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A list of some important medicinal plants with their medicinal uses from Himalayan State Uttarakhand, India

Tripuresh Dwivedi, Chandra Kanta, Lalit Raj Singh and Ishwar Prakash Sharma

Abstract
Himalayan range has a rich heritage of knowledge on plant based therapy. Medicinal plants play major role in the livelihood from all over the world. Uttarakhand, a Himalayan state of India also depends on the medicinal plants for medicine and traditional therapy. The people from this state use plants for their primary health care system mainly depend on traditional knowledge of medical practices and medicinal herbs. Many of the previous studies on traditional medicine as scientific outputs having traditional claims of effectiveness which are helpful to manage various ailments. In this regards many native medicinal plants listed in article are significantly utilized by the locals, which was need to document. In this scenario we try to document some medicinal plants with their medicinal properties from this state.

Keywords: medicinal plants, traditional knowledge, tribal, Uttarakhand

Introduction
According to floral statistics of India 2017 hosted by Botanical Survey of India, Kolkata, West Bengal, a total of 2,68,600 flowering plants worldwide among them 18,386 (6.84% of world) exited in India. In India, approximately 3000 plants species are known to have their medicinal properties [1], in another reports a total of 2500 plants are of traditional medicine among them 100 plants used regularly [2]. Traditional medical knowledge of plants not only useful for conservation of biodiversity but also useful to healthcare and drug development. Himalaya is a global biodiversity hotspot with much diversified geographical, ecological and evolutionary factors for species diversity which support 18,440 species of plants of which 25.3% is of endemic [3, 4]. The Indian state Uttarakhand located in Himalayan hotspot having a huge wild diversity which occupies 17.3% of India's total land area including 92.57% area under hills and 7.43% under plains. Geographically it is located between 28°43'–31°27'N latitudes and 77°34'–81°02'E longitudes. In the border, river Tons separates it from Himachal Pradesh in the north-west, river Kali separates it from Nepal in the east and greater Himalaya is the northern boundary of the state and also the international border with China. About 1748 economically important plants reported from Himalaya [4]. The people community mainly Bokshas, Tharus, Bhotias, Van-gujjars, Marchchas, Tolchas, Jaunsaris, Koltas, Gangwal, Banw-rauat, etc. are generally dependent on the wild flora for their own traditional system of therapy [2, 5]. Joshi *et al.* [6] reported a total of 102 plant species from 48 families are of their ethno-medicinal uses from the four district of the state namely Almora, Champawat, Bageshwar and Pithoragarh. Adhikari *et al.* [7] examined the status and distribution pattern of medicinal plants in Wildlife Institute of Dehradun, Uttarakhand and recorded 605 plants from 94 families. This article based on previous studies on medicinal plants of Uttarakhand on this basis authors focused on some important highlights of native medicinal plants which need to conservation and cultivation because these plants are naturally grown in abundance and fast depleting can help the natives to earn their livelihood to some extent. For future perspectives this study, will be helpful to pharmacologist, phytochemist and researcher of this field. Therefore, this study is aimed to manuscript and underlines the importance of traditional knowledge used for the treatment of different diseases in the Himalayan state Uttarakhand, India.

Table 1: A list of selected medicinal plants with their ethno-medicinal uses from Uttarakhand, India

Botanical Name (Family)	Local name	Parts used	Ethno-medicinal Uses
Abelmoschus moschatus Medik. Malvaceae	Jangali bhindi	Root, Seed	Fresh roots with young plant of *Bombax ceiba* used in the treatment of leucorrhea in female and sexual impotency in male [2]. Seeds are diuretic, aphrodisiac, ophthalmic, cardiotonic, digestive, stomachic, constipating, carminative, stimulant, antispasmodic, cardiac debility, cough, asthma, bronchitis, hyperdipsia, burning sensation, nausea, dyspepsia, flatulent colic, diarrhea, strangury, gonorrhea, spermatorrhea, calculi, halitosis, ptyalism, vomiting and other neural disorders, leukoderma, and general debility [8, 9].
Acorus calamus L. (Acoraceae)	Baj	Root	Headache [10]; Anti-bacterial, anti-helmintic [11]; Fever, asthma, bronchitis, cough, digestive problems (gas, bloating, colic) [12].
Adenostemma lavenia (L.) Kuntze Asteraceae	Jangli-jira	Flower, Leaf	Flowers used for increasing saliva so useful in treatment of mouth dryness [2]. Leaves paste use in wound healing [13].
Aegle marmelos (L.) Corrêa (Rutaceae)	Bel	Fruit, Root	Astringent, antidiarrheal, antidysentric, demulcent, antipyretic, laxative [10, 14, 15].
Aesculus indica (Wall. ex Cambess.) Hook. (Sapindaceae)	Panker	Fruit	Rheumatism (warm paste applies on affected part) [10, 16].
Ageratum conyzoides L. Asteraceae	Goatweed	Leaf	Leaves paste is very useful in wound healing [2], treatment of leprosy, diarrhea, dysentery, intestinal colic, rheumatism, fever [17].
Allium cepa L. (Amaryllidaceae)	Pyaj	Bulb	Roasted warm bulb is eaten in abdominal pain and skin diseases [10] and also used in malaria, diarrhea, wounds with antimicrobial, antioxidant properties [18].
Amelanchier canadensis (L.) Medik. Rosaceae	Indian wild pear	Fruit	The juice of the ripe fruit is used in the treatment of diarrhea [19, 20].
Anaphalis triplinervis Sims ex C.B. Clarke (Asteracese)	Bakal	Leaf	Used in wounds and skin diseases [10] important in flu, fever, nausea and eye infections [21].
Anisomeles indica (L.) Kuntze Lamiaceae	Catmint	Leaf	Fresh leaves as well as greenish parts contain volatile oil used in treatment of cough and cold [2], chronic rheumatism, psoriasis, snake bites [22].
Asparagus curillus Buch.-Ham. ex Roxb. (Asparagaceae)	Safed Musli	Root	Root powder is administered as sexual tonic [10] along with dysuria, diabetes and dysentery [23].
Asparagus racemosus Willd. (Asparagaceae)	Satawari kairua, Katerwali vel	Root, Rhizome	Root powder administered orally as aphrodisiac [10]; also used in stomachache, urinary disorders, Nervous disorders, inflammation, liver diseases, infectious diseases [24, 25], ulcers, cancer [26].
Berberis aristata DC. (Berberidaceae)	Kambal	Root	Root extract used in eye diseases, diarrhea, jaundice, skin diseases, syphilis, chronic rheumatism, urinary disorders [10, 27], diabetes, jaundice and Gastro intestinal problem [28].
Berberis chitria Buch.-Ham. ex Lindl. (Berberidaceae)	Kilmorha	Root	Root extract is very useful in higher fever, jaundice, diabetes, stomach disorders, rheumatism, eye, ear and skin disease [10, 29].
Bergenia ciliata (Haw.) Sternb. (Saxifragaceae)	Sirparha	Root	Root powder is very useful in kidney stones and ulcers [10, 28, 30].
Boenninghausenia albiflora (Hook.) Rchb. ex Meisn. (Rutaceae)	Pissumar	Whole plant	External application of whole plant juice cure headache and eyes pain [10]; also shows various effects as hepatoprotective, antioxidative, anti-inflammatory and immunomodulating [31].
Boerhavia diffusa L. (Nyctaginaceae)	Punarnava	Root	Juice of fresh roots is used as eye drops [10]; very useful tonic to liver problem, jaundice, asthma with antimicrobial activity [32, 33].
Bombax ceiba L. (Malvaceae)	Saimul	Leaf, Root	Leaves paste applies over wounds with good property of pain killer and improve gynecological disorders [10, 34]. The formulation of root with leaves of *Dalbergia sissoo* is used in sexual impotency [2].
Boswellia serrata Roxb. (Burseraceae)	Sallai	Bark	Hot decoction of bark used in wound [10], chronic inflammatory diseases [35]; diarrhea [36].
Buchanania cochinchinensis (Lour.) M.R. Almeida (Anacardiacea)	Achar	Leaf	Very effective in dental pain when gargle the juice twice daily [10]; asthma [37]; cancer [38].
Butea monosperma (Lam.). Kuntze Fabaceae	Dhak, Palash	Flower, Gum	The flower extract with water useful in gastritis [2]. Gum from bark known as Bengal Kino useful in treatment of ulcer, diarrhea, antioxidative, anti-inflammatory, hepatoprotective and anti-cancer activities [39].
Byttneria herbacea Roxb. (Malvaceae)	Kamraj	Root	Root paste used in fever and leucorrhoea [10].
Cajanus scarabaeoides (L.) Thouars (Fabaceae)	Chowkhara	Leaf	Crushed or rubbed leaves applied in throat disease, chewed in tonsillitis [10]; Heptoprotective and immense medicinal potential [40, 41].
Callicarpa macrophylla Vahl. (Lamiaceae)	Daya	Fruit	Very helpful in urinary disorders, skin problem, diarrhea, defecation and hair care [10, 42, 43].
Calotropis gigantea (L.) W.T. Aiton (Apocynaceae)	Aak	Leaf	Warmed fresh leaves used in wound, toothache, earache, epilepsy, diarrhea and mental disorders [10, 44].

Carissa spinarum L. (Apocynaceae)	Karunda	Root	Used in rheumatism, having strong purgative property so used as one of the ingredients in some purgative preparations [20, 45].
Celastrus paniculatus Willd. (Celastraceae)	Malkangani	Fruit, Seed	Boiled solution of fruits and seeds with oil use in piles, gout, rheumatism, cold, dysentry, diarrhoea, leprosy, snake bite, wound, anti-spasmodic, carminative and antihelmintic properties and also used for treatment of epilepsy, mental ailments, chronic diarrhea, dysentery, bronchial catarrh, intermittent fevers and tumors [46]; pneumonia [47]; leucorrhoea [48].
Cleome viscosa L. (Cleomaceae)	Kumkum	Leaf	Leave's juice very useful to ear diseases [10]; anthelmintic, antiseptic, carminative, antiscorbutic, sudorific, febrifuge, and cardiac problems [49].
Commelina benghalensis L. Commelinaceae	Kanchara	Leaf	Paste of leaves used for curing swelling as honeybee biting [2].
Commelina paludosa Blume Commelinaceae	Kankowa	Whole plant	Decoction of plants with water used in treatment of sexual impotency [2].
Cordia myxa L. Boraginaceae	Lasura	Fruit	Fruit are very useful in common cold and cough [2].
Corylus colurna L. (Betulaceae)	Bhotia badam	Nut	Direct use of nut or its tonic use as diuretic, aphrodisiac [50].
Cydonia oblonga Mill. (Rosaceae)	Bihi	Leaf, Seed	Leaves having phenolic compounds as antioxidants properties, Vit-E, carotenoids, L-ascorbic acid and other organic acids [51, 52]; in folk medicine for their sedative, antipyretic, anti-diarrheic and antitussive properties along with treatment of various skin diseases [53, 54]. Seeds used in diarrhea, dysentery, cough, sore throat and bronchitis [55], intestinal colic and constipation [56] and also used for allergic rhinitis and asthma [20, 57].
Datura metel L. (Solanaceae)	Dhatur	Leaf	Boil and warm leaves used in affected part for antibiotics, antibacterial, antimicrobial activity [10, 58].
Datura stramonium L. (Solanaceae)	Dhatura	Flower	Flower's juice used in earache [10] having analgesic and antiasthmatic activities [59].
Dicliptera bupleuroides Nees (Acanthaceae)	Soriul	Seed, Leaf	Decoction of seeds and leaves with water very useful in dysentery [10]; respiratory and urinary tract infections, digestive disorders, sexual problems, skin diseases, liver ailments, wound healing, blood vomiting, malaria, piles, epilepsy, jaundice, gummosis, round worms, hepatitis [60].
Drimia indica (Roxb.) Jessop (Asparagaceae)	Banpyaja	Bulb	Juice of bulb is used in cough, bronchitis, nematode infection, pyrexia [10] dropsy, respiratory ailment, bone and joint complications, skin disorders, epilepsy and cancer [61].
Euonymus tingens Wall. (Celastraceae)	Kusum	Whole plant	The powder mixture of 10gm with opium seeds (10gm), almond (5gm), kali mirch (5gm) and bansh mishri (10gm) used orally in kidney stone and eye diseases [10, 62].
Ficus auriculata Lour. (Moraceae)	Timil	Whole plant	Gastrointestinal problems treated by using 50-100ml fresh leaves juice when used regularly upto 10 days [63]. Bark and root show hypoglycemic and anthelmintic activity [64, 65]. Fruit extracts exhibits anti-tumour activity [20, 66].
Ficus auriculata Lour. Moraceae	Timul, Timil	Whole plant	Gastrointestinal problems treated by using 50-100 ml fresh juice of leaves with water for about 10 days [63]. Bark and root show hypoglycaemic and anthelmintic activity [64, 65]. The extract inhibits insulinase activity from liver and kidney. Fruit extracts exhibits anti-tumour activity [66]. Leaves exhibit hypotensive activity [20, 67].
Ficus benghalensis L. Moraceae	Bargad	Fruit, Bark	The milky latex of fruit with sugar used in treatment of sexual impotency [2]. Leaf, fruit, bark are useful in central nervous system, endocrine system, gastrointestinal tract, reproductive system, respiratory system and infectious disorders [68].
Ficus palmata Forssk. (Moraceae)	Bedu	Friut	Fruits are beneficial in lung and bladder diseases. Along with these are good source of minerals, phosphorus and a small amount of Vit. C [69]; the latex is useful in wound healing [28].
Geranium wallichianum D.Don ex Sweet (Geraniaceae)	Laljari	Root	Root extract useful in backache, gout, bone strengthening, hepatitis, liver problems, premature delivery [30, 70].
Glycosmis pentaphylla (Retz.) DC. Rutaceae	Ban Nimbu	Seed	Seeds of plant used in curing of vomiting [2].
Grevillea robusta A. Cunn. ex R.Br. Proteaceae	Silver Oak	Leaf	Paste of fresh leaves with vegetable ghee and coconut oil very useful in burning and burning sensation [2].
Gymnema sylvestre (Retz.) R.Br. ex Sm. (Apocynaceae)	Aphe	Leaf	Boiled leaves with til-oil when applied externally 3-4 drops twice per day used for eyes to reduce pain. Direct use of milky juice from crushed fresh leaves when applied once daily for 3 day also helpful in eye problems [10] along with antidiabetic properties [71].
Gymnosporia spinosa (Blanco) Merr. & Rolfe (Celastraceae)	Vaikal	Leaf	Paste of leaves useful in Bala-shosha (a condition in which child is emaciated) when applied and rubbed on back [10].
Hedychium spicatum Sm. (Zingiberaceae)	Kapurkachari	Root	Root powder is very useful in neuro muscular disorders and body pain along with anticancerous and antimicrobial activities [10, 72].
Helicteres isora L. (Malvaceae)	Atanda	Root	Orally use of crushed roots used in excessive appetite, empema and stomachic [10, 73]; having antioxidant and anticancer properties [74].
Holarrhena pubescens Wall. ex G.Don	Dhodhi	Latex	Useful in ring worm when latex applied on affected part [10] also useful in constipation, colic, and diarrhea [75].

(Apocynaceae)			
Hydrocotyle sibthorpioides Lam. (Araliaceae)	Brahmni	Leaf	Leaf juice is administered orally in Manasdaurbalya (mental disorder) [10]; also used in various problems as dysentry, diarrhoea, piles, rheumatism, digestive, diuretic, vermifuge, menstrual problem [76].
Hygrophila auriculata (Schumach.) Heine (Acanthaceae)	Talmakhana	Seed	Root is used for rheumatism, inflammation, jaundice, hepatic obstruction, pain [77]; whole plant extract used in treatment of urinary infection, gout, hepatic obstruction and as a diuretic [78].
Hypericum japonicum Thunb. (Hypericaceae)	Chhingewali	Whole plant	Plant powder is used as snuff for nose disease [10]; along with hepatoprotective activity, protecting liver injury and hepatotoxicity [79].
Jacobaea nudicaulis (Buch.-Ham. ex D.Don) B.Nord. (Asteraceae)	Nil kanthi, Ratpatia	Whole plant	Plant juice applied in eye diseases, wound, fever and some skin diseases [10, 62].
Juniperus communis L. (Cupressaceae)	Hapusha	Green wood	Excessive appetite and smoke of green wood is used in tuberculosis and respiratory disease [10, 80]; along with antioxidant and antimicrobial activities [81].
Justicia adhatoda L. (Acanthaceae)	Bhasma	Leaf, Flower	Juice of leaves and flowers used in cough, fever, coryza, respiratory problems [10, 82, 83].
Kalanchoe pinnata (Lam.) Pers. (Crassulaceae)	Sanjwanboata	Leaf	Paste of leaves is used over wounds for healing [10].
Lablab purpureus (L.) Sweet (Fabaceae)	Chimi	Whole plant	Fresh juice is dropped in earache [10] and used as antidiabetic, antiinflammatory, analgesic, antioxidant, cytotoxic, hypolipidemic, antimicrobial, insecticidal, hepatoprotective, antilithiatic, antispasmodic [84].
Lannea coromandelica (Houtt.) Merr. (Anacardiaceae)	Gunjhinganj	Bark	Paste of bark is applied on cuts to stop bleeding and wound healing [10]; while juice use in jaundice and liver pain [85, 86].
Leucas cephalotes (Roth) Spreng. (Lamiaceae)	Guma	Whole plant	Orally use of whole plant used in fever and decoction [10]; Asthma, cough [87].
Lilium polyphyllum D.Don (Liliaceae)	Kakoli	Root	Tonic and decoction of root used as refrigerant, galactagogue, expectorant, aphrodisiac, diuretic, antipyretic and tonic [8, 88].
Litsea glutinosa (Lour.) C.B. Rob. Lauraceae	Maida	Bark	The bark is used to relieve pain, arouse sexual power, produce a soothing effect on the body and arrest bleeding. Bark paste is applied to bind fractured limbs [2, 89].
Melia azedarach L. (Meliaceae)	Dekrain	Root	Paste of root is applied in headache [10]; it has also various activities as anthelmintic, antilithic diuretic, astringent, stomachic, anticancer, antimalarial, analgesic, anti-inflammatory activities [90].
Mentha longifolia (L.) L. (Lamiaceae)	Pipermint	Leaf	Juice or powder of leaves uses in common fever, coryza, rheumatism, dysentery, Dyspepsia [10, 91].
Micromeria biflora (Buch.-Ham. ex D.Don) Benth. (Lamiaceae)	Masipatha	Whole plant	Whole plant is administered orally with milk to control fever, Sciatica, arthritis, skin disease [10, 92].
Mimosa rubicaulis Lam. (Fabaceae)	Shikanta	Leaf	Leaf paste used in skin disease when applied directly on affected part [10]; along with various other problems as bronchitis, cholera, cough, dyspepsia, fever, jaundice, smallpox, syphilis and tuberculosis [55].
Morella esculenta (Buch.-Ham. ex D.Don) I.M.Turner (Myricaceae)	Kafal, Kaphal	Fruit, Bark	Specified decoctions of fruit, stone and bark are claimed to be beneficial in cardiac debility, edema and hemoptysis; wax from fruit covering used for ulcer healing [93-96]; along with anti-inflammatory activity and anti tumour activities [97].
Morina longifolia Wall. ex DC. (Caprifoliaceae)	Vishkanya	Whole plant	Oral administration of plant use for wound healing along with various activities as antimicrobial, cytotoxic, antiulcer, hypoglycemic and hypotensive [10, 98].
Nyctanthes arbor-tristis L. (Oleaceae)	Siyari	Leaf	Juice of leaves is applied on affected part to cure skin diseases [10]; along with immunotoxic, antiallergic, antihistaminic, purgative, antibacterial and cytotoxicity, antipyretic and ulerogenic, anti -Inflammatory activity [99].
Origanum vulgare L. (Lamiaceae)	Vantulsi	Whole plant	Urinary disorder can be cure by oral decoction of whole plant [10]; various activities as antifungal [100] and anti-hyperglycemic activity [101] also reported.
Oxalis corniculata L. (Oxalidaceae)	Chilmora, Salmosi	Whole plant	Juice of plant is used to cure various eye diseases such as motiabinda [10]; along with it used in bacterial diseases, dysentery, diarrhea, skin disease [102].
Phyllanthus emblica L. (Phyllanthaceae)	Amla	Whole plant	Fruit are rich in polyphenols, minerals and regarded as one of the richest source of Vit. C [103]. Therapeutically it has energy refilling potential, aperient, antibacterial, antifungal, antiviral activities [104], along with gonorrhea, analgesic and skin fairness [93] and to stop nausea and vomiting, antitumour and hepatoprotective activity [20, 104].
Piper longum L. (Piperaceae)	Pippali	Fruit	Powder of fruits is administered orally to cure cough, respiratory tract bronchitis, asthma, analgesic, muscular pains, inflammation, hematinic, carminative [10, 105].
Plantago major L. (Plantaginaceae)	Isabgol	Seed	Seed powder is useful in dysentery, wound healing, anti-inflammation, analgesic, antioxidant, antiulcer genic activity [10, 106].
Pleurolobus gangeticus (L.) J.St.-Hil. (Fabaceae)	Salparni	Leaf	Paste of fresh leaves is applied on affected part for wound healing and used for toothache, chest pains, fungal infections [10, 107].
Plumbago zeylanica L. (Plumbaginaceae)	Chitavar	Root, Fruit	Paste of root and fruit is applied on affected part for wound healing [10] and also having anti-atherogenic, cardiotonic, hepatoprotective and neuroprotective

			properties [108]; very useful to rheumatic pain, dysmenorrhea, carbuncles, contusion of the extremities, ulcers and elimination of intestinal parasites [109].
Polygonatum cirrhifolium (Wall.) Royle (Asparagaceae)	Mahameda	Root	Tonic and root powder is administered orally as anti-inflammatory, analgesic, antidiarrheal, antimicrobial, antioxidant and antimalarial [10, 110].
Polygonatum verticillatum (L.) All. (Asparagaceae)	Meda	Rhizome	Tonic and powder of rhizomes is administered orally as aphrodisiac, emollient, cardio tonic, carminative, sialagogue, stimulant [10, 111].
Prunus armeniaca L. (Rosaceae)	Khubani	Fruit	The fruit having high in carotene and Vit. C, provides a valuable source of food. The amygdalin a chemical extracted from apricot kernels used as an alternative treatment for cancer [112] along with having antioxidant and antimicrobial properties [113].
Punica granatum L. (Lythraceae)	Dadim	Fruit	Fruit is very useful to worm infestation with antimicrobial, antioxidant, anticancer, anti-inflammatory and anti-cancerous activities [10, 114].
Pyracantha crenulata (D.Don) M.Roem. (Rosaceae)	Ghigharu	Fruit, Bark	Fruits used as preservative. Medicinally it has cardio-tonic, coronary vasodilator and hypertensive properties and used in cardiac failure, myocardial weakness, paroxysmal tachycardia, hypertension, arteriosclerosis and Burgor's disease. Rejuvenation property, reduce joint pains. The bark used in heavy bleeding during menstrual cycles, malarial fever [20, 115, 116].
Ribes nigrum L. (Grossulariaceae)	Blackcurrant	Leaf	The extracted oil and juice useful as an antioxidant source and in treating rheumatoid arthritis and night and fatigue-related visual impairment, antimicrobial and anticancer [20, 117, 118].
Ricinus communis L. (Euphorbiaceae)	Ein	Leaf	Warm fresh leaves are smeared and applied on affected part for wound healing with antimicrobial, toxicological and anti-inflammatory activity [10, 119].
Rosa canina L. (Rosaceae)	Dog Rose	Leaf, Fruit	The plant has high antioxidants and vit-C level, used to make syrup, tea and marmalade. The fruits have been used internally as tea for treatment of viral infections and disorders of the kidneys and urinary tract [20, 120, 121].
Rosa moschata Herrm. (Rosaceae)	Kunja	Leaf	Leaves juice is used as nasal drops to control hemorrhage [10]; useful to control stomach disorder [122, 123].
Roylea cinerea (D.Don) Baill. (Fabaceae)	Kaural	Leaf	Fresh leaves juice is useful in diabetes, mouth discases and throat diseases [10]; including antioxidant and antimicrobial activities [124] to provide strength to liver and protect skin from infection [125].
Rubus ellipticus Sm. (Rosaceae)	***Lalanchu***	Fruit	It has good antioxidant properties to providing free energy for the people who are travelling mountains [19, 126].
Rumex hastatus D. Don (Polygonaceae)	Amloraha	Root, Leaf	Uses in decoction when administered orally for skin diseases, leaf juice is good for abdominal colic [10] including Antioxidant and anticholinesterase [127] and anti-tuberculosis properties [128].
Rumex nepalensis Spreng. (Polygonaceae)	Jangali palak	Leaf	Juice or powder of leaves is useful in abdominal colic and skin diseases [10] with wound healing and anti-allergic properties [28].
Rumex vesicarius L. (Polygonaceae)	Chalmora	Leaf	Leaves are good source of antioxidants with good antibacterial properties [129, 130].
Satyrium nepalense D.Don (Orchidaceae)	Mishri	Root	Energetic tonic from roots cure various fever including antibacterial, anti-pneumonia properties [131].
Sida cordifolia L. (Malvaceae)	Denusha	Root, Bark	Tonic of stem bark and root powder is given in general debility as stomatitis, blenorrhea, asthmatic bronchitis, nasal congestion [132].
Smilax aspera L. (Smilacaceae)	Kukundara	Root	Paste of root is given orally with water to control diarrhea [10, 133].
Solanum lasiocarpum Dunal (Solanaceae)	Chitrika	Leaf, Root	Seven leaves are to be placed on the head during sleeping and this process is to be continued for three nights to control fever and decoction of root is administered orally [10].
Solanum nigrum L. Solanaceae	Black Nightshade	Whole plant	It has expectorant, analgesic, sedative, diaphoretic properties. Its external application cures skin diseases and gives relief in burns, itching, pain etc. Leaves juice used in earache [20, 134-138].
Solanum violaceum Ortega (Solanaceae)	Brahati	Fruit	Four ripe fruits are taken orally at a time to control cough [10] along with various properties such as hypertension, poisonous, insect bites [139].
Solena heterophylla Lour. (Cucurbitaceae)	Gulakhari	Tuber	Tubers are eaten as vegetables to control hiccough, asthma, nausea and incisions; useful to control malaria, diabetes, toothache and various disorders as gastrointestinal, respiratory and vascular disorders [140].
Swertia chirayita (Roxb.) H.Karst. (Gentianaceae)	Chirata	Whole plant	Decoction of whole plant is administered orally to control fever, skin disease, dyspepsia, diarrhea with antipyretic, antifungal, hypoglycemic properties [44, 141, 168].
Syzygium cumini (L.) Skeels Myrtaceae	Jamun	Bark	Bark extract useful diabetes [2], sore throat, bronchitis, asthma, thirst, biliousness, dysentery and ulcers [142].
Terminalia arjuna (Roxb. ex DC.) Wight & Arn. Combretaceae	Arjun	Bark	Bark is very useful to treatment of pneumonia [2], fractures, ulcers, hepatic and shows hypocholesterolemic, antibacterial, antimicrobial, antitumoral, antioxidant, antiallergic and antifeedant, antifertility and anti-HIV activities [143, 144].
Thymus serpyllum L. (Lamiaceae)	Van Ajwain	Leaf	Leaves used as spice to control dyspepsia [10].
Trapa natans var. *bispinosa* (Roxb.) Makino (Lythraceae)	Singhara	Nut	Nuts are very useful in diarrhea, dysentery, cardiac diseases, blood pressure with having antimicrobial, cytotoxic activities [145].

Urena lobata L. (Malvaceae)	Bara Mamas	Whole plant	Tonic and paste of whole plant is administered orally with milk to control urinary problems and sexual transmitted diseases [146].
Urtica ardens Link (Urticaceae)	Shishuna	Leaf	Leaves are useful in bone fracturing, cough, cold, digestive problems, fever, headache, skin infection [147].
Vachellia nilotica (L.) P.J.H.Hurter & Mabb. Fabaceae	Babul	Whole plant	Leaves have chemoprventive, anitmutagenic, anti-bacterial, anticancer, astringent, anti-microbial, anti-ulcers, anti-inflammatory activities [148, 149]. The roots are used in cancers, tuberculosis and indurations of liver and spleen [48]. Bark is very useful as antibacterial, antioxidant, anti-mutagenic, cytotoxic, astringent, acrid cooling, styptic, emollient, anthelmintic, aphrodisiac, diuretic, expectorant, emetic, nutritive, in hemorrhage, wound ulcers, leprosy, leucoderma, small pox, skin diseases, biliousness, burning sensation, toothache, leucoderma, dysentery and seminal weakness [48,150-155].
Verbascum thapsus L. (Scrophulariaceae)	Kalber	Leaf	Boiled leaves are applied over inflamed parts to cure headache, inflammatory diseases [10]; also used to control asthma, spasmodic coughs, diarrhea, Pulmonary problems [156].
Vigna mungo (L.) Hepper (Fabaceae)	Urad dal	Fruit	Paste of fruits applied over fractured bone to join [10]; also helpful to control urinary tract infections, sexually transmitted diseases [85, 157].
Vitex negundo L. (Lamiaceae)	Nirgundi	Leaf	A syrup of leaves with rice and water given orally to treat gonorrhea [10] along with anti-inflammatory, anticonvulsant, antioxidant, bronchial relaxant, hepatoprotective properties [158].
Vitis vulpina L. (Vitaceae)	Jungle Angoor	Leaf Fruit	Unripe grapes used for treating sore throats; raisins useful to control tuberculosis while ripe grapes used for the tratment of cancer, cholera, smallpox, nausea, skin & eye infections, kidney & liver diseases [20, 159-161].
Zanthoxylum armatum DC. (Rutaceae)	Timur	Leaf	Regular use of leaves' Pakora up to 3-4 days very useful to control allergy with carminative, stomachic, anthelmintic activities [10, 162].
Ziziphus jujuba Mill. (Ramanaceae)	Ber	Whole plant	Delicious fruits used to increase weight, stamina, improves muscular and liver strength along with diuretic, emollient and expectorant properties. Dried fruits useful as anticancer, pectoral, refrigerant, sedative, stomachache, blood purifier. Seeds are used internally in the treatment of palpitations, insomnia, nervous exhaustion, night sweats and excessive perspiration A decoction of the root has been used in the treatment of fever, wound and ulcer treatment. The leaves are applied in liver troubles, asthma and fever [20, 163].

Medicinal plants with their herbal uses

A total of 111 medicinal plants from the Himalayan Indian state of Uttarakhand have been listed in table with their medicinal properties. All botanical information of these plants evaluated and confirm from the Plants of the World Online database site.

Conclusion

Medicinal plants are the natural health care to the people. Their primary cure of diseases is based upon deep observation of nature and their understanding of traditional knowledge of medical practices. Local people of Uttarakhand heavily use these traditionally easily available medicinal plants for health which are less expensive without side effects. The plants now a days going to extinct due to development activities, population explosion, impact of tourism, deforestation, etc. which need to conserve for biodiversity, natural and local aspect.

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