

Medicinal Plants Utilized by Different Tribes of Uttarakhand

1. Dr. Anil Kumar

Received 27th Aug 2021,
Accepted 29th Sep 2021,
Online 29th Oct 2021

¹Associate Professor, Department of Botany, Govt. PG College, Rishikesh, Dehradun, Uttarakhand

Abstract: The present review is a detail about the medicinal plants utilized by different tribes of Uttarakhand in India. Medicinal plants, also called medicinal herbs, have been discovered and used in traditional medicine practices since prehistoric times. Plants synthesize hundreds of chemical compounds for functions including defense against insects, fungi, diseases, and herbivorous mammals. Numerous phytochemicals with potential or established biological activity have been identified. However, since a single plant contains widely diverse phytochemicals, the effects of using a whole plant as medicine are uncertain. Further, the phytochemical content and pharmacological actions, if any, of many plants having medicinal potential remain unassessed by rigorous scientific research to define efficacy and safety. Medicinal plants are widely used in non-industrialized societies, mainly because they are readily available and cheaper than modern medicines.

Keywords: medicinal, plants, diseases, pharmacological, tribals, Uttarakhand, phytochemicals, herbs

Introduction

We revised traditional phytotherapy of some indigenous medicinal plants used by **Tharu and Buxa tribes** of Uttarakhand. Four plants, *Euphorbia hirta* L (whole plant), *Asparagus racemosus* Willd (roots), *Cannabis sativa* L (leaves) and *Terminalia bellerica* Roxb (fruits) are most prevalent among these people for the cure of gastrointestinal and other problems.[1]



Euphorbia hirta

In the medicine system of **Rajis (tribes)**, a different type of classification or concept prevails which classifies diseases in to different categories. Rajis have classified in to three categories of diseases on the basis of their knowledge of diseases and illness. They have placed different diseases and illnesses under sub-head, which are particular their own culture. Deity-linked diseases include genetic abnormality(sar bada, muhkata), boils(phuria), chicken pox(devi ka aana), weak eye sight (bhoot chadna), sudden bleeding with cough(khoon pheknna), and leprosy(kodh). Spirit-linked diseases include high fever(bushaar), severe headache(saro dard), and severe headache with red eye(lalimaa). Body-linked diseases include cough and cold(khansi), cut and wounds(chot aur khoon nikalna), dysentery and diarrhea(panni aana), ear ache(kaan pakna), stomachache(peit dard), eye ailments(aankh dukhana), toothache(daant pirana), asthma(saana phoolna), urinary disorders, i.e. painful urination(peeshaab me dard) and internal injuries, i.e. bleeding from the nose(nakseer phootna).[2]



Aconitum heterophyllum

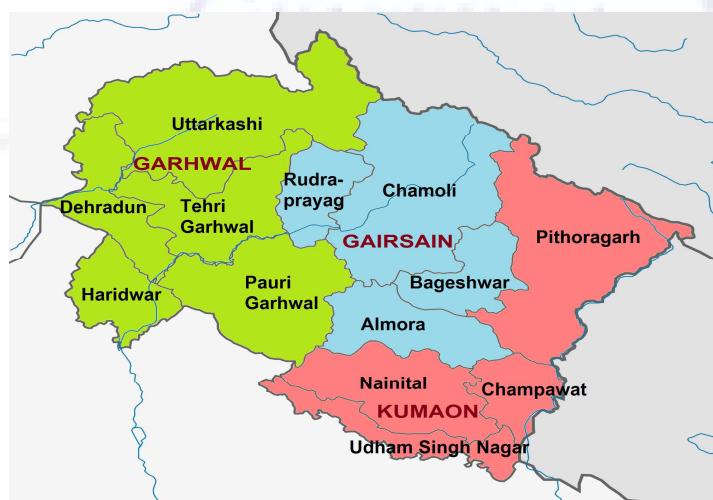
The practitioners of herbal medicine and villagers of **Bhatwari block district Uttarkashi** generally use Berberis, amla, kafal, garlic, akhrot, apricot, pudina, dhaniya and Matosha. The people of **Jakholi block** use *Picrorhiza kurroa* and *Aconitum heterophyllum* as common ethnomedicinal plants. Common people have the knowledge of *Aconitum heterophyllum*, *Acorus calamus*, *Adhatoda zeylanica*, *Asparagus racemosus*, *Aleo barbadensis*, *Andrographis paniculata*, *Boerhavia diffusa*, *Bergenia ligulata*, *Callicarpa macrophylla*, *Cissampelos pareira*, *Eclipta prostrata*, *Evolvulus alsinoides*, *Hedychium spicatum*, *Picrorhiza kurroa*, *Swertia chirayita*, *Oroxylum indicum*, *Plumbago zeylanica*, *Ricinus communis*, *Sida cordifolia*, *Solanum nigrum*, *Tribulus terrestris*, *Tinospora cordifolia*, *Valeriana jatamansi*, *Vitex negundo*, *Withania somnifera* and *Zanthoxylum armatum*, which are generally found in Uttarakhand. Some important species that need immediate attention for conservation in India are *Aconitum*, *Angelica*, *Atropa*, *Berberis*, *Dactylorhiza*, *Thalictrum*, *Hedychium*, etc.[3] The dried leaves of *Allium stracheyi* Baker had the highest price (Rs 3000 per kg) in the market, followed by *Picrorhiza kurroa* Royle ex Benth (Rs 2500 per kg). The plant parts of threatened medicinal plants species are also sold in the market, of these *Picrorhiza kurroa* and *Arnebia benthamii* (Wall. ex G.Don) Johns belong to the critically endangered category and *Swertia chirayita*, (Roxb.) H. Karst. and *Acorus calamus* L. belong to the endangered category. Besides, 4 species such as *Allium stracheyi* Baker, *Terminalia chebula* Retz., *Pterocarpus marsupium* Roxb. and *Gymnema sylvestre* R.Br. belong to the vulnerable category and two species such as *Terminalia arjuna* (Roxb. ex DC.) Wight & Arn. and *Asparagus racemosus* Willd. belong to the near threatened categories of threatened species as per the IUCN nomenclature. All the species as sold in the market in Uttarakhand are used by **Gharwal tribes**. [4]



Withania somnifera

Discussion

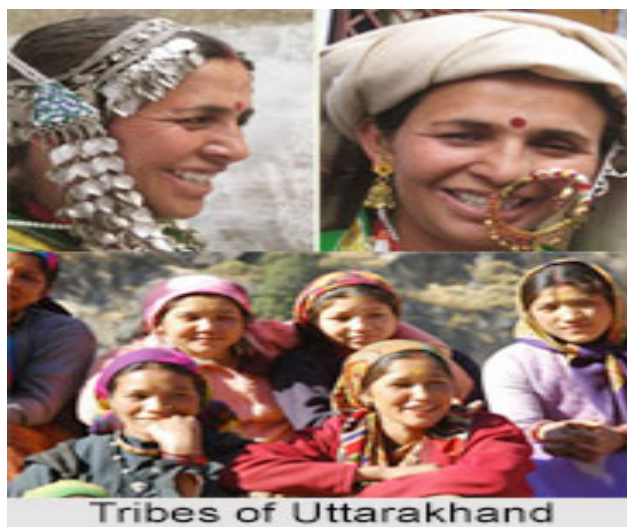
Uttarakhand is the youngest mountain state of the Republic of India and it was earlier part of Uttar Pradesh. It was carved out of Uttar Pradesh on the 9th of November 2000. It consists of two words “uttar” meaning north and “khand” meaning “part”. [5]



It occupies 17.3% of India's total land area with 53,483km² of which 92.57% is under hills and 7.43% under plains. It is situated between 77°34'27" to 81°02'22"E longitude and 28°53'24" to 31°27'50"N latitude. This state has different kind of geographical condition and vast biodiversity ranging from the snow bound peaks of the Himalayas with the highest Nanda Devi (7817m) to the subtropical Terai region. The border of state touches with Nepal in the East and China in the North. The Population of this state according to census of 2011 is 10,116,752. Out of these, the males represent of 5,154,178 and females comprise of 4,962,574. The state had a growth rate of 19.17% over the last census. The sex ratio in this region is 963 i.e. for each 1000 male and the population density is 189 per square kilometer. Out of the total population of this state 69.45% resides in the rural areas. [6]

Uttarakhand has a multiethnic population spread across two recognized geocultural regions: the Gahrwal, which corresponds roughly to the northwestern half of the state, and the Kumaun, which spans the southeast. Rajputs (various clans of landowning rulers and their descendants)—including members of the indigenous **Garhwali, Gujar, and Kumauni** communities, as well as a number of immigrant peoples—constitute a large portion of the population. Of the total population, nearly one-

fifth belongs to the Scheduled Castes (an official designation for those groups that traditionally have occupied a low position within the Indian caste system); these people are collectively called **Kols or Doms**.^[7]



Scheduled Tribes (an official category embracing indigenous peoples who fall outside the Indian social system), such as the Raji, who live near the border with Nepal, account for less than 5 percent of the population.



Terminalia chebula

Most of the people of Uttarakhand speak Indo-Aryan languages. Hindi is the official language of the state. Hindustani, which contains words from both Hindi and Urdu, is the principal spoken language. Other languages used in Uttarakhand include Garhwali and Kumauni (both Pahari languages), Punjabi, and Nepali.^[8]

Tribes of Uttarakhand mainly comprise five major groups namely **Jaunsari tribe, Tharu tribe, Raji tribe, Buksa tribe and Bhotiyas**. In terms of population Jaunsari tribe is the largest tribal group of the state. Tribes of Uttarakhand represent the ethnic groups residing in the state. Every district of Uttarakhand has more or less a moderate percentage of tribal population. In the state of Uttarakhand, the main concentration of tribal population is in the rural areas. As per records, around 94.50 percent of total tribal population resides in rural areas and the remaining percentage of tribal population lives in urban centers. It is said that officially Uttarakhand is the home of around five tribes. These tribes of Uttarakhand have been scheduled in the Constitution of India. Historical records suggest that the tribes of Uttarakhand are earliest settlers of this region of North India. In the past, their main concentrations were confined to remote hilly and forested areas. The tribes of Uttarakhand have retained their age old traditional ways of living. They represent the distinctive culture and traits of a primitive life. Their

traditional norms and socio-cultural practices determine their ethnicity. Officially Uttarakhand is home to as many as five tribes which have been scheduled in the Constitution of India, more than four decades back in 1967. [9]

Medicinal plants utilized by tribes in Uttarakhand are conserved by research institutes. The Herbal Research and Development Institute (HRDI), a nodal agency of **Uttarakhand Medicinal Plant Board**, has been established at Gopeshwar in 1989 for conservation, development and sustainable utilization of the valuable Medicinal and Aromatic Plant resources of Uttarakhand. It is an autonomous institute of the Uttarakhand Government registered under the Registration of Societies Act, 1860. The main objective of HRDI is to co-ordinate medicinal and aromatic plants activities carried out by various Govt agencies, farmers, research institutes, NGOs, etc. The main field activities of the institute cover the following areas:-

- Cultivation of valuable Medicinal and Aromatic Plants of Uttarakhand, primarily to improve livelihood opportunities.
- Survey, inventorisation and conservation of biodiversity of medicinal and aromatic plants.
- Research on agro-technique, bio-diversity, biotechnology and genetic improvement of Medicinal and Medicinal Plants.
- Development of cultivation techniques for Medicinal and Aromatic Plants and transfer of technology to the farmers and growers.
- Revitalization of traditional knowledge and the ancients' Indian medicine system, Ayurveda.
- Quality control assessment and research on active ingredients and substances of medicinal and aromatic plants.
- Human resource development, extension and dissemination of information relating to medicinal and aromatic plants.
- Co-ordination of activities of institutions/ departments engaged in development of medicinal and aromatic plants in Uttarakhand.[10]

Table showing Many endangered and vulnerable species of Uttarakhand

Serial No.	Species	IUCN Red List Status
1	<i>Aconitum balfourii</i> Stapf.	Vulnerable
2	<i>Angelica glauca</i> Edgew.	Endangered
3	<i>Arnebia benthamii</i> (D. Don) Johnston	Endangered
4	<i>Dactylocteniza hatagirea</i> (D. Don) Soo	Endangered
5	<i>Ephedra gerardiana</i> Wall.	Endangered
6	<i>Fritillaria roylei</i> Hook.	Endangered
7	<i>Jurinea macrocephala</i> (Royle) Arwal & Goel	Endangered
8	<i>Malaxis muscifera</i> (Lindley) Kurtze	Endangered
9	<i>Nardostachys jatamansi</i> (D. Don) DC.	Critically Endangered
10	<i>Picrorhiza kurroa</i> Berth	Critically Endangered
11	<i>Pedophyllum hexandrum</i> Royle	Endangered
12	<i>Polygonatum verticillatum</i> (L.) All.	Vulnerable
13	<i>Rheum australe</i> D. Don	Endangered
14	<i>Taxus baccata</i> L.	Endangered

Health care in the Uttarakhand state is provided by a number of district hospitals, several dozen community health centres, and, in the rural areas, hundreds of primary health centres and subcentres. Treatment is also available from private practitioners. The government recognizes and

supports allopathic (Western), Ayurvedic (traditional Indian), Unani (a traditional Muslim system using prescribed herbs and shrubs), and homeopathic medicine. The state participates in many of the national programs to control (or eradicate) diseases such as leprosy, tuberculosis, and malaria, as well as HIV/AIDS infection and various vector-borne diseases. It also has joined countrywide programs for the prevention of blindness and hearing loss.[11]

Table : Important Selective Medicinal plants used by tribals of Uttarakhand

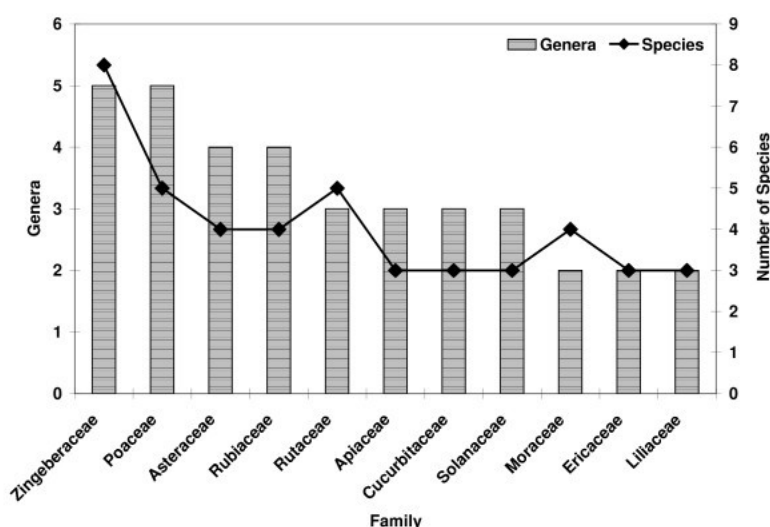
S.No.	Botanical name	Local name	Family	H.No.	Disease Cured	PU	Prep.	Adm.
1.	<i>Acalypha indica</i> L.	<i>Kuphi</i>	Euphorbiaceae	GUH-JS 18853	Ear Problem	LF	JU	EX
2.	<i>Achyranthes aspera</i> L.	<i>Chattisa/ Chircita</i>	Amaranthaceae	GUH-JS 18893	Boils	LF, RT	PAS	EX
3.	<i>Aegle marmelos</i> (L.) Correa	<i>Bel</i>	Rutaceae	GUH-JS 18837	Cholera	FR	JU	IN
4.	<i>Albizia lebbek</i> (L.) Benth.	<i>Siris</i>	Mimosaceae	GUH-JS 19740	Boils	LF	JU	EX
5.	<i>Allium sativum</i> L.	<i>Lehsun</i>	Lilaceae	GUH-JS 18889	Diarrhoea	BU	PW	IN
6.	<i>Alstonia scholaris</i> (L.) R.Br.	<i>Chitwan</i>	Apocynaceae	GUH-JS 20321	Cholera	BRK	DE	IN
7.	<i>Anisomeles indica</i> (L.) Kuntze	<i>Basinga</i>	Lamiaceae	GUH-JS 18814	Gastric complaints	LF	INF	IN
8.	<i>Annona squamosa</i> L.	<i>Sitaphal</i>	Annonaceae	GUH-JS 20297	Boils	LF	PAS	EX
9.	<i>Argemone maxicana</i> L.	<i>Pili kantiya</i>	Papaveraceae	GUH-JS 18838	Digestive disorder	SD	PW	IN

Sharma et al.

<http://www.openaccessscience.com>
ijman@openaccessscience.com

Results

Locals acquire knowledge of the economic values and medicinal properties of many plants through need, observation, trial and error, and the transmitted experiences of elders. Often, knowledge is concentrated in specialist healers. Most diseases cured by local herbalist are common problems such as respiratory diseases, aches and pains, wounds, and musculoskeletal ailments. Inhabitants often use local medicinal plants without prior advice of local traditional healers because they are using these plants since generations. This knowledge may be passed secretly from one generation to the next through word of mouth or inherited via medico-spiritual manuscripts. Although knowledge of these valuable plants is often restricted within lineages or in other ways, ensuring that the younger generations in these areas acquire this knowledge is essential to its continuity in use and sustainability. Medicinal plant richness of the Indian Himalaya is exemplified in Himalaya, Uttarakhand, within northwestern India. Graph shows selective families mostly used by the tribes of Uttarakhand.[11]



Conclusions

At this time, conservation and sustaining ecological balance has become the main challenge for the world as well India. Forests in the mountainous areas are facing immense anthropogenic pressure (lopping for fuel wood and fodder, grazing, illegal harvesting for timber, forest fires, etc.) For subsistence living. Degradation of forests in many places has reached a stage where recovery is complicated. In a country where forests maintain the livelihood of 500 million people, managing forests is crucial, particularly in the Himalayan region. In this region, many tribal communities and people depend on forest resources for their livelihoods as well as primary health care system. But due to the deforestation, commercialization of agriculture and also commercialization of medicinal sector, tribal communities and other people are faced many problem. The tribal and rural people of ancient India depend on basic preparations of these medicinal herbs for a number of treatments. The use of the herbal remedy is not only cost effective but also safe and almost free from serious side effects. Over exploitation, loss of natural habitation, poor seed germination rate etc., are the major factors of decline of the important medicinal plant species. Traditional uses of medicinal plants may also decline due to increasing of tourism in this hilly state. The local practitioners are decreasing in number and there is a risk of traditional knowledge system disappearing soon as the younger generation is not interested to learn their tradition knowledge. Records of indigenous knowledge through ethnobotanical and ethnomedicine studies are very important for the conservation and utilization of biological resources. It is compulsory that, there is a need to pay attention for conservation of commercially important species of medicinal plants as well as other valuable forest resources by the local forest department and NGOs & medicinal plants board sector. The over exploitation of natural resources, fast changing tribal culture in modern period has caused the loss of such valuable knowledge[12]

References

1. Anthwal A, Sharma RC, Sharma A. Sacred groves: traditional way of conserving plant diversity in Garhwal Himalaya, Uttaranchal. *Journal of American Science* 2006; 2(2):35–8.
2. Anthwala, A, Gupta, N, Sharma, A, Anthwal, S, KI-Hyun Kima. Conserving biodiversity through traditional beliefs in sacred groves in Uttarakhand Himalaya, India. *Resources, Conservation and Recycling* 54 (2010) 962–971.
3. Anonymous. Census of India SC/ST Population. Registrar General of India, New Delhi, 1991
4. Anonymous. Census of India for the State of Uttaranchal. Bihar and Jharkhand, Registrar General of India, New Delhi, 2001
5. Attisso MA. Phytopharmacology and Phytotherapy. In: Bannerman RH, Burton J, (eds.), *Traditional Medicine and Health Care Coverage*. 1983. World Health Organization, Geneva.
6. Bhatt V.P., & Negi, G.C. Ethnomedicinal plant resources of Jaunsari Tribe of Garhwal Himalaya, Uttaranchal, *Indian Journal of Traditional Knowledge* Vol.5(3) July 2006, Pp331-335.
7. Dhyani PP. Common plant species have potential for economic upliftment of rural populace – Bantulsi a case in point. *HimaParyavaran* 2000; 12:11–3.
8. Farnsworth NR, Soejarto DD. Global Importance of Medicinal Plants. In: Akerle O, Heywood V, Synge H (eds.) *Conservation of Medicinal Plants*. 1991. Cambridge University Press, Cambridge.
9. Gajrani S. History, religion and culture of India. Chawla Offset Press; 2004.
10. Kala CP, Dhyani PP, Sajwan BS. Developing the medicinal plants sector in northern India: challenges and opportunities. *Journal of Ethnobiology and Ethnomedicine* 2006; 2:32.
11. Kala CP. The valley of flowers: myth and reality. Dehradun: International Book Distributors; 2004.
12. Majumdar, D.N. and Madan, T.N. *An Introduction of Social Anthropology*. Asia Publishing House, Bombay, 1970.