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Ethnomedicinal plant resources of *Jaunsari* tribe of Garhwal Himalaya, Uttaranchal

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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
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The Garhwal Himalaya on account of its unique setting within the Himalayan region possesses luxuriant and varied vegetation, most of which is important from nutritional, aesthetic and medicinal view point[1]. In this region, the primitive communities and tribal populace, living in harmony with nature is the richest repository of accumulated experience and knowledge on indigenous flora. Some most useful plants are the integral part of rich folklores and rituals of the *Juansari* tribe[2,3]. Use of plants for medicare is as ancient as the human civilization. Incidentally, not much is known about such plants and concerted efforts are called for documentation of this valuable traditional ethnomedicinal knowledge[4]. As tribal area and tribes are transforming themselves under various developmental programmes in the region, there is a danger of extinction of this traditional knowledge. Therefore, documentation of traditional knowledge is essential. The present study describes the commonly used plant species by the *Jaunsari* tribe for the treatment of different diseases in Garhwal region of the Uttaranchal (Table 1).

Jaunsar region is the part of the undulating terrains of Garhwal Himalaya (Latitude 30^{o} 31′ – 31^{o} 3′ 3″ N and Longitude 77^{o} 45′ – 78^{o} 7′ 20″ E) in Dehradun district. The study region is bounded by Tons river in Northeast and Yamuna river in Northwest. Altitudinal stretch of this region ranges between 540 msl and 3200 msl. The Jaunsar-Juanpur region is remote and virtually isolated from rest of the world. The people of this area are socio-economically backward and most of them are below poverty line. Climatically spring, summer, rainy and winter seasons are well marked in this region. The maximum rain is experienced during July and August. The region receives an average rainfall of 1610 mm annually. May to June are hottest months and in the foothills the summer temperature reaches up to 40^{0} C, whereas the higher peaks of the area receives frequent snowfall during winter.

Methodology

Extensive and frequent field surveys were conducted in 60 different villages of the Jaunsar and Juanpur area during summer 2004. Information on plants used for different ethnomedicinal purposes was collected by field observations and discussions with elderly people of the local tribal communities. The elders of the several communities, the local herbal doctors (*Vaidyas*) and other knowledgeable people of the area communicated with the tribal communities to understand the usages and vernacular names of plant species. Extensive literature search was conducted to verify the name of plants and their ethnobotanical importance[5-13]. Plants identified taxonomically by referring the floras were deposited at HNB Garhwal University Herbarium, Srinagar, Garhwal, Uttaranchal.

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Table 1— Ethnomedicinal uses among the tribal villages of Jaunsar region of district Dehradun

Botanical name	Family	Vernacular names	Ailments	Plant part(s) and preparation	Conservation status
Abrus precatorius Linn.	Fabaceae	Ratti	Fever, asthma, chest pain, tuberculosis	Leaf, seed and root decoction	Common/Rare
Achyranthes aspera Linn.	Amaranthaceae	Chirchita	Muscular cramps	Root decoction	Common
A. bidentata Blume	Amaranthaceae	Golda	Wounds, snake bite	Root past/Plant extract	Common
Aconitum atrox (Buehl) Mukherjee	Ranunculaceae	Meetha Bish	Rheumatism, neuralgia, paralysis, puerperal fever	Rhizome paste fried in *Ghee* is externally used	Common/Vulnerable
A. heterophyllum Wall.	Ranunculaceae	Ateesh	Stomachache, fever, cough, diarrhoea	Root powder with honey	Rare
Adhatoda vasica Nees	Acanthaceae	Basinga	Whooping cough, skin diseases, headache, dysentery	Leaf juice, Flowers, Root paste	Common
Aegle marmelos Correa	Rutaceae	Bel	Diarrhoea	Leaf paste and fruit decoction	Common
Ajuga bracteosa Benth.	Lamiaceae	Kadwipatti	Malaria, astringent, febrifuge	Plant extract	Common
A. brachystemon Maxim.	Lamiaceae	Neelkanthi	Malaria, astringent, febrifuge	Plant extract	Rare
Anemone polyanthes D Don	Ranunculaceae	Ratanjot	Food poisoning	Seed decoction	Rare
A. obtusiloba D. Don	Ranunculaceae	Kanchphool	Diarrhoea	Root decoction	Rare
A. vitifolia Buch.-Ham.	Ranunculaceae	Mudeela	Ringworm, Eczema	Leaf/root paste	Common
Angelica glauca Engew.	Apiaceae	Choru	Flatulence, Colic	Root paste/decoction	Endangered
Argemone mexicana L.	Acanthaceae	Kandra	Leprosy	Leaf paste with turmeric	Common
Arisaema tortuosum Schott	Araceae	Chhamboos/Bag mungri	Snake bite	Tubers paste externally applied	Rare/Common
Arisaema propinquum Schott	Araceae	Meen	Erysipelas & scabies	Root paste externally applied	Common
A. jacquemontii Bl.	Araceae	Khaprya/Saperi mausi	Poisonous mushroom/snake bite antidote	Fruit decoction	Common/Rare
Artemisia nilgirica (C.B. Clarke) Pamp.	Asteraceae	Chhamboor/ Chhamra	Malarial fever, cuts & wounds, headache, stomachache	Plant extract/leaf paste applied	Common
Asparagus adscendens Roxeb.	Liliaceae	Jhirni	Sexual debility & urinogenital disorders	Powder of dried tuberous root	Rare/Common
Astragalus candolleanus Royle ex Benth.	Fabaceae	Rudravanti	Blood and skin diseases, tuberculosis	Root decoction	Rare
Berberis chitria Lindl.	Berberidaceae	Kingore/Chotar	Jaundice, eye disorders (ophthalmia)	Fruit, bark and root	Common/Rare
B. lyceum Royle	Berberidaceae	Kasmal/Chatroi	Diabetes/skin disease	Root decoction	Rare
Bergenia ciliata (Haw.) Sternb.	Saxifragaceae	Silphara	Kidney stone, Sores, Swellings	Root decoction, Leaf juice	Endangered
Boerhaavia diffusa L.	Nyctaginaceae	Punarnava	Jaundice, Asthma, Bronchitis, Eye problems	Root decoction, Plant infusion Leaf extract	Rare
Callicarpa macrophylla Vahl	Verbenaceae	Daiya	Rheumatic pain	Fruits, leaves	Common/Rare

Contd.—

Table 1— Ethnomedicinal uses among the tribal villages of Jaunsar region of district Dehradun— *Contd*

Botanical name	Family	Vernacular names	Ailments	Plant part(s) and preparation	Conservation status
Calotropis procera (Ait) R. Br.	Asclepiadaceae	Ank	Expectorant, cold cough and asthma	Latex, root bark and flower	Common/Rare
Cassia occidentalis L.	Caesalpiniaceae	Chakunda	Skin disease, cuts, wounds, bone fracture	Leaves, fruits and roots	Common
Cassia tora L.	Caesalpiniaceae	Chakunda	Skin disease, piles, snakebite and dropsy	Leaves, fruits, roots	Common
Centella asiatica (L.) Urban	Apiaceae	Brahmi	Mental disorder, skin disease, blood purifier, diuretic,	Plant extract, leaf paste	Common
Cuscuta europaea L.	Cuscutaceae	Akash-laguli	Skin disease	Plant decoction	Common
Dioscorea bulbifera L.	Dioscoreaceae	Gainthi	Bronchial cough, Antiseptic,burn wounds	Tubers eaten as vegetable	Common
D. deltoidea Wall.	Dioscoreaceae	Tairu	Urinogenital disorders	Rhizomes	Rare/Common
Emblica officinalis Gaertn.	Euphorbiaceae	Amla	Stomach problem	Fruit extract	Common
Euphorbia hirta L.	Euphorbiaceae	Dudhibari	Piles, wart, bronchial infection, asthma	Plant and its latex with curd	Common
Evolvulus alsinoides L.	Convolvulaceae	Sankhpushpi	Cough, cold, asthma, bronchitis	Plant and flower extracts	Common
Gloriosa superba L.	Liliaceae	Langlya	Painful delivery, suppressed urination	Tuber powder, Leaf extract	Endangered
Hedychium spicatum Buch.-Ham	Zingiberaceae	Kapoorkachri/ Banhaldi	Dyspepsia, Asthma, Tuberculosis, Piles	Root powder, with *Deodar* sawdust	Rare
*Leucas cephalotes*Spreng.	Lamiaceae	Dronpushpi	Diaphoretic, snakebite, anthelmintic,	Plant decoction	Rare
Litsea glutinosa (Lour.) Robins	Lauraceae	Maida-lakri	Bone fracture	Wood paste is applied on wound	Common/Rare
Myrica esculenta Buch.-Ham	Myricaceae	Kaphal	Headache	Leaf paste is applied externally	Common
Nardostachys jatamansi DC.	Valerianaceae	Jatamasi	Epilepsy, Hysteria	Rhizome	Endangered
Origanum vulgare L.	Lamiaceae	Bantulsi	Bronchitis, whooping cough, diarrhoea, colic	Leaf extract	Common
Plantago depressa Willd.	Plantaginaceae	Luhurya/Isabgol	Cuts, wounds, piles, stomach ailments	Leaf extract and seeds are eaten	Endangered
P. lanceolata L.	Plantaginaceae	Luhurya/Isabgol	Cuts, wounds, piles, stomach ailments	Leaf extract and seeds are eaten	Common
Potentilla fulgans Hook.	Rosaceae	Bajradanti	Stomatitis	Fruits, plant juice	Common
Prinsepia utilis Royle	Rosaceae	Bhaikul	Rheumatic pain and diarrhoea	Seed and root bark	Common
Prunus cerasoides D. Don	Rosaceae	Panya	Psychomedicine and body swelling	Bark and leaf paste	Common/Rare
Rauvolfia serpentina Benth.	Apocynaceae	Sarpgandha	Fever, anxiety, epilepsy, intestinal & nervous disorders	Roots	Endangered

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Table 1— Ethnomedicinal uses among the tribal villages of Jaunsar region of district Dehradun— *Contd*

Botanical name	Family	Vernacular names	Ailments	Plant part(s) and preparation	Conservation status
Rheum emodi Wall., ex Meissn.	Polygonaceae	Archu/Dolu	Bone ache, Muscular pain, Bruise	Rhizome paste fried with turmeric and *Ghee*	Vulnerable
Rumex hastatus D.Don	Polygonaceae	Almora	Cuts, wounds, bleeding	Plant extract	Common
Smilax aspera L.	Smilacaceae	Kukardara	Diuretic, diaphoretic, rheumatic arthritis	Root and its paste	Common
Solanum nigrum L.	Solanaceae	Makoi	Spleen, diarrhoea, eye ailments, piles	Leaf and stem infusions	Common
Spondias pinnata (L.f.) Kerz	Anacardiaceae	Amra	Stomach and ear problem	Fruit extract and bark gum	Common
Swertia angustifolia Buch.-Ham. ex D.Don	Gentianaceae	Chirotu	Blood disease, malaria	Plant extract	Endangered
Syzygium cumini (L.) Skeels	Myrtaceae	Jamun	Diabetes	Fruit and bark	Common
Terminalia bellirica Roxb.	Combretaceae	Bahera	Stomach problem	Fruit extract	Common
T. chebula Retz.	Combretaceae	Hera	Stomach problem	Fruit extract	Common
Thalictrum foliolosum DC.	Ranunculaceae	Mamiri	Eye inflammation, ophthalmia, colic fever	Root decoction	Rare/Common
Tinospora sinensis (Lour.) Merrill	Menispermaceae	Giloe	Debility, leprosy, urinary trouble, malaria	Stem and leaf juice	Endangered/ Common
Urtica dioica L.	Urticaceae	Kandali	Dysmenorrhoea, sciatica, rheumatism, skin ailments	Plant decoction	Common
Valeriana jatamansi Jones	Dipsacaceae	Samewa	Aphrodisiac, mental disorders	Roots	Common
Viola betonicifolia J. E. Sm. Var. *napaulensis* (Ging.) Bech.	Violaceae	Banafsa	Sinusitis, skin and blood diseases, diaphoretic, fever, cough, pharyngitis	Plant extract or powder, Leaf decoction	Common
Vitex nigundo L.	Verbenaceae	Sinwali	Rheumatism, Arthritis, Anthelmintic	Leaf, root and fruit decoction	Common
Withania somnifera Dunal	Solanaceae	Ashwagandha	Urinary disorders, fever, Insomnia	Leaf juice Root powder	Common/Rare
Woodfordia fruticosa Kertz.	Lythraceae	Dhaula	Haemorrhoids febrifuge, vaginitis	Leaves, bark, dried flowers	Common
Zanthoxylum armatum DC.	Rutaceae	Timru	Toothache, Tooth decay	Fruit-powder, Stem bark	Common/Rare

Results and discussion

Scientific name of the plants along with their vernacular names and medicinal uses used by the tribal people in the study area are presented. The *Jaunsari* tribal people use a total of 66 plant species belonging to 52 genera and 41 families for curing different ailments. Among them 9 are tree species, 11 shrubs and 46 herb species. All these plants are used in the treatment of 64 different diseases. Further, different plant parts are used for curing different diseases. Roots of 31 plant species, leaves and fruits of 23 plant species, wood and bark of 9 plant species and whole plant of 18 species were used to cure different ailments. Some of the common diseases cured were: tuberculosis, asthma, paralysis, diarrhoea, jaundice, opthalmia, kidney stone, bone fracture, mental disorder, arthritis, urinogenital disorders, snakebite, wounds and cuts, etc. Non-availability of the modern healthcare facilities must have been a deciding factor to depend upon the traditional medicare practices. Since, there are reports of only 49 species of plants used by these tribes, the present investigation reports 17 new

plant species used for healthcare by the *Jaunsari* tribe[8,15]. *In-situ* and *ex-situ* conservation efforts are required immediately to maintain the plant stock in the region. From the conservation point of view, out of the total 66 plant species, 13 falls in rare, 7 endangered, and 1 in vulnerable categories[16,17]. Five species those have been kept under endangered/rare categories in the IUCN list were common to the study area. Contrary to it, 9 species that fall under common category in the IUCN list were found rare in the study area, and one common species was found vulnerable in the study area. The pressure on the plant resources of medicinal value is mounting with the passage of time. Efforts are urgently required for conservation of these plants involving the local tribal communities having unique eco-cultural traditions[18, 19].

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