharmacological relevance: Jammu & Kashmir (J&K) is a predominantly Himalayan state in the north-western part of India. It has three geographically distinct divisions viz., Jammu, Kashmir and Ladakh, which are immensely rich in their biological and cultural diversity. Medicinal plants are an important element of indigenous medical system of the region. The main goal of the present article is to examine the use of ethnomedicinal plants in three divisions of J&K and to discuss cross-cultural consensus on the use of medicinal plants in these divisions. The article also discusses the gaps in the current state of knowledge on ethnomedicinal plants of the region and gives recommendations for the future studies.

Materials and Methods: Scientific literature on ethnomedicinal field studies conducted in J&K state of India available in the journals, edited books and other scientific databases viz., CAB international, DOAJ, Google Scholar, PubMed, Science direct, SciFinder, Scopus and Web of Science were searched. Only field based ethnomedicinal surveys from last four decades up to December 2013 reporting first hand information on the medicinal plants used to treat human health related ailments by indigenous communities of J&K were included in this study. Venn diagram was used to analyze the cross-cultural consensus on the use of ethnomedicinal plants in the three divisions of J&K.

Results: A total of 948 plant taxa (923 angiosperms, 12 gymnosperms and 13 pteridophytes) belonging to 129 families, 509 genera, 937 species and 11 varieties have so far been reported to have a traditional medicinal use by indigenous communities of J&K. Asteraceae (60 genera, 132 spp.) was the most frequently used family followed by Fabaceae (32 genera, 50 spp.) and Lamiaceae (27 genera, 55 spp.). 514, 415 and 397 medicinal plants were used in Jammu, Kashmir and Ladakh divisions, respectively. Sixty eight plant taxa were used in all the three divisions, whereas 95 plants were common between Ladakh and Jammu, 127 plants between Ladakh and Kashmir, and 216 plants between Jammu and Kashmir. Maximum numbers of plant taxa were used for treating dermatological problems (321), followed by cold, cough and throat related ailments (250), fever (224), joint and muscle related ailments (215), gastrointestinal disorders (210), urogenital ailments (199), respiratory ailments (151), body pain (135) and gynecological disorders (127).

Conclusions: This is the first study from the J&K state, which has examined the medicinal plant use in three divisions of J&K and discussed the promising medicinal plant species with cross-cultural consensus. The analysis of the data suggested that while large numbers of plants are used medicinally in each division, there is a low interregional consensus and high variation between medicinal plants used in these divisions, which is due to both cultural divergence as well as biological distinctness. The issues related to current status of knowledge on medicinal plants used by indigenous communities of J&K have been discussed and some recommendations have been made for future studies on medicinal plants in J&K region.

Keywords: Consensus, Jammu Kashmir, Ladakh, Medicinal, plants, India
Ethnomedicinal plants used to treat skin diseases by Tharu community of district Udham Singh Nagar, Uttarakhand, India

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Abstract

Ethnopharmacological relevance: Tharu community is the largest primitive indigenous community of the Uttarakhand, India. In this article we have scientifically enumerated medicinal plants and herbal preparations used by the Tharu community to treat various skin diseases, and discussed dermatological properties of these plants in the light of previous ethnomedicinal, microbiological, pharmacological, toxicological, phytochemical and clinical studies.

Materials and methods: Ethnomedicinal survey was conducted in different villages of Tharu community located in district Udham Singh Nagar, Uttarakhand, India. Ethnomedicinal information on plants used to treat various skin diseases was collected from 122 individuals (93 males and 29 females), including 35 experienced herbal practitioners and 87 local villagers. For each of the recorded plant species the use value (UV) and fidelity level (FL) was calculated. The informant consensus factor (Fic) was also calculated to find out the homogeneity in the information given by the informants.

Results: A total of 90 plant species belonging to 86 genera and 48 families were used by the Tharu community to treat various skin diseases viz., wounds (38 spp.), boils (32 spp.), cuts (18 spp.), leprosy (11 spp.), eczema (10 spp.), itching (7 spp.), ringworm (5 spp.), burns (4 spp.), leucoderma (4 spp.), cracked heels (2 spp.), dandruff (3 spp.), body infection (2 spp.), chilblains (2 spp.), hair fall (2 spp.) and toes infection (2 spp.). Information on botanical name, family, vernacular name, ailments treated, mode and dose of herbal preparations, UV and FL values are provided for each of the recorded species. According to UV value most preferred plant species used to treat skin diseases by Tharu community was Ricinus communis L. followed by Tridax procumbens (L.) L., Azadirachta indica A. Juss., Ageratum conyzoides and Allium cepa L.

Conclusions: The present study has revealed significant information on various medicinal plants used to treat skin diseases by Tharu community. Literature review has confirmed most of the claims made by the Tharu community regarding treatment of various skin diseases by the reported plants. The literature review has also revealed that products from very few of the reported plants are available in market, while most of the reported plants are still under preclinical or clinical trials. There are various known phytochemicals, and antibiotic, antibacterial, antiviral and antifungal agents present in these plants which may be synthesized or transformed to make pharmaceuticals. Some of the reported plants have shown promising results in preclinical trails and there is a need of clinical trials to see their safety and efficacy in treating various skin diseases. These plants may be targeted for development of new medicines, ointments or drugs for the treatment of skin diseases. However further toxicological, preclinical and clinical studies are needed to validate claims about little worked out plant species reported in the present study viz., Sida cordata (Burm. F.) Borss. Waalk., Millettia extensa (Benth.) Baker, Caesalia axillarisRoxb., Ehretia laevis Roxb., Vanda tessellate (Roxb.) Hook.Ex G.Don. and Eualaliopsis binata (Retz.) C.E. Hubb. Further studies on these plants are recommended to assess their potential in development of new skin care products.

Keywords: Antioxidant, Antimicrobial, Anti-inflammatory, Toxicological, Wound healing, Tyrosinase inhibition
Plants based drugs used for diabetes by the people of Himachal Pradesh (India)

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Abstract

Traditional medicine is the synthesis of therapeutic experience of generations of practicing physicians of indigenous systems of medicine. Throughout the history of mankind, many infectious diseases have been treated with herbals. The traditional medicine is increasingly solicited through the tradipractitioners and herbalists in the treatment of infectious diseases. The present study is based on the survey work conducted on medicinal flora of Himachal Pradesh (India). The study focused on the documentation of traditional knowledge of local persons regarding the use of native plants for prevalent lifestyle disease, Diabetes. Interviews of local residents and herbal doctors, who are the main users of these medicinal plants, were conducted and recorded. A total species belonging to 25 families were found to be used by local people for diabetes. The locals use these plants in different ways to get relief from the disease. An interesting finding is the use of wood of diabetes. Pickled of fruits of ripened fruits of Solanum nigrum effective remedies for the disease.

Keywords: Diabetes, Himachal Pradesh, Traditional knowledge

Ethno-medicinal plants used by Bengali communities in Tripura, northeast India

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Abstract

Northeastern India has high medicinal plant diversity due to variance in topography and physiognomy. We documented the uses of various medicinal plants by the Bengali people of West district and South district of Tripura state for their own health care as well as for domesticated animals. Based on semi structured interviews, group discussions and information from local informants, a total of 93 species of medicinal plants of 52 families and 83 genera were documented. These plants were used to treat more than 55 different human diseases and 6 diseases of livestock. Sixty-eight plant species were used singly and the rest were used in combination with other species for therapeutic formulations of various diseases. Leaves of plants were most often used for most of the ethnobotanical preparations. Maximum consensus value of 96% was recorded for Chromolaena odorata (L.) King & H. Rob., and the minimum was 15% for Bambusa balcooa Robx. Of the 93 plant species, 75 species showed pharmacological properties. Prospects for augmenting existing knowledge and enhancing the use of traditional medicinal plants are discussed.

Keywords: ethnobotanical survey, Bengali community, traditional knowledge, Tripura state, Northeast India
The efficacy of herbal system of medicine in the context of allopathic system in Indian Central Himalaya

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Abstract

Herbal medicine is part of the knowledge of indigenous cultures and marginal societies across the globe which has stood the test of time. A comparative study was conducted into traditional healing and community wellness in eight different valleys of Indian Central Himalaya. The study led to the collection of data from 40% of local people, of whom 150 were exclusively traditional herbal healers (Vaidyas) about their healing systems, common ailments and modes of treatment, the responsibility of healers towards the well-being of the community, and adaptations of the respective populations to their environments via traditional healing policies. This resulted in the documentation of 22 threatened medicinal plant species that are traditionally used for curing 12 diverse ailments without any reported side effects. Several medicinal plant species have been listed as threatened due to overexploitation and the impact of climate change/climate variability. The study revealed that in remote areas where modern healthcare facilities are rare, or inadequate, the majority of the traditional communities follow cultural and ethical codes of conduct when collecting medicinal and aromatic plants from the wild. The herbal medicines prepared by traditional herbal healers for home remedies fall into six categories: powder, paste, decoction, extract, ointment, and infusion. The perceptions of local people, traditional herbal healers, patients and medical doctors in the study area enabled the categorisation of the ailments into two categories based on the seriousness and nature of the ailments. Results accumulated from the present study based on the perceptions of local people indicated that approximately 66.1% of the population in all the valleys were dependent on herbal medicine for curing ailments, while 33.9% of the population were dependent on the allopathic system of treatments. A comparative assessment of healing time, effectiveness and approximate cost for curing ailments through both the herbal and allopathic systems of medicine was based on the perceptions of traditional herbal healers, medical doctors and patients suffering from different ailments in the region. Of the 150 Vaidyas consulted 90% (n = 105) highlighted unavailability of desired medicinal plant species as a main reason for the loss of the traditional healthcare system. The Participatory Rural Appraisal (PRA) approach for the documentation of indigenous knowledge and conservation of medicinal plants was also highlighted as an appropriate measure for the management of these resources. The present paper aims to provide a practical example of sustainable utilization of medicinal and aromatic plants for sustaining the traditional healthcare system and scientific validation of available knowledge before its commercialization.

Keywords: Threatened medicinal plants Traditional communities Indigenous knowledge Allopathic medicine Conservation status Central Himalaya
A Survey of Ethnomedicinal Plants Utilized by the Indigenous People of Garo Hills with Special Reference to the Nokrek Biosphere Reserve (Meghalaya), India

Bikarma Singh, S. K. Borthakur & S. J. Phukan

Abstract

The present study documented pharmaceutically important plant resources used in primary health care of ethnic Garo tribes from Eastern Himalayas (Nokrek Biosphere Reserve [NBR], India). In order to document information on medicinal plants and to maximize the collection of indigenous knowledge of Garo tribes, 12 traditional healers were identified using the Participatory Rapid Appraisal approach. Data were collected through open-end interviews with traditional healers, between 2007 and 2011. A total of 157 plant species representing 134 genera and 81 families were found to be commonly used in the treatment of 67 health-problems. More than one-fourth of the plant species were used in the treatment of cough, flu, and cold, which are prevalent ailments in the study area. The leaves, root, rhizome, and tuber were the most commonly used plant parts while decoction was the most common method of drug preparation.

Keywords: Traditional knowledge, ethnobotany

Polygonatum cirrhifolium Royle and Polygonatum verticillatum (L.) Allioni: Status assessment and medicinal uses in Uttarakhand, India

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Abstract

Polygonatum verticillatum (Linn) All. and Polygonatum cirrhifolium (Wall.) Royle (Liliaceae) growing in the Himalayan region is assigned as vulnerable by International Union for Conservation of Nature and Natural Resources (IUCN). To elucidate the status of the plants in the Uttarakhand Himalaya population assessment of the species is done in the study region. The study area is divided into five sites (Kilburry, Jageshwar, Dunagiri, Chaubattia and Aboot mount) in Kumaun division and five sites (Bhavisya Badri, Tangnath, Dayara, Bharsar and Binsor) in Garhwal division. Population is accessed based on frequency, density, abundance and importance value index (IVI) of the plants in per square meter area following Mishra (1986). Threat assessment of species was done through six parameters (that is, habitat preference, distribution range, population size, use pattern, extraction trend and native area. Ethno-medicinal uses of the plants are also documented through interview and gathering with local informers/folk healers. Some conservation strategies are also suggested.

Keywords: International Health Regulations (IHR), population study, status, quadrat, sampling.
Uses of trees as medicine by the ethnic communities of Arunachal Pradesh, India

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Abstract

Arunachal Pradesh, the largest state of North East India has been considered as one of the biodiversity ‘Hotspot’ areas in the world. The original inhabitants of Arunachal Pradesh are tribal people, belonging to 26 major tribes and 110 sub-tribes. The ethnic communities of the state have their own rich traditional knowledge in the use of various tree species for treatment of different diseases with a practically applied aspect of knowledge acquired through close natural observation. They are store houses of indigenous knowledge which is unexplored and unrecorded. The present paper deals with the effectiveness of folk medicine for curative, remedial and medicinal uses of 64 tree species under 48 genera and 30 families providing detail account on the plants, their vernacular name, scientific name, plants parts and their uses.

Key words: Trees, medicine, ethnic community, Arunachal, India
Ethnobotanical survey of some threatened medicinal plants of Kashmir Himalaya, India

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Received 16 October, 2014; Accepted 1 December, 2014

Abstract
An ethnobotanical study was conducted from March, 2011 to October, 2012 to enumerate the diversity of traditionally used threatened medicinal plants in biodiversity rich temperate Himalayan ranges of Bandipora district, Kashmir, India. Ethnomedicinal data was gathered using semi-structured interviews, focus group discussions and walk-in-the-woods with local knowledgeable elders, tribals (Gujjars and Bakkerwals) and Bhoeris (traditional practitioners). Results revealed that 23 threatened plant species belonging to 22 genera and 15 different families were traditionally used for curing various health disorders. Taxus wallichiana was a lone gymnosperm while all others were angiosperms. Majority of the species were perennial herbs but reports of biennial herbs and perennial trees were not uncommon. The highest number of medicinal plants were recorded in two families viz. Asteraceae (4 species, 17.39%) and Liliaceae (3 species, 13.04%). The shrinking population of these plants on account of very high demand for medicinal purposes is a matter of great concern as these plants are the backbone of our traditional medicinal system with a large population still depending on traditional medicine. Therefore, the need to conserve these plants is of utmost importance because if necessary conservation measures are not taken at the earliest, the day will not be far away when these God gifted resources will completely deplete from their natural habitats.

Keywords: Threatened plants, ethnobotany, Bandipora, tribals, Kashmir Himalaya.

Ethno-medicinal study of Pulwama tehsil (Jammu and Kashmir)

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Abstract
This paper is based on the results of an ethno-medicinal research project conducted in Pulwama tehsil of Jammu and Kashmir. The people of the area have always used the medicinal herbs for the treatment of various diseases. A total of 30 plant species belonging to 25 different families have been recorded, with their correct botanical identification, local name, family, habit, habitat, status, part used, indications of disease and mode of application for each plant.

Keywords: Ethno- medicine, Pulwama, Medicinal herbs, Jammu and Kashmir.
Ethno-medicinal uses of some orchids of Nagaland, North-east India
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Abstract
Orchids, in spite of being considered as highly valuable ornamental plants are also known to possess therapeutic properties because of its rich contents of alkaloid, glycerides and other useful phytochemicals. Their application as herbal medicine in traditional folklore system is well known and widely accepted. Nagaland, one of the 8 North-eastern states of India figures more prominently among the other states as one of the most ideal repositories of several highly diverse orchid species. However, the use of orchids in traditional healing process is restricted due to limited understanding and knowledge about the therapeutic values of these locally available plants. The present investigation was undertaken by describing the habits, distribution and medicinal uses of 30 different orchid species of Nagaland in an attempt to create awareness of their therapeutic importance and encourage people to use them in traditional folklore medicines.

Keywords: Orchids, pseudobulb, terrestrial, therapeutic, traditional, herbal medicine

Ethnopharmacological Survey of Wetland Plants Used by Local Ethnic People in Sub-Himalayan Terai and Duars of West Bengal, India
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ABSTRACT
Objective: In most of the remote places of Sub-Himalayan West Bengal (Terai & Duars), the tribal people have to rely and consider ‘Kaviraj’ or ‘Hakim’ or ‘Boidya’, the traditional medical practitioners as Pana ca or only source in regards of medical service and treatment. They use several wetland plants in different formulations to cure the ethnic people (Mech, Munda, Rabha, Oraon Dukpa, Malpahari etc.) from various diseases. The objectives of this study are to recognize the wetland medicinal plants, ethno medicinal uses (in different ailments).
Methods: In field, several interviews have been conducted with the traditional practitioners and also with the traditional medicine healers. Plant specimens have been collected and identified at Central National Herbarium and North Bengal University Herbarium.
Result: The results show 53 species belonging to 33 families has been used in various diseases. 10 – 15 % peoples are directly involved in medico herbal treatment by wetland plants. More than 12 diseases were treated with the wetland medicinal plants.
Conclusion: This type of Ethnopharmacological research will helpful to plant based pharmaceutical industry and provide much information that are useful for framing conservational strategies of our indigenous medical knowledge. During field survey several anthropogenic stress were found to destroy the wetland biodiversity.
Keywords- Medicinal plants, Traditional treatment, Ethno medicine.
Folk-Medicare System of Chakpa community of Andro Village of Manipur in Northeast

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ABSTRACT

Background: This present study aims system of primary health ailments of a very small indigenous Meitei schedule caste community called Chakpa residing at Andro Village (having population of around 8300) of Manipur in Northeast India. As this small vand having unique culture and lifestyle from the rest communities, the traditional knowledge system is still in prominence and intricately associated with culture and religion.

Methods: Field survey and Andro village of Manipur, Northeast India on monthly basis with main objective to collect ethno medicinal data. The data were collected through open-semi-structured interviews, informal meeting and personal observation of 21 traditional herbal healers and 63 elderly knowledgeable people of the Chakpa community. Market survey to assess availability and pricing was conducted in Thoubal market. The voucher specimens were collected for all the species and deposited in the CSIR-NEIST

Results: We recorded 63 plant species belonging to 56 genera and 41 families which were used by Chakpa community in traditional health care system to treat over 25 diseases and ailments where highest numbers of 10 were used in treatment of menstrual disorder and kidney problem, respectively. Most of the plants are herbs (27 species) followed by trees (17 species), shrubs (15 species) and only 5 species climbers. Most remedies were prepared by boiling or cooked of the ingredients and mode of administration was in liquid or concoction forms. Honey was used in most of the preparations. Around 56% of the plants were collected from wild habitat, 24% cultivated while rest species were from both wild habitat and cultivated. Around 57% of the species were sold in local markets, amongst, the flower of 380/kg. Amongst, 10 species were rare while rest species were commonly available. Around 41% of the ethno medicinal plant species were eaten as vegetables / spices / snacks / fruits by Chakpa community.

Conclusions: The Chakpa community prefers and frequently used herbal formulations mainly based on 63 plant species in their day-to-day health care and treatment due to its readily available, rich knowledge system and low cost and also due to lack of availability of modern medicines in the vicinity of the villages. Substantial local economy was generated through selling of these plants. A sizeable number of species were cultivated in private lands thus sustaining the medicinal plants.

Keywords: Andro village, Meitei Chakpa community, Folk-medicare, Medicinal plants, Dietary use, Cultivation, Conservation.
Folklore Herbal Remedies Used in Dental Care in Northern India and Their Pharmacological Potential

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Abstract

Objective: The aim of the work was to carry out an ethnopharmacological survey of plants used by traditional medical practitioners (TMPs) and villagers in interior parts of northern India for various diseases of teeth and in dental care.

Methods: A survey was conducted about medicinal plants used by these traditional healers in different regions of northern India specially Himachal Pradesh (Shimla, Dharamshala, Kangra, Mandi, Kullu, Manali), Rajasthan (Churu, SriGanganagar, Hanumangarh), Punjab (Sangrur, Ludhiana, Bhatinda, Patiala, Ferozepur, Faridkot), Haryana (Hissar, Jind, Panchkula) and Uttar Pradesh (Agra, Meerut, Moradabad, Mathura) for the treatment of various dental problems. This manuscript is a compilation of herbs being used in folklore medicine by villagers in interior parts of northern India for various diseases of teeth and in dental care. The authors have also tried to collate the pharmacological potentials of these medicinal plants.

Results: Results obtained showed that usage of herbs in dental disorders was maximum in Himachal Pradesh with almost 45 different plants being used by the local people for different disorders. The awareness of usage of plants for dental disorders was very less in Punjab and Haryana. In contrast out of the number of plants given below, a maximum number of 65 plants were present in Punjab and Haryana states.

Conclusion: Even though the efficacy of the remedies alluded to by the respondents cannot be claimed to be exact, the people used more herbal medicine than orthodox. This survey provides a template for dental scientists for further screening and research on these plants and formulates new drugs for dental disorders.

Keywords: Oral hygiene, Mouthwashes, Dentifrices, Herbal remedies.
ETHNOMEDICINAL PLANTS USED BY APATANI TRIBE OF ZIRO VALLEY OF ARUNACHAL PRADESH

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Abstract

Arunachal Pradesh is the store house of biological and socio-cultural diversity among the north eastern states of India. Local inhabitants of the state are mostly dependent on forest and forest resources having rich indigenous knowledge on practices of medicinal plant species for curing various ailments. Present study has been carried out to document the use pattern of medicinal plant species by the Apatani tribe of Ziro Valley of Lower Subanshiri district of Arunachal Pradesh. Information was gathered through conversations with elderly indigenous people inhabiting nearby the forest areas. Present study exhibited a total of 34 plant species belonging to 32 genera and 23 families. Herbs contributed highest with 67.65%, shrubs 11.76%, trees 11.76% while climbers only 8.82% of the total recorded medicinal plant species. Plants are used to cure various ailments like allergy, anthelmintic, appetizer, bleeding, blood pressure, body ache, cancer, cold, cough, cuts, diarrhea, dysentery, fever, gastritis, headache, indigestion, jaundice, stomach ache, swells, wounds etc. Most of the species are collected from wild. Leaves are the major plant parts used for the preparation of indigenous medicine. Such studies provide vital clues as to the formulation of potential products for pharmaceutical purposes. Besides, there is scope of improving rural economy of the state as a whole. Moreover, scientific input on indigenous knowledge is likely to benefit the traditional society as well as will help in conservation of useful plant species. The local inhabitants are still dependent on traditional folklore and traditional medicinal system. Therefore, it is high time to adopt holistic approach for conservation and documentation of ethnomedico botanical knowledge of the tribal people for the greater benefit of the future generation.

Keywords: Apatani tribe; Arunachal Pradesh; Conservation; Indigenous knowledge; Medicinal plants; Ziro Valley

Herbal treatment for snakebites in Uttarakhand state of India

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Abstract

Plants used in the treatment of snakebites were surveyed in the Uttarakhand state of India, using a questionnaire. The herbal practitioners were interviewed and information on snakebite treatments, using medicinal plants were collected from the traditional healers, locally called as vish vaidyas. The study documents 56 medicinal plant species, of which most of the species (93 %) are used for the treatment of snakebites and some species are used to cure dog and scorpion bite, traditionally. The use of herbs was highest, followed by trees and shrubs for this purpose. Before treatment the vish vaidyamakes sure the identity of poisonous or non-poisonous type of snakebites on the basis of claims made by the patient
over the taste of plants given. The taste of plant (mainly neem, *Azadirachta indica* A. Juss.) if claimed other than its normal taste by the patient then it is considered the bite of venomous snake. Thorough clinical testing of plants as used by vish vaidyas may help to standardize the efficacy of herbal drugs in curing venomous snake bites, which result into loss of thousands of human life in India.

**Keywords**: Medicinal plants, Snakebite, Traditional system of medicine, Vish vaidyas, Uttarakhand.

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**Medicinal plants of family Asteraceae used by Gujjar-Bakerwal community in district Rajouri, Jammu and Kashmir, India**

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**Abstract**

Gujjar-Bakerwal community is one of the most important indigenous communities of Jammu and Kashmir State of India. The present study reports significant ethnomedicinal information on plants belonging to family Asteraceae used by the Gujjar-Bakerwal community in district Rajouri of Jammu and Kashmir. Field trips in different parts of the study area were conducted between February 2012 and January 2013, and information on ethnomedicinal uses of members of family Asteraceae was collected through semi-structured interviews. An attempt has also been made to generate folk taxonomy (vernacular names with their meanings) of family Asteraceae in the study area. A total of 50 medicinal plant species of family Asteraceae were identified, which were used by the community to treat various human health related ailments viz., wound, arthritis, jaundice, fever, respiratory problems, skin problems and gastrointestinal disorders. Most frequently used plant parts were leaves (36.0%) and roots (32.7%). Present study showed that the Gujjar-Bakerwal community of the study area has valuable ethnomedicinal knowledge about medicinal plants used to treat various ailments. Further chemical and pharmacological studies on the reported medicinal plants are suggested for discovery of novel phytochemicals and drugs.

**Keywords**: Ethnomedicine, asteraceae, Gujjar-Bakerwal, Rajouri, Jammu and Kashmir.
Medicinal shrubs used by *Gujjar-Bakerwal* tribes against various non-communicable diseases in Rajouri district, (J&K), India

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**Abstract**

The present paper is based on the documentation of indigenous knowledge of medicinal shrubs used by the *Gujjar-Bakerwal* communities of Rajouri district of Jammu and Kashmir state in the treatment of various non-communicable diseases. The study led to interesting use of 42 plant species. The present study describes the botanical identity, vernacular name (in *Gojri*), part(s) of the plants, mode of preparation and administration, and name of the diseases for which the given plants are used.

**Keywords:** *Gujjar-Bakerwal* communities, Indigenous knowledge, Medicinal shrubs, Non-communicable diseases, Rajouri district

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Indigenous curative and prophylactic traditional practices used against haematophagous leeches in Arunachal Pradesh and Sikkim

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**Abstract**

Leeches are a nuisance to the livestock and human living in the hills of North Eastern parts of India. The people living in this region have learnt to control and manage leeches through various indigenous methods acquired through generations of practice. The present study is an attempt to document the indigenous traditional practices of used by *Galo* and *Monpa* tribes of Arunachal Pradesh and *Lepcha, Bhutia* and *Nepalis* of Sikkim against blood feeding leeches. The data were collected through an open ended interview schedule to five key informants of each study area. The study has identified a variety of herbal and non-herbal based methods used to control, prevent and kill leeches.

**Keywords:** Leech, ITK, Repellent, Arunachal Pradesh, Sikkim
Traditional phytoremedies for the treatment of menstrual disorders in district Udhampur, J&K, India

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Abstract

Ethnopharmacological relevance: Herbal remedies form an integral part of healing and are considered to be the oldest forms of health care known to mankind. The present study aims to document traditional phytoremedies for the treatment of menstrual disorders in Udhampur district of J&K, India.

Material and methods: The informants were interviewed directly and information was gathered about plants used in different menstrual disorders. The data was further analyzed for use-value (UV), factor informant consensus (Fic) and fidelity level (Fl).

Results: In all, 62 informants were interviewed. Most of the informants (66%) were females. The patients prefer female healers over male vaids and hakims. A total of 50 plants were used to cure different menstrual disorders. Seeds were found to be of utmost medicinal importance (43.8%) followed by leaves (20.8%) and fruits (16.7%). Oral administration was observed to be the main mode (90.0%) of intake of medicine. The plants with high use-value were Triticum aestivum (UV=1.76), Taraxacum officinale (UV=1.16), Citrus limon (UV=0.95), Allium cepa (UV=0.79), Cicer arietinum (UV=0.77), Trigonella foenum-graecum (UV=0.66), Rubia manjith (UV=0.56), Ocimum tenuiflorum (UV=0.56) and Oryza sativa (UV=0.52). The various menstrual disorders were classified into 7 categories. The values of Fic varied between 0.96 (dysmenorrhea, itching and foul smell) and 0.92 (menorrhagia). The 100% Fl value was scored by 20 plants. Leucorrhea reported the highest 5 plants with 100% Fl. Nearly 40% of the formulations had two or more plants.

Conclusion: Plants used for the treatment of different menstrual disorders were documented and analyzed for ethnogynecological problems. The study revealed some plants like Triticum aestivum, Rubia manjith, Dalbergia sissoo, Raphanus sativus, Citrus limon, Allium cepa, Trigonella foenum-graecum, Elettaria cardamomum etc. to be of great importance vis a vis menstrual disorders. Further pharmacological studies of these plants may provide some important drugs for the treatment of common menstrual disorders.

Keywords: Ethnobotany, Ethnogynecological problems, Menstrual disorders, Phytoremedies, Traditional plant knowledge, Udhampur district.
Antidiabetic plants used among the ethnic communities of Unakoti district of Tripura, India
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Abstract

**Ethnopharmacological relevance:** A large group of ethnic communities living in Unakoti district of Tripura, India is still dependent on traditional herbal remedies for treatment of diabetes. Valuable information collected from these communities in the present investigation is important in maintaining their indigenous knowledge of folklore medicine.

**Methods:** Systematic and extensive field surveys were conducted during 2011–2013 among the ethnic inhabitants of Unakati district, Tripura, India covering all the seasons to collect information on their traditional herbal medication system for treatment of diabetes. Obtained data were analysed through fidelity level (FL), use value (UV) and relative frequency of citation (RFC) to authenticate the uniqueness of the species being used for diabetes treatment.

**Results:** In this current study a total of 39 medicinal plant species belonging to 37 genera and 28 families were presented, used by the traditional healers of Unakoti district, Tripura, India for diabetes treatment. FL, UV and RFC values of collected plants for the selected study area ranges between 06% and 100%, 0.07% and 2.64% and 0.02% and 0.51% respectively. Out of 39 collected plants, 11, 5 and 3 plant species have showed significant (<50%) FL, UV and RFC values respectively.

**Conclusion:** Like many other ethnic communities of the world, inhabitants of Unakoti district depend on a traditional medication system to treat diabetes. Documented floras are locally available and need proper further pharmacological validation to endorse their traditional use in a modern health care system. This will help in the development of effective herbal antidiabetic medicines in near future.

**Keywords:** Antidiabetic, Traditional knowledge, Medicinal plants, Unakoti district, Fidelity level, Use value.
An ethnobotanical study of medicinal plants of Chungtia village, Nagaland, India

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Abstract

Ethnopharmacological relevance: Traditional medicinal plant knowledge is an integral and very important part of Indigenous cultures worldwide. For many communities there is a great urgency in recording this knowledge in written form. This is the first ethnobotanical report of medicinal plant knowledge of the Nagaland Ao tribe of Chungtia village and is an important step in the preservation of this culturally and medicinally significant knowledge.

Aim of the study: The aim of the presented work was to perform an ethnobotanical study on plants of medicinal and other significance to the Chungtia villagers of Nagaland, North East India.

Materials and methods: Ethnobotanical data were collected from traditional practitioners and Elders of Chungtia village by means of open group discussions and semi-structured interviews of groups and individuals using questionnaires. The interviews were also recorded in an audio format in the local Mongsen language. The gathered ethnobotanical knowledge was compared with reported ethnobotanical usages worldwide and reported biological properties and phytochemical studies relevant to the Chungtia villagers’ applications.

Results: A total of 135 plant species of 69 families and 123 genera were recorded for medicinal and household maintenance applications. Those applications were grouped into 13 categories based on Chungtia villagers’ classification system. The families most represented were Asteraceae, Euphorbiaceae and Solanaceae. The most reported uses were for gastrointestinal problems, followed by dermatological problems. The most commonly used plant parts were leaves, followed by fruits and stems and they were most commonly administered as a paste, decoction, infusion, juice or poultice, or taken orally with no preparation. There was strong agreement among the informants as to the usages of the plants (informant consensus factor 0.80–0.91). The use value of 6 for Cassia floribunda, Dolichos lablab, Hedyotis scandens, Phyllanthus urinaria and Rhus javanica indicated these are the most important species. Forty four of the 135 plants had a fidelity level of 100%.

Conclusion: This study has helped to document and preserve in written format important traditional plant knowledge of 135 plants of the Chungtia villagers, assisting them in the continued preservation of their cultural values.

Keywords: Ao tribe, Biodiversity, Chemical constituents, Ethical engagement, Ethnopharmacology, Traditional knowledge.
New ethnomedicinal claims from Gujjar and Bakerwals tribes of Rajouri and Poonch districts of Jammu and Kashmir, India

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Abstract

Background: Medicinal plants are frequently employed by Gujjar and Bakerwal tribes in Rajouri and Poonch districts of Jammu and Kashmir, India for treatment of various ailments in humans and livestock. Hence, extensive field work was conducted to document the ethnomedicinal plants used by these tribes.

Methodology: Ninety one key informants were interviewed using both in situ and ex situ type of survey methods. The data were analyzed using user value (UV), informant consensus factor (Fic), fidelity level (FL) and relative frequency of citation (Rfc).

Results: A total of 104 species of medicinal plants used in the treatment of 40 different non-communicable ailments with 138 remedies are reported. Cephalanthera longifolia (L.) Fritsch was recorded for the first time with ethnomedicinal uses and the rest of the species were previously reported with different medicinal uses by other tribal people. Out of 138 remedies, 129 were employed for human ailments and the remaining seven were used to treat livestock. Most of the species were harvested for leaves (24 species). Herbs (66 species) were the major life form used for medicinal purpose and the most common method of remedy preparation was decoction/tea (27.8%). The highest use value plant was Verbascum thapsus L. for the treatment of stomachache and snake bite.

Conclusions: Plants such as Allium humile Kunth, Angelica glauca Edgew, Arnebia benthamii (Wall. ex G. Don) I.M. Johnst, Asparagus racemosus Willd., Balanophora involucrata Hook. f. & Thomson, C. longifolia (L.) Fritsch, Cuscuta epithymum (L.) L., Geranium wallichianum D. Don ex Sweet, Gloriosa superb L., Habenaria intermedia D. Don, Phyllanthus emblica L., Ramaria Formosa (Pers.) Quel. and V. thapsus L. showing high Rfc and FL values may be studied for associated pharmacological activities.

Keywords: Ethnomedicine, Gujjar, Bakerwals, Medicinal plants, Folk medicine.
Ethnomedicinal plants used by traditional healers of North Tripura district, Tripura, North East India

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Abstract

Ethnomedicinal relevance: Information about ethnomedicinal plants used by traditional healers in Tripura, India is very much limited. As there is rapid erosion of traditional knowledge in the state, needs has arisen to document the diversity of medicinal plants, their preparation and associated diseases.

Aim of the study: Attempts have been made to explore the herbal medicines used by the traditional healers belonging to the various communities in North Tripura district of Tripura, India and document the associated traditional knowledge on the utilisation of medicinal plants.

Materials and methods: The study was based on ethnomedicinal field survey covering a period of 1 year from February 2012 to February 2013. The ethnomedicinal information was collected by using semi-structured questionnaires from different healers and knowledge holders. Collected data were analysed through informant consensus factor, Index of Specialisation and Relative frequency of citation to determine culturally significant plants.

Results: A total of 75 species of plants under 68 genera belonging to 43 families were collected during the study for the treatment of 15 disease categories. Leaves were the most frequently used plant parts and most of the medicines were prepared in the form of extract and administered orally. FIC values of the present study indicated that there was a high agreement in the use of plants in the treatment of digestive system disorders and respiratory system disorders among the healers. Plants having high ISu are Justicia adhatoda, Pajanelia longifolia, Catharanthus roseus etc.

Conclusion: The present study highlighted certain species having higher priority indices for further phytochemical investigation. Counselling of traditional health practitioners should be taken into consideration in order to smooth continuation and extension of traditional medical knowledge and practice for ensuring safe and effective therapy.

Keywords: Ethnomedicine, North Tripura district, Medicinal plant, India, Quantitative analysis.
Oral traditional knowledge on medicinal plants in jeopardy among Gaddi shepherds in hills of north western Himalaya, J&K, India

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Abstract

Ethnopharmacological relevance: The Gaddi community has been known for its shepherd profession from time immemorial. At least one family member or 4–5 people from a village adopt a nomadic lifestyle with their sheep flocks in between the hills of north western Himalaya. In Jammu and Kashmir, India, law enforcement has banned the collection of the medicinal plants from the wild except for the Gaddi, Gujjar and Bakerwal tribes who are permitted to collect the species for their personal use only. As a consequence, knowledge of medicinal plants lies with these tribes only. This study has been undertaken to assess the status of Oral Traditional Knowledge (OTK) on medicinal plant usage in one of these tribes, known as the Gaddi. The study has focused specifically on the Gaddi Shepherds as their nomadic lifestyle means that they are closely associated with nature and dependent on natural resources for their livelihood including treatment of various ailments.

Material and methods: Data on indigenous knowledge has been collected through direct interviews of 53 shepherds of the Gaddi tribe and analyzed for quantitative parameters such as use-value and factor informant consensus.

Results: A total of 190 plant species belonging to 70 families, growing along the migratory route of the Gaddi Shepherds are used to treat more than 80 different ailments and disorders. Leaves are the most common plant parts used by the Gaddi Shepherds. The older shepherds are much more aware about the traditional knowledge on medicinal plant usage than the younger ones. 56 plant species are used to treat a range of gastrointestinal and liver disorders, however, diabetic conditions and stings/bites by snakes/scorpions are treated using only two plant species each. Mentha longifolia with UV=0.26 is the species most commonly used by the informants for medicinal purposes. The low UV (below 1) and low Fic (near 0) is a common observation in the present study.

Conclusions: The UV and Fic, analysis reveals that OTK on the medicinal plants is dwindling among the Gaddi Shepherds in Jammu and Kashmir, India.

Keywords: Gaddi, shepherds, NW Himalaya , Medicinal plants, India
Past, present and perspectives of Manipur traditional medicine: A major healthcare system available for rural population in the North-East India

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Abstract

Background: Traditional health care practices are still being followed extensively in Manipur, North-East India. This is the major or the only medical facility available in some rural areas of Manipur. Cross cultural ethno-pharmacological survey was conducted to document traditional health care practices by Maiba–Maibi (male–female traditional health care practitioners of Manipur).

Materials and methods: All together 59 traditional practitioners belonging to 12 ethnic communities in nine districts of the Manipur state were interviewed. A predesigned questionnaire was used for interviews, which included queries for type of ailments treating, symptoms, bioresources used, method of preparation, dosage forms, formulation, unit doses. The entire interviews were done in the residence of respective Maiba–Maibi, their patient handing and preparation of medicinal formulations were documented in written and audio–visual format.

Results: The survey recorded traditional knowledge on 949 formulations used for 66 human ailments. Five hundred forty six plant products, 42 animal products and 22 organic/inorganic materials were found to be used in these 949 formulations. Five plant species – Zingiber officinale (Zingiberaceae), Cocos nucifera (Areaceae), Oroxylum indicum (Bignonaceae), Curcuma longa (Zingiberaceae) and Allium sativum (Liliaceae) used by maximum number of Maiba and Maibi in maximum number of formulations.

Recommendation: This particular method of documentation keeps traditional knowledge alive. The WHO estimated perspective of traditional medicine across the world. These observations support therapeutic worth of Manipur Traditional medicines (MTM). Having generated a large database in course of this survey, next focus targeted for the scientific justification of MTM with an aim to develop commercially viable products.

Keywords: Traditional healthcare practice, Manipur, North-East India, Traditional knowledge, Maiba and Maibi
Ethnomedicinal plants of Shankaracharya Hill, Srinagar, J&K, India
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Abstract

Ethnopharmacological relevance: Primitive human societies have always relied on plants and plant products for various remedies. In certain areas, these folk medical prescriptions are endemic and have survived through ages from one generation to the next through word of mouth. They do not exist as written knowledge. The present study was undertaken with an objective of documenting the ethnobotanical information of medicinal plants of Shankaracharya Hill by taking the help of local herbalists, elderly and knowledgeable people.

Material and methods: The data was quantitatively analysed using use-value (UV), informant consensus factor (ICF) and fidelity level (Fl%) indices.

Results: Total 130 plant species from 57 families and 111 genera were ethnomedicinally utilized by the 103 informants interviewed in the present study. The most used families were Asteraceae, Rosaceae, Lamiaceae, Fabaceae and Brassicaceae. The medicinal plants were mainly herbs (79.2%). Leaves were the most used (27.6%) plant part followed by whole plant (14.8%), root (11.4%) and seed (10.5%). The most important species on the basis of UV were Viola odorata, Taraxacum campylodes, Aesculus hippocastanum, Artemisia absinthium, Daucus carota, Thymus serphyllum, Ephedra gerardiana and Salvia moorcroftiana. The values ICF ranged between 0.93 and 0.76. Only Epilobium hirsutum recorded 100% Fl. Some of the most important medicinal plants with high Fl values were Tribulus terrestris, Asparagus officinalis, Trifolium repens, Anemone biflora, Melia azedarach, A. absinthium, Lonicera quinquelocularis, Rosa webbiana, D. carota, Oxalis corniculata and Potentilla reptans.

Conclusion: The contribution of plant parts collected through destructive methods was 29.5%. Harvesting of roots, rhizomes, bulbs and corm kills the parent plant and could be a severe threat for survival of the often rare and slowly reproducing medicinal plants, and therefore need sustainable utilization and conservation strategies. Ethnomedicinal species like A. absinthium, A. hippocastanum, D. carota, M. azedarach, T. campylodes, T. serphyllum, T. terrestris having high number of citations, UV and FL should be analyzed for phytochemicals and pharmacology.

Keywords: Ethnomedicinal plants, Fidelity level, Informant consensus factor, Shankaracharya Hill, Use-value.
Ethnomedicinal plants of Kathua district, J&K, India
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Abstract

Ethnopharmacological relevance: Natural products, especially those derived from plants, continue to provide new and important leads in the drug discovery process. The first step in drug discovery is to document material traditionally used to treat an ailment. Documentation of such knowledge will lead to its conservation and facilitate future research on medicinal plant safety and efficacy to validate traditional use. The present study was undertaken with an aim to document the ethnomedicinal plants of Kathua district.

Material and methods: The data were quantitatively analysed using indices like use-value (UV), informant consensus factor (ICF) and fidelity level (Fl).

Results: A total of 112 informants (78 males and 34 females) were interviewed. They were using a total of 197 plants from 87 families and 174 genera for the ethnomedicinal purposes. The most dominant families were Fabaceae, Asteraceae and Lamiaceae. The most important plants of the study site on the basis of use-value were Mentha longifolia, Curcuma domestica, Zingiber officinale, Ocimum tenuiflorum, Adiantum capillus-veneris, Viola odorata, Mentha arvensis and Acorus calamus. The diabetes treatment had the maximum consensus (0.96 ICF) among the informants. Other important categories with high ICF values were gastrointestinal disorders and respiratory disorders. Total 23 species recorded 100% Fl. Medicinal plants with high Fl were Brassica rapa, Plumbago zeylanica, Punica granatum, Catharanthus rosea, Tinospora cordifolia, Acacia catechu, Aegle marmelos, Abrus precatorius, Oxalis corniculata, Nicotiana plumbaginifolia, Achillea millefolium, Tamarindus indica, Taxus baccata and Butea monosperma.


Keywords: Ethnomedicinal plants, Quantitative analysis, Use-value, Fidelity level, Informant consensus factor, Kathua
Anti-diabetic potential of selected ethno-medicinal plants of north east India

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Abstract

Ethnopharmacological relevance: Through one-to-one interaction with the traditional healers, the present study has identified 15 medicinal plant species traditionally used as remedies to control diabetes.

Materials and methods: The methanolic extracts were screened for their α-glucosidase inhibitory activity. Hypoglycemic activity was assessed following glucose, sucrose and starch tolerance test on normal and STZ induced diabetic rats.

Results: Ficus cunia extract had the highest α-glucosidase inhibitory potency with IC$_{50}$ 1.39±0.74 µg mL$^{-1}$ followed by Schima wallichi (IC$_{50}$ 1.43±0.20 µg mL$^{-1}$) and Wendlandia glabrata (IC$_{50}$ 1.67±0.33 µg mL$^{-1}$). In STZ induced diabetic rat model, F. cunia and W glabrata extracts reduced blood glucose concentration to near normal up to 14 days when administered 48 h after STZ.

Conclusion: The present study supports the traditional use of some of these medicinal plants in anti-diabetic remedies. The present study contributes to evidence for use of traditional medicine.

Keywords: Diabetes, α-glucosidase, Ficus cunia, Wendlandia glabrata and Hypoglycemic.
Ethnomedicinal plants traditionally used in health care practices by inhabitants of Western Himalaya

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Abstract

*Ethnopharmacological relevance:* Inspite of tremendous advances made in allopathic medicine, herbal practice still plays an important role in management and curing various ailments in remote and rural areas of India. However, traditional knowledge on the use of medicinal plants is eroding day by day and there is a need to document such knowledge, before it is lost forever. The aim of the present study was to document the indigenous and traditional knowledge of medicinal plants used by local inhabitants in and around Kedarnath Wildlife Sanctuary of Indian Himalaya for the advancement of biomedical research and development.

Materials and methods: The intensive field survey was carried out at three different altitudes of Kedarnath Wildlife Sanctuary (KWLS) and its adjoining areas. The inhabitants were interviewed about the local name of plants having ethno-medicinal values, plant parts used, mode of processing/application and preparation and dosage through discussions and semi structured questionnaires.

Results: A total of 97 medicinal plant species belonging to 52 families and 83 genera were reported for curing various ailments like fever, cough, cold, digestive disorders, constipation, menstrual disorders etc. Out of 97 plant species reported, 21 are rare or threatened. Literature review revealed that 11 out of the 97 plant species are reported with new therapeutic uses. The most frequently utilized plant part was the root/rhizome (33%) followed by leaf (27%). In some cases whole plant was utilized. A few medicinal plants had some veterinary uses also.

Conclusion: The study provides comprehensive information about the eroding indigenous and traditional knowledge of medicinal plants used by local inhabitants in a part of Western Himalaya, India. The identification of the active ingredients of the plants used by the local people may provide some useful leads for the development of new drugs and such new approaches of traditional knowledge regarding medicinal plants and laboratory analysis might help pharmaceutical industry in new chapters for the wellbeing of mankind.

Keywords: Traditional knowledge, Medicinal plants, Altitude, Ailments , Western Himalaya.
Indigenous medicinal practices of rural communities in respect use of the non-timber forest products in Indian central Himalaya
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Abstract
Indian Central Himalayan region is characterized by a rich heritage of indigenous medicine practices. Indigenous medicinal practices in rural communities of the area are being passed orally hence gradually vanishing in new generations. Documentation of such knowledge accessible with rural communities is vital. Failure to document this indigenous knowledge would represent a tremendous economic and scientific loss to mankind. Therefore, an effort has been made to document the Indigenous medicinal practices in which Non-timber Forest Products (NTFPs) are used by rural communities in this region of India. The study revealed that women possess more knowledge than men about this therapy. About 89.33% people using various plants parts (NTFPs), mostly collected from wild forest, of medicinal plants as healers of different ailments. Their preference for wild sources compared to planted medicinal plants due to the belief that plant parts collected from the former are more effective than those from planted ones. People of the region are frequently using NTFPs of 70 plant species as medicine for curing 28 common diseases, representing to 45 families, and majority of them are collected from the forest and life form wise belonged to trees followed by shrubs, Herb and climber. The species richness is highest for Moraceae; leaves are identified as most frequently used NTFP having medicinal values and contributes in curing a verity of diseases.

Keywords: Indian Central Himalayan region, Indigenous medicinal practices, Non- Timber Forest Products (NTFs), Orally, Rural communities

Indigenous uses of plants by Gariya Lohars in Bhabar region of Garhwal Himalaya
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Abstract
The paper deals with medicinal uses of 25 plant species used by Gariya lohars in different human ailments in Bhabar region of Garhwal Himalaya.

Keywords: Indigenous uses, Gariya lohars, Bhabar region, Garhwal Himalaya.
MEDICINAL PLANTS AND TRADITIONAL MEDICINE SYSTEM OF SIKKIM: A REVIEW

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Abstract

Sikkim doctrines the aboriginal religious practices, culminates indigenous traditions associated with religion and faith based healing therapies and is a natural hub of traditional medicine. Faith healers and occupational folk medicine therapeuticians acts as alchemists. In this unfathomed virgin and picturesque state of pulchritudinous blooming orchids, rural population are directly depended upon the traditional medicines prescribed by the faith healers and the traditional occupational folk medicine doctors for their basic health issues and amenities. The knowledge of herbs or plant based panacea is a part of indigenous knowledge which has been snowballed from generation and ages since primordial origin. On the basis of proper signs and symptoms of the diseases, these herbal medicines are chosen. Their choice of medicine also depends upon the availability, particular geography; faith associated belief and cost effectiveness. This practice is on the verge of extinction as The Himalayan belt is prone to natural catastrophes like earthquake, flashfloods, incessant rainfall, landslides etc and the availability of the medicinal flora is on decline. It is the precise time to amalgamate the documentation process of the traditional medicine of Sikkim for future references. In this paper, a total of 123 medicinal plants have been discussed which are prescribed or used by the traditional medicine system of Sikkim (Amchi, Jhankri, Ayurveda, Tibetan and Lama/Pandit).

Key words: Sikkim, medicinal plants, traditional medicine, Jhankri, Amchi, Boomthing, Fedongma
USE PATTERN OF HIGH ALTITUDE MEDICINAL PLANTS BY BHOTIYA TRIBE OF NITI VALLEY, UTTARAKHAND

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Abstract

Background: Niti valley under Nanda devi Biosphere Reserve of Uttarakhand, India is a reservoir of alpine and sub-alpine cold desert rare medicinal plants used in Traditional system of medicine. Bhotiya tribe primarily inhabiting the area is using these high altitude medicinal plants due to their close association. The ethno-medicinal knowledge of this tribe is declining day by day and there is an urgent need to document them.

Methods: Ethno-medico-botanical tours were conducted in five high altitude villages of Niti Valley using interview-based and inventory-based approaches. Plants traditionally used by the Bhotiya tribe were documented and voucher specimens for herbarium is prepared. Data obtained were analyzed and cross-checked with the codified text of Ayurveda and books on medicinal plant to validate the information.

Results: Forty seven species of high altitude ethno medicinal plants representing 27 families were recorded. Among them, 3 species were trees, 35 herbs and 9 shrubs, of which 37 species were found mentioned in Ayurveda and 10 were new. Various parts of these species such as whole plants (8.7%), roots (41.3%), fruits (13%), stems (4%), barks (4%), rhizomes (13%), seeds (4%), tubers (4%), leaves (26%) and gum (2%) were used to treat 33 types of ailments. It is revealed that the Bhotiya tribe has a good knowledge on indigenous medicinal plants.

Conclusion: Niti valley of Uttarakhand Himalaya is a rich reservoir of important high altitude cold desert medicinal plants which are widely used in the Indigenous System of Medicine and Ayurveda. The bhotiya tribe, inhabiting the area, has a good knowledge on the beneficial use of medicinal plant resources with regards to medicines. Introducing techniques of ex-situ cultivation of commercially viable species, sharing of IPR value, documentation of ethno-medicinal plants and introduction of modern scientific protocols for research on plant-based medicines, will highly benefit this community in particular and the medical fraternity in general.

Keywords: Niti valley, Bhotiya, Ethno-medicine, Ayurveda.
ETHNOMEDICINAL PLANTS USED FOR THE TREATMENT OF DIABETES AMONG THE VILLAGERS OF NAREN德拉 NAGAR BLOCK, DISTRICT TEHRI GARHWAL, UTTARAKHAND, INDIA

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Abstract
Uttarakhand state has 13 districts; out of these one of the botanically interesting districts in the state of Uttarakhand is Tehri Garhwal which sustains unique and rich vegetation in wide range of habitats from Tarai- Bhabar tracts (275-4258m a.s.l) to the high range of lesser Himalaya. It lies in between 30°10' - 30°17'N latitude and 78°18' - 78°30’E longitude in Northern part of Western Himalaya. It is surrounded by the district Rudraprayag in the East, Dehradun in the West, Uttarkashi in the North and Pauri in the South. Due to the close associationship of forest vegetation the habitant have great faith in traditional knowledge of plants and their uses? Ethno medicinal information on 30 plants species belonging to 20 families has been included in the present communication, which are being used for the treatment of diabetes. Information on traditional formulation, mode of administration and the ailments for which they are effective, a part from botanical and local names has been provided. The medicines consist of a single drug in the form of decoction, extract, powder etc. These are prepared from leaves, stem, bark, fruits, seeds as well as entire plants. The plants were used either separately or in combination with others. These ethno medicinal data may provide a base to start the search the new compounds related to phytochemistry, pharmacology and pharmacognosy.

Keywords: Ethno medicinal Plants, Diabetes, IDDM, NIDDM, Tehri Garhwal.

Traditional Medicinal Plants of Gujjars Community in Dheela Range of Corbett National Park (Uttarakhand, India)

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Abstract
India is very rich in phytodiversity which is an integral part of our daily lives. Almost all the tribes of India obtain their daily needs from the wild plants. Uttarakhand, a hilly state of India, is very rich in tribal communities. Tharu, Bhotia, Jaunsar, Raji and Gujjars are prominent tribes of this state. The present study mainly focus on Gujjars, a seminomadic community, totally dependent on the wild plants. The main aim of present study is to register and document all the information about the traditional uses of medicinal plants by Gujjars. The indigenous knowledge of Gujjar’s was recorded through personal interviews and audio video documentation. A total of 54 medicinal plant species distributed in 34 families were collected during the survey between 2012 to 2014.

Keywords: Traditional Medicine, Gujjars, Corbett Tiger Reserve, Ethnobotany, Dhela.