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Studies on important medicinal plants of mid Himalayan region of Himachal Pradesh

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Abstract

The present investigation “Studies on important medicinal plants of mid Himalayan region of Himachal Pradesh” was undertaken to study the plant wealth of the area with main emphasis on medicinal plants. The study area lies between North latitudes 31°-5′ and 31°-10′ and East longitudes 77°-22′-30″ and 77°-30′. This area comes under Theog and Kotkhai Sub-divisions and is mostly situated in the west of Shimla District. Out of the total collected plants, 244 species have been designated as having medicinal importance and based on the available authentic literature, they are classified in the tabular form with their family, common names, parts used Medicinal properties & diseases cured. There is a great scope for further pharmacological research on some of these species. It is of prime importance to document the existing plant resources, which would be beneficial in formulating policies for their sustainable use, conservation and propagation. This fundamental approach of local inventory will help to enrich and strengthen the holistic approach of national and global biodiversity enumerations.

Keywords: Medicinal plants, ethnobotanical uses

Introduction

Since time immemorial, Plants have been a major source of therapeutic agents. The increasing acceptance of traditional herbal systems of medicine, like Ayurveda, within India and outside has resulted in the revival of ancient traditions of medicine. Medicinal plants and their derivatives are thus looked upon not only as a source of affordable healthcare but also as an important commodity item of international trade and commerce. As per World Health Organization estimates, traditional medicines, mostly plant drugs, cater to the health needs of nearly 80 per cent of the world’s population (Kurian and Sankar, 2007) [8]. India stands 10th among the plant genetic resource rich countries encompassing 16 agro-climatic zones and is one of the top mega diversity centres of the world with a unique wealth of 15,000-20,000 medicinal plant species. Around 70 per cent of medicinal species in India are found in the tropical forests spread across Eastern and Western Ghats, Vindhya, Chhota Nagpur Plateau and Aravalis. Although less than 30 per cent are found in temperate and alpine areas and in higher altitudes, they are more potent in their medicinal activity. There are 10 bio-geographical zones in India and it harbours two of the 25 hot spots of the world, i.e. Eastern Himalayas and Western Ghats. These zones are further grouped into 25 biotic provinces and 426 biomes. The forest areas of these bio-geographic zones are classified into 16 major forest types and more than 200 subtypes (Kurian and Sankar, 2007) [8]. Himachal Pradesh has been regarded as a veritable emporium of plant genetic resources majoring in medicinal and aromatic plants. It is a rich repository of medicinal wealth and occupies an important place in the Vedic treatises. As per the Ayurvedic Pharmacopoeia Committee, Government of India, out of around 1100 single drugs used as ingredients of indigenous medicines in India, there are 350 plants frequently used in Ayurvedic preparations. Out of these 350 plants, there are just over 225 species growing in Himachal Pradesh, which are available for commercial extraction and export to outside markets. However, no proper records are available for such transactions (Chauhan, 1999, 2003) [3, 4]. There is a great need to identify our natural wealth, study it and make the people aware to know their utilities and its repercussions if they extinct. The exploration is so much important otherwise many more unexplored species will disappear forever without knowing their existence in nature, (Singh and Minoos, 2003) [17].

Material And Methods

The total geographical area of the division is 64000 ha (512 Km²), out of which 32045.10 ha, i.e. 50.07% area is under tree cover.

The altitude varies from just below 1000 m, which accounts for only 15 Km² area of the division, to 3160 m at Jaobag on

Hatu Dhar in the northern portion of the division.

Table 1: Forest area by legal status

Sr. No.	Type of Forests (Legal Classification)	Gross Area (ha)	Including Cultivation (ha)	Net Area (ha)	Percentage of Total Forest Area	Percentage of Total Geographic Area
1	Reserved Forest (RF)	3183.40	7.40	3176.00	9.91	4.96
2	Demarcated Protected Forest (DPF)	11282.60	855.90	10426.70	32.54	16.29
3	Undemarcated Protected Forest (UPF)	18442.40	—	18442.40	57.55	28.82
Total		32908.40	863.30	32045.10	100	50.07

Source: Working Plan, 1996-2011

Table 2: Forest area by Working Circles

Name of Working Circle	Deodar-Kail	Chil (Chir)	Fir-Spruce	Oak	Biosphere Conservation	Plantation
Total Area (ha)	12301.00	302.30	1855.00	376.80	9585.80	7624.20
Percentage of Total Forest Area	38.39	0.94	5.79	1.18	29.91	23.79

Source: Working Plan, 1996-2011

The soil is more or less clayey and clayey loam all over the tract except at few places where it tends to be sandy loam. In general, on ridges, spurs, precipitous slopes and southern aspects the soil tends to be shallow and dry with numerous outcrops of bare rocks. The climate varies a lot depending upon the altitude and aspects. It is mostly temperate in the higher elevations and sub-tropical at the lower ones. The places at higher elevation, especially the northern aspects are cooler than those situated at lower elevations. The study area, on average, receives an annual rainfall of about 1200 mm. Field tours to these areas, for the collection of voucher specimens, were planned in such a way so as to collect the plant species either in flowering or fruiting stage to facilitate the process of identification, thus, in the process covering all the growing seasons from 2009 to 2010. To collect specimens for the herbarium, majority of the herbs were uprooted carefully as complete plants (with both aerial and underground parts), taking special care to dig out the subterranean parts. In case of trees and shrubs, branches of

suitable size in flowering and/or fruiting stage were taken. Field number for each collection was assigned and important field characters were recorded. Depending upon the availability, up to 4-6 specimens were collected under one collection number. The larger specimens were folded in shapes of V, N, M or W. The specimens were pressed in between blotting sheets or newspapers with the help of wooden or iron press, in the field. The plant specimens, thus collected, were processed in the herbarium section of the Department of Forest Products, i.e. dried, pressed and poisoned with Mercuric Chloride solution (2%) to provide protection against insect and fungal attack for future preservation. In case of specimens having higher moisture content drying was also done in the oven till moisture got fully removed. Voucher specimens were collected for authentication of information and future reference. The procedure for the collection of plants for the herbarium purpose is same as recommended by Jain and Rao (1977)^[7].

Table 3: List of medicinal plants collected from the forest area of Theog Division

Sr. No.	Plant Species	Family	Regional/ common English name(s)	Part(s) used	Medicinal properties & diseases cured
1	<i>Acacia catechu</i> Willd.	Mimosaceae	Khair, Khadira, Cutch Tree	Heartwood, bark	Heartwood a source of catechu (Katha) and Kheersal, used for sore throat and cough; bark astringent.
2	<i>Acacia nilotica</i> (Linn.) Willd. ex Delile subsp. <i>indica</i> (Benth.) Brenan	Mimosaceae	Babul, Kikar	Gum, bark, pods	Gum- in diarrhoea, dysentery and diabetes mellitus; bark astringent and demulcent; decoction of bark used as a gargle, and that of pods in urino-genital diseases.
3	<i>Achyranthes aspera</i> Linn.	Amaranthaceae	Puthkanda, Latjira, Apamarga	Whole plant	Plant- pungent, purgative and diuretic; used in dropsy, piles, boils, skin eruptions, colic, snake-bite; decoction of herb diuretic and used in renal dropsies; infusion of roots- astringent; seeds- emetic, used in hydrophobia.
4	<i>Achyranthes bidentata</i> Blume	Amaranthaceae	Puthkanda, Apamarga	Whole plant	Plant- diuretic, astringent.
5	<i>Adiantum incisum</i> Forsskal	Adiantaceae	Mayurshikha	FronDS	FronDS- in diabetes, hemicrania, skin diseases, cough and fever.
6	<i>Adiantum venustum</i> D. Don	Adiantaceae	Hansraj, Mubarak, Hansapadi	FronDS	FronDS- tonic, resolvent, expectorant, diuretic, emmenagogue, astringent, emetic; used as anodyne in bronchitis, in scorpion-sting, against tumours, biliousness, inflammatory diseases of chest and ophthalmia. This fern is commercially gathered from Chakrata hills for dermatological pharmaceutical preparations
7	<i>Aerva sanguinolenta</i> (Linn.) Blume	Amaranthaceae		Roots	Roots- used in dysentery.
8	<i>Aesculus indica</i> Colebr. ex Camb.	Hippocastanaceae	Khanor, Bankhor, Indian Horse Chestnut	Roots, bark, fruits, seeds	Roots- used in leucorrhoea; bark- made into a paste and applied to dislocated joints; fruits- given to horses in colic; oil from the seeds- used in rheumatism.
9	<i>Agave angustifolia</i>	Agavaceae	Khetki, Kantala, Dwarf	Roots, leaves	Roots- diuretic, diaphoretic; juice of leaves- applied to

	Haw.		Aloe		bruises; leaves- contain hecogenin, tigogenin and gitogenin.
10	<i>Agave cantula</i> Roxb.	Agavaceae	Ramban, Kantala	Roots, leaves	Roots- diuretic, diaphoretic and antiseptic; juice of leaves- laxative, diuretic, emmenagogue, useful in scurvy; plant- a fish poison.
11	<i>Agrimonia pilosa</i> Ledeb. var. <i>nepalensis</i> (D. Don) Nakai	Rosaceae	Common Agrimony	Roots, leaves	Roots- astringent, tonic, diuretic and methanolic extract possesses antibiotic activity; leaves- anthelmintic.
12	<i>Ailanthus altissima</i> (Miller) Swingle	Simaroubaceae	Tree of Heaven, Ailanto	Bark, root bark, fruit, leaves	Bark- antispasmodic, anthelmintic, parasiticidal and having a strong depressing influence on the nervous system similar to that of tobacco; useful in diarrhoea and dysentery; root bark- in cardiac troubles, epilepsy and asthma; fruits- in eye troubles and as an emmenagogue; leaves- used in preparations for seborrhoea and scabies.
13	<i>Ainsliaea aptera</i> DC.	Asteraceae; Compositae	Karvi buti	Roots, aerial parts	Roots- pulverized and used for quick relief from acute stomach-ache; herb- diuretic.
14	<i>Ajuga bracteosa</i> Wallich ex. Benth.	Lamiaceae; Labiatae	Nilkanthi, Ratpatha	Whole plant	Plant- bitter, astringent, febrifuge, aperient, tonic, aromatic and diuretic; used in agues, gout, rheumatism, palsy and amenorrhoea; leaves- in fever, as a substitute for cinchona.
15	<i>Albizia chinensis</i> (Osbeck) Merr.	Mimosaceae	Siran	Bark	Infusion of bark- used as a lotion for cuts, scabies and other skin diseases; plant- a fish poison.
16	<i>Albizia julibrissin</i> Durazz.	Mimosaceae	Sirin, Lal siris	Whole plant	Plant- in snake-bite and scorpion-sting; bark and seeds- astringent, tonic and restorative, given in piles and diarrhoea; root bark- in powdered form used to strengthen gums; leaves- used in night-blindness.
17	<i>Aloe barbadensis</i> Mill.	Liliaceae	Ghrit-kumari, Ghikanwar, Indian Aloe	Whole plant	Plant- stomachic, purgative, emmenagogue, anthelmintic, used in piles and rectal fissures; dried juice- cathartic, given in constipation; fresh juice- cathartic, cooling, useful in fevers; pulp- in menstrual suppressions; roots- in colic.
18	<i>Alternanthera sessilis</i> (Linn.) R. Br. ex DC.	Amaranthaceae	Giojihra, Kanchari	Whole plant	Plant- galactagogue, cholagogue and febrifuge; stem and leaves- used in snake-bite; young shoots- nutritious, a rich source of protein and iron.
19	<i>Amaranthus blitum</i> Linn. var. <i>oleraceus</i> Hook. f.	Amaranthaceae	Chaulai, Marisha, Bashpaka	Aerial parts	Herb- cooling, stomachic, emollient; useful in biliousness and haemorrhagic diathesis; also fairly rich in proteins and iron.
20	<i>Amaranthus paniculatus</i> Linn.	Amaranthaceae	Chaulai, Rajagiri	Whole plant	Plant- used for purifying blood and in piles, and as diuretic in strangury; also given in scrofula and applied to scrofulous sores; leaves- contain oxalic acid.
21	<i>Amaranthus spinosus</i> Linn.	Amaranthaceae	Kataili-chaulai, Tanduliya	Whole plant	Plant- considered sudorific and febrifuge, used in eruptive fevers and also in snake-bite; infusion of shoots- used in eczema; leaves and roots- boiled and given to children as a laxative, also applied as an emollient poultice to abscesses, boils and burns; roots- in menorrhagia, gonorrhoea, eczema and colic, also as a lactagogue.
22	<i>Ampelocissus latifolia</i> (Roxb.) Planchon	Vitaceae	Panibel	Roots, leaves	Roots- applied to wounds, decoction given in dysentery; juice of tender leaves- in dental troubles and as a detergent for indolent ulcers.
23	<i>Anaphalis adnata</i> DC.	Asteraceae; Compositae		Flower heads	Flower heads and hairs- employed on wounds for stopping bleeding.
24	<i>Anaphalis busua</i> (Buch.-Ham. ex D. Don) DC.	Asteraceae; Compositae	Bhoon, Bharari, Darari	Whole plant	Plant- yields an essential oil which shows antibacterial activity; flower heads and hairs- employed on wounds for stopping bleeding.
25	<i>Anaphalis contorta</i> (D. Don) Hook. f.	Asteraceae; Compositae	Darari, Bharari	Whole plant	Plant- yields an essential oil which shows antibacterial activity; flower heads and hairs- employed on wounds for stopping bleeding.
26	<i>Andrachne cordifolia</i> (Decne.) Muell.-Arg.	Euphorbiaceae	Gurguli	Whole plant	Plant- poisonous to cattle; aqueous extract of branchlets shows insecticidal properties; leaves- contain HCN.
27	<i>Anemone obtusiloba</i> D. Don	Ranunculaceae	Rattanjog, Padar, Ageli	Roots, seeds	Roots- mixed with milk and given internally for concussions, and externally as a blistering agent; seeds- emetic and purgative; seed oil- in rheumatism.
28	<i>Anemone vitifolia</i> Buch.- Ham. ex DC.	Ranunculaceae	Vine-leaved anemone	Whole plant	Fresh juice of plant inhibits the growth of several pathogenic fungi.
29	<i>Angelica glauca</i> Edgew.	Apiaceae; Umbelliferae	Chora	Whole plant	Herb- cordial, stimulant, used in dyspepsia and constipation; roots- aromatic, stimulant, cardioactive, carminative, expectorant and diaphoretic, used as a condiment and spice.
30	<i>Anisomeles indica</i> O. Ktze.	Lamiaceae; Labiatae		Whole plant	Herb- carminative, astringent and tonic; essential oil from the plant- useful in uterine affections; made into syrup.

31	<i>Aquilegia fragrans</i> Benth.	Ranunculaceae	Common Columbine	Whole plant	Herb- diuretic, diaphoretic, antiscorbutic and tranquilizing, employed for hysteria, somnolency, dysmenorrhoea and chronic skin troubles in Homoeopathy; roots- used for removal of kidney stones; seeds- used as an oxytocic, and for jaundice.
32	<i>Arctium lappa</i> Linn.	Asteraceae; Compositae	Jangli kuth, Burdock	Roots, seeds	Roots- diuretic, diaphoretic, depurative, antiphlogistic and alterative, used in gout and skin affections; tincture of seeds- used for psoriasis, acne and prurigo.
33	<i>Argemone mexicana</i> Linn.	Papaveraceae	Bharband, Bramhadandi, Prickly Poppy, Mexican Poppy	Whole plant	Seeds- cathartic, emetic, expectorant, demulcent, nauseous, bitter, used in cutaneous troubles and antidote to snake poison; roots- alterative, used in chronic skin diseases; yellow juice of plant- used for dropsy, jaundice, scabies, ophthalmia and cutaneous affections; seed oil- purgative, non-edible, used for cutaneous affections.
34	<i>Artemisia indica</i> Willd.	Asteraceae; Compositae	Chhambar, Nagadamani, Nagdona, Indian Wormwood, Fleabane	Whole plant	Herb- emmenagogue, anthelmintic, stomachic, febrifuge, antilithic, alexipharmic and antispasmodic; roots- tonic, antispasmodic and antiseptic; infusion of leaves and flowering tops- given in asthma, diseases of brain, nervous and spasmodic affections.
35	<i>Artemisia vestita</i> Wall. ex DC.	Asteraceae; Compositae	Chhambar	Leaves	Leaves- used as a haemostatic.
36	<i>Arundinella nepalensis</i> Trinius	Poaceae; Gramineae	Dundi, Reed grass, River grass	Whole plant	Plant- made into a lotion, which is used as a vulnerary for washing wounds.
37	<i>Asclepias curassavica</i> Linn.	Asclepiadaceae	Kakatundi, Silk-weed, West Indian Ipecacuanha	Whole plant	Plant- poisonous, used in phthisis and as a fish-poison; roots- emetic, purgative, used in piles and gonorrhoea; juice of leaves- anthelmintic, antidysenteric, sudorific, used for arresting haemorrhages and gonorrhoea, also against cancer; latex- used to remove warts and corns.
38	<i>Asparagus adscendens</i> Roxb.	Liliaceae	Kleunti, Kelti, Shatavar, Safed-musli	Tuberous roots	Roots- demulcent, galactagogue, tonic, cooling and diaphoretic; useful in diarrhoea, dysentery and general debility.
39	<i>Asplenium trichomanes</i> L. subsp. <i>quadri-valens</i> D.E. Meyer	Aspleniaceae		Whole plant	Plant- laxative, expectorant and refrigerant; also a constituent of medicines used for abscesses of uterus; leaves- smoked for the cold in head and chest.
40	<i>Atylosia scarabaeoides</i> (Linn.) Benth.	Papilionaceae		Whole plant	Plant- used for diarrhoea in cattle.
41	<i>Avena fatua</i> Linn.	Poaceae; Gramineae	Ganer, Gandal, Jei, Common wild oat	Seeds	Seeds- used in Europe as emollient, refrigerant and diuretic; believed to be poisonous.
42	<i>Barleria cristata</i> Linn.	Acanthaceae	Jhinti, Tadrelu	Whole plant	Plant- in snake-bite; leaves and roots- used to reduce swelling and inflammations, also for cough; infusion of plant- given in cough.
43	<i>Bauhinia variegata</i> Linn.	Caesalpinaceae	Karial, Kachnar, Kovidara	Roots, bark, flowers, flower buds	Roots- carminative, antidote to snake poison; decoction of roots- prevents obesity, used in dyspepsia; bark- alterative, tonic, astringent, anthelmintic, useful in skin diseases, scrofula, ulcers, leprosy and cutaneous troubles; flowers- laxative; dried flower buds- used in dysentery, diarrhoea, piles and worms.
44	<i>Berberis aristata</i> DC. var. <i>aristata</i> Hook. f.	Berberidaceae	Kashmal, Rasaut, Dar- hald, Daru-haridra, Indian Barberry	Root bark, wood	Root bark, wood and an extract made from root bark (Rasaut)- alterative, deobstruent and a bitter tonic; used in skin diseases, menorrhagia, diarrhoea, jaundice and affections of the eyes; decoction of the root bark- for intermittent (malarial) fevers.
45	<i>Berberis lycium</i> Royle	Berberidaceae	Kashmal	Roots	Roots- febrifuge, used in eye diseases, menorrhagia, chronic diarrhoea and piles; root extract (Rasaut) - used in ophthalmia; leaves- in jaundice.
46	<i>Bergenia ciliata</i> (Haw.) Sternb.	Saxifragaceae	Dhakochru, Pashanbheda, Pakhanbhed	Rhizomes	Rhizomes- tonic, astringent, diuretic, antiscorbutic, laxative and lithontriptic; used in diarrhoea, fever, spleen enlargement, renal and pulmonary affections; bruised and applied to boils and in ophthalmia; in indigenous system of medicine it is of high repute for dissolving stones in the kidney.
47	<i>Bergenia stracheyi</i> (Hook. f. & Thoms.) Engl.	Saxifragaceae	Pashanbheda	Rhizomes	Rhizomes- used in menorrhagia and urinary troubles.
48	<i>Bidens pilosa</i> Linn.	Asteraceae; Compositae	Kumber	Whole plant	Herb- tonic and stimulant, used in leprosy, fistulae, tumours and other skin troubles; decoction of plant- used for prickly heat as a diuretic and febrifuge; leaves- in Brazil used as styptic and as vulnerary, applied to foul ulcers and swollen glands; infusion of leaves- sudorific,

					juice used for eye and ear troubles; infusion of the plant-taken in Malaya for coughs; infusion of roots- used for colic; flowers- in diarrhoea; seeds- anthelmintic.
49	<i>Bistorta amplexicaulis</i> (D. Don) Greene	Polygonaceae	Kukar-makri	Root-stock	Rootstocks- constitute the drug 'Anjubar', used in both Unani and Ayurvedic systems of medicine.
50	<i>Boerhavia diffusa</i> Linn.	Nyctaginaceae	Punarnava, Rakta punarnava, Sant, Spreading Hog-weed	Roots	Roots- diuretic, laxative, expectorant, stomachic; used in asthma, oedema, anaemia, jaundice, ascites, anasarca, scanty urine, dropsy, chronic peritonitis and internal inflammation; also as antidote to snake venom.
51	<i>Bombax ceiba</i> Linn.	Bombacaceae	Shaimbal, Koki, Semul, Rakta-pushpa, Kantakadruma, Silk-cotton Tree	Root, bark, gum, flowers, fruits	Roots- stimulant, tonic, form the chief ingredient in the 'musla-semul', a medicine which is aphrodisiac and given in impotence; root and bark- emetic; bark- demulcent, tonic and styptic; gum called 'Mocharus' - aphrodisiac, demulcent, tonic, haemostatic, astringent, alterative and styptic, used in diarrhoea, dysentery and menorrhagia; fruits- stimulant, expectorant and diuretic, used in calculus affections and ulceration of bladder and kidneys; flowers and fruits- used in snake-bite.
52	<i>Bromus mollis</i> Linn.	Poaceae; Gramineae		Grains	Grains- toxic, cause giddiness in both man and cattle, fatal to poultry.
53	<i>Buddleja asiatica</i> Lour.	Loganiaceae	Sadraila, Newarpati, Neemda, White Butterfly Bush	Whole plant	Used in Philippines for skin complaints and as abortifacient; roots- used in preparation of a fermented liquor.
54	<i>Bupleurum falcatum</i> Linn.	Apiaceae; Umbelliferae	Kalizewar, Sipil	Whole plant	Herb- sudorific, used in stomach and liver complaints; in Indo-China the roots in combination with other drugs prescribed in liver troubles.
55	<i>Cannabis sativa</i> Linn.	Cannabaceae	Bhang, True Hemp, Soft Hemp, Marijuana, Bhang, Vijaya, Ganjika, Charas, Ganja, Siddhi, Jia	Leaves, flowering tops, fruiting tops	The intoxicating drugs ganja and charas are prepared from a resinous exudation of the stem, young leaves and flowers. Bhang or kief consists of the larger leaves dried and mixed with a few achenes. Dried flowering tops of female plants used as a sedative, analgesic and narcotic; contain 15-20% of resin, cannabin and an essential oil. Bhang consists of the dried leaves; Ganja of the dried flowering and or fruiting tops of female plants from which no resin has been removed; and Charas consists of the resinous exudation collected from the leaves; resinous secretion appears shortly before the formation of flowers.
56	<i>Capsella bursa-pastoris</i> (Linn.) Medik.	Brassicaceae; Cruciferae	Shepherd's Purse	Herb	Herb- used in Chinese medicine for ailments of the eyes, also for dysentery. Herb used as diuretic, febrifuge, and haemostatic; contains an alkaloid bursin. Seeds stimulant, yield a fatty oil (35%).
57	<i>Carduus nutans</i> Linn.	Asteraceae; Compositae	Kalbir, Musk Thistle	Flowers	Flowers- febrifuge, used to purify blood.
58	<i>Carissa carandas</i> Linn.	Apocynaceae	Karundu, Karaunda, Kanachuka, Karamarda, Avighna	Roots, leaves, fruits	Roots- bitter, stomachic and anthelmintic. Decoction of leaves given in remittent fevers. Fruit- antiscorbutic; unripe fruit- astringent; ripe fruit- cooling, acid.
59	<i>Catharanthus roseus</i> (Linn.) G. Don	Apocynaceae	Sadabahar, Rosy periwinkle	Whole plant	Plant used as a remedy for diabetes. Infusion of leaves- administered in menorrhagia. Juice of leaves- applied to get relief from pain due to wasp-sting. Source of vincristine and vinblastine; vincristine- an alkaloid (C ₄₆ H ₅₆ N ₄ O ₁₀) used especially in the form of its sulfate to treat some human neoplastic diseases (as acute leukemia); vinblastine- an alkaloid (C ₄₆ H ₅₈ N ₄ O ₉) used especially in the form of its sulfate to treat human neoplastic diseases (as Hodgkin's disease).
60	<i>Cedrus deodara</i> (Roxb. ex D. Don) G. Don	Pinaceae	Kelo, Dyar, Himalayan Cedar, Devadaru, Deodar	Wood, bark	Wood yields an oleoresin and a dark-coloured oil on distillation, which is used for ulcers and skin diseases. Needles yield an essential oil (Ethereal oil). Wood considered diuretic, diaphoretic and carminative. Bark astringent, useful for fevers, diarrhoea and dysentery.
61	<i>Celtis australis</i> Linn.	Ulmaceae	Kharki, Nettle wood, Khirak	Fruit	Fruit edible, used in colic and amenorrhoea.
62	<i>Chenopodium ambrosioides</i> Linn.	Chenopodiaceae	Mexican Tea	Whole plant	Plant yields an essential oil, used as an anthelmintic against many forms of intestinal parasites including roundworms, hook-worms and intestinal amoebae.
63	<i>Chenopodium opulifolium</i> Schrad.	Chenopodiaceae	Shanathu, Bethu sag	Whole plant	Leaves eaten as a vegetable and accredited with laxative and anthelmintic properties. Plant contains carotene and vitamin-C. It yields an essential oil. Seeds made into liquid food and also eaten as roasted.
64	<i>Cissampelos pareira</i> Linn. var. <i>hirsuta</i>	Menispermaceae	Patendu, Patha, False Pareira Brava,	Roots, leaves	Roots- bitter, diuretic, antiperiodic, purgative, stomachic; used in dyspepsia, dropsy, cough, and urinary troubles

	(DC.) Forman		Ambashtha, Akanadi		like cystitis; also used in snake-bite; contains as alkaloid pelosine. Leaves- external application for itch.
65	<i>Clematis gouriana</i> Roxb. ex DC.	Ranunculaceae	Belkangu	Leaves, stems	Leaves and stems- vesicant and poisonous.
66	<i>Clinopodium vulgare</i> Linn.	Lamiaceae; Labiatae		Whole plant	Plant- astringent, carminative, and a cardiac tonic.
67	<i>Colebrookia oppositifolia</i> Sm.	Lamiaceae; Labiatae	Bhumera, Binda, Pansra	Leaves, roots	Leaves applied to wounds and bruises. Root used in prescriptions for epilepsy.
68	<i>Corydalis govaniiana</i> Wall.	Fumariaceae	Bhutjata, Bhutakisi, Bhutkis	Roots	Root- tonic, antiperiodic, alterative and diuretic, prescribed in syphilitic, scrofulous, and cutaneous affections.
69	<i>Cotoneaster microphylla</i> Wallich ex Lindley	Rosaceae	Jhwarwa	Stolons	Stolons used as an astringent.
70	<i>Cuscuta reflexa</i> Roxb. var. <i>reflexa</i> Roxb.	Cuscutaceae	Amarvela, Akash-bel	Whole plant	Plant- purgative; used in flatulence and liver complaints; externally used for itch, internally in protracted fevers; contains cuscutalin and cuscutin; cuscutalin a pharmacologically potent drug. Infusion of plant- used as a wash for sores. Seeds used in purgative preparations, regarded as a diaphoretic, demulcent, carminative, anthelmintic, alterative and tonic; contain the pigments amarbelin and cuscutin.
71	<i>Cymbopogon martinii</i> (Roxb.) J. F. Watson	Poaceae; Gramineae	Rosha grass, Rusa grass; Rohisa; Gandhel	Essential oil (from whole plant)	Used to flavour tobacco and in perfumery and as a substitute for oil of rose and oil of geranium, sweet-scented aromatic essential oil has stimulating properties and is used as a remedy for rheumatism, very popular with soap and cosmetic manufacturers, stomachic and tonic, antiseptic and bactericide, antimicrobial, antifungal, used for infections, helps in skin and lymphatic problems, a valuable aid against dermatitis and skin infections, supportive to the nerves and cardiovascular system, restores intestinal flora, stimulates and aids digestion, palmarosa oil is obtained from freshly cut whole flowering plant; both the herb and the essential oil are used widely in traditional Indian Ayurvedic medicine.
72	<i>Cynodon dactylon</i> (Linn.) Pers.	Poaceae; Gramineae	Joob, Doob, Bermuda grass, Dhub grass, Durva, Haritali, Dhub, Hariali	Whole plant	Decoction of plant- diuretic, used in anasarca; tea from roots for kidneys and other genito-urinary troubles; a good medicine for skin diseases; in folk medicine used as a diuretic and emollient; the fresh juice used as a snuff in epistaxis. Infusion of roots- for stopping bleeding from piles.
73	<i>Cynoglossum glochidiatum</i> Wall. ex Benth.	Boraginaceae		Roots	Juice of roots- used for checking vomiting in infants.
74	<i>Daphne papyracea</i> Wall. ex Steud.	Thymelaeaceae	Bursha, Satpura, Setburwa, Setburosa	Whole plant	Plant- considered bitter, purgative, febrifuge and diuretic.
75	<i>Datura stramonium</i> Linn.	Solanaceae	Dhatura, Safed dhatura, Thorn Apple, Mad Apple, Stink Weed, Dhattura, Unmatta, Kanaka, Shivapriya	Leaves, fruits, seeds, flowers	Leaves and flowering tops constitute the drug stramonium; hyoscyamine is the chief alkaloid. They are narcotic, antispasmodic, mydriatic and anodyne. Leaves used in cigarettes for asthma. Chief ingredient of <i>Kanaka Asva</i> . Seeds quite often employed for homicidal purposes. Leaves and seeds- antispasmodic, anodyne and narcotic. Fruits- sedative, intoxicating. Leaves- applied to boils and sores. Juice of flowers- in earache. Juice of fruits- applied to scalp in case of dandruff and falling hair.
76	<i>Deeringia amaranthoides</i> (Lam.) Merr.	Amaranthaceae	Latman	Roots, leaves	Roots used as a sternutatory; leaves applied to sores.
77	<i>Delphinium denudatum</i> Wall. ex Hook. f. & Thoms.	Ranunculaceae	Apavisha, Vishalakarni, Nirvisha, Nirbisi, Jadwar	Roots	Roots- bitter, alterative, stimulant and tonic, used in toothache and as an adulterant for aconite.
78	<i>Dendrocalamus strictus</i> (Roxb.) Nees	Bambusaceae	Nar-bans, Lathi-bans, Bans-kaban, Vansha, Male bamboo, Solid bamboo	Young shoots, leaves, seeds	Young shoots and silicious matter- tonic and astringent; young shoots and seeds commonly used as food; leaves given to horses in cough infections.
79	<i>Desmodium elegans</i> DC.	Papilionaceae	Mooti, Sambar	Roots	Roots- carminative, tonic and diuretic; used in bilious complaints.
80	<i>Dicliptera bupleuroides</i> Nees	Acanthaceae	Bouna	Whole plant	Plant- used as tonic.
81	<i>Dicliptera roxburghiana</i> Nees	Acanthaceae	Kirch, Somni	Whole plant	Plant- used as tonic.

82	<i>Digitaria sanguinalis</i> (L.) Scop.	Poaceae; Gramineae	Rai, Safed Rai, Finger grass, Crab finger grass	Whole plant	Decoction of the plant is used in the treatment of gonorrhoea; leaves might be cyanogenic. Used in making paper; edible seeds used as flour.
83	<i>Dioscorea deltoidea</i> Wallich ex Griseb.	Dioscoreaceae	Radkh, Singli-mingli, Kriss, Kniss, Kirta	Tubers	Tubers rich in saponin and used for washing silk, wool and hair; also used as fish poison and to kill lice; contain diosgenin (from traces up to 4.8%).
84	<i>Dodonaea viscosa</i> (Linn.) Jacq.	Sapindaceae	Nokhi dali, Sanatta, Sinatha, Aliar	Leaves, bark, fruits	Leaves febrifuge, sudorific, used in gout and rheumatism; also used on burns, swellings, and wounds. Fruits were once employed as a substitute for hops (<i>Humulus lupulus</i> Linn.) in the preparation of beer and yeast. Bark contains tannin (5.8%); employed in astringent baths and fomentations.
85	<i>Dryopteris caroli-hopei</i> Fraser-Jenkins	Dryopteridaceae		Rhizome	Rhizome anthelmintic.
86	<i>Echinochloa crus-galli</i> (Linn.) P. Beauv.	Poaceae; Gramineae	Samak, Sanwak, Jalsamoka, Barnyard millet	Whole plant	Plant used in diseases of spleen and for checking haemorrhage; seeds used as millet, roasted seeds a coffee substitute.
87	<i>Elaeagnus parvifolia</i> Wall. ex Royle	Elaeagnaceae	Ghain	Flowers, seeds	Flowers- astringent and cardiac tonic. Seeds stimulant, yield an oil used in pulmonary affections.
88	<i>Eleusine indica</i> (Linn.) Gaertner	Poaceae; Gramineae	Mandla, Crowfoot grass, Crab grass, Indian goose grass	Whole plant	Whole plant, especially root- considered sudorific and febrifuge, used in liver complaints; infusion of macerated leaves drunk as a remedy for urine retention, infusion eases vaginal bleeding.
89	<i>Erigeron bonariensis</i> Linn.	Asteraceae; Compositae		Leaves, roots	Leaves- used for lumbago and rheumatism; leaves and roots- used for poulticing.
90	<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	Bari dudhi, Pusitua, Dudhi	Whole plant	Plant- used as an ingredient of medicines for cough and asthma; also used in colic, dysentery and diseases of genito-urinary tract. Latex applied to warts. Decoction of plant- in bronchial affections and asthma. Juice of plant- in dysentery and colic.
91	<i>Euphorbia royleana</i> Boiss.	Euphorbiaceae	Sru, Saru, Surai, Thor, Shakarpitan, Suli	Latex	Latex- cathartic, anthelmintic, injurious to the eyes.
92	<i>Euphorbia thymifolia</i> Linn.	Euphorbiaceae	Chhoti dudhi, Dudhli, Laghududhika, Raktavinda-chada	Whole plant	Leaves and seeds- aromatic, stimulant, astringent, anthelmintic and laxative, used for bowel complaints of children. Juice of plant- employed as a cure for ringworm, skin diseases and snake-bite. Roots- used in amenorrhoea.
93	<i>Fagopyrum dibotrys</i> (D. Don) Hara	Polygonaceae	Banogal	Whole plant	Grains- used in colic, choleric diarrhoea, and abdominal obstructions. Plant- contains rutin up to 8.5%.
94	<i>Fagopyrum esculentum</i> Moench	Polygonaceae	Phaphra, Phaphla, Kotu, Ogal	Whole plant	Plant- a promising source of rutin, which reduces increased capillary fragility. Seed flour- used in Spain as an emollient and resolvent.
95	<i>Ficus palmata</i> Forssk.	Moraceae	Phegra, Anjiri, Bedu, Khemri	Fruits	Fruits- demulcent and laxative; used in diseases of lungs and bladder, also as diet in cases of constipation.
96	<i>Ficus religiosa</i> Linn.	Moraceae	Pipal, Peepal, Ashvatha-pipala	Fruits, bark, seeds	Fruits and tender buds- laxative. Bark contains tannin; astringent, used in gonorrhoea; infusion used for ulcers and skin troubles. Seeds- cooling and alterative.
97	<i>Flacourtia indica</i> (Burm. f.) Merrill	Flacourtiaceae	Kangu, Governor's Plum, Madagascar Plum, Bilangra, Kanju	Fruits, bark, gum	Fruits edible; appetising and digestive, used in jaundice and enlarged spleen. Bark astringent and diuretic; also used for tanning. Gum- given with other ingredients for cholera.
98	<i>Flemingia macrophylla</i> (Willd.) O. Kuntze ex Merrill	Papilionaceae	Bara-salpan	Roots	Roots are used as an external application to ulcers and swellings, mainly of the neck. Plant is a principal source of a resinous powder known as 'Warrus dye'.
99	<i>Fragaria nubicola</i> Lindley ex Lacaite	Rosaceae	Bhumke, Alpine strawberry, Perpetual strawberry	Fruits, leaves	Fruits edible and delicious; astringent and diuretic; kernels contain fatty oil. Leaves astringent and diuretic; infusion of leaves is given in diarrhoea and urinary affections. Leaves contain an ellagitannin. Roots contain tannin (9.4%).
100	<i>Fumaria indica</i> (Hausskn.) Pugsley	Fumariaceae	Jhinchra, Fumitory, Araka, Kalapanga, Pitpapra, Shahterah	Whole plant	Plant- astringent, diaphoretic, aperient, laxative, and diuretic; used for dyspepsia and scrofulous skin affections; contains tannin. But, Shahterah or Pit-papra of Indian Bazaars consists mainly of the imported <i>F. officinalis</i> Linn. and <i>F. parviflora</i> Lamk.
101	<i>Galium aparine</i> Linn.	Rubiaceae	Barik-munjtu, Cleavers, Goose grass	Whole plant	Infusion of the herb used as an aperient, diuretic, refrigerant, and antiscorbutic. Roots yield a purple dye.
102	<i>Geranium lucidum</i> Linn.	Geraniaceae		Whole plant	Plant- diuretic and astringent.
103	<i>Geranium mascatense</i> Boiss. var. <i>himalaicum</i> Babu	Geraniaceae		Whole plant	Plant- astringent and diuretic.

104	<i>Geranium nepalense</i> Sweet	Geraniaceae	Bhanda, Nepal Geranium, Nepalese Cranesbill	Whole plant	Plant- astringent; used in certain renal diseases. Roots known as 'Roel' or 'Bhand' contain a red-colouring matter which is used for colouring medicinal oils; also used for tanning.
105	<i>Geranium wallichianum</i> D. Don ex Sweet	Geraniaceae	Laljhari, Wallich Cranesbill	Whole plant	Herb- astringent, used as a cure for toothache and applied externally to eyes in eye-troubles. Rootstock is sometimes substituted for that of <i>Coptis teeta</i> Wall. Roots are also employed as a tanning material.
106	<i>Gnaphalium affine</i> D. Don	Asteraceae; Compositae	Nanehi, Jersey Cudweed	Leaves	Leaves- astringent and vulnerary.
107	<i>Habenaria intermedia</i> D. Don	Orchidaceae	Ridhi	Tubers	Used as salep.
108	<i>Hedera nepalensis</i> K. Koch	Araliaceae	Kaneri, Nepal Ivy, Lablab	Leaves, berries, seeds	Leaves and berries- stimulant, diaphoretic, and cathartic. Berries and seeds contain glycoside α -hederin which is intensely haemolytic and acts as an irritant to the alimentary canal, causes vaso-constriction, lowers blood pressure, slows the heart, and may cause death by paralysis of respiration.
109	<i>Heracleum candicans</i> Wall. ex DC.	Apiaceae; Umbelliferae	Padara, Patrala	Roots	The xanthotoxin isolated from the plant is highly efficacious in the treatment of leucoderma and psoriasis. It is also used in the preparation of sun-tan lotions.
110	<i>Heteropogon contortus</i> (Linn.) Beauv. ex Roem. & Schult.	Poaceae; Gramineae	Kamrodhi, Shurval, Parwa, Sura, Kumeria, Spear grass, Bellary grass	Roots	Roots- stimulant and diuretic.
111	<i>Hieracium vulgatum</i> Koch	Asteraceae; Compositae	Dudhli	Whole plant	Plant contains inulin.
112	<i>Imperata cylindrica</i> (Linn.) P. Beauv.	Poaceae; Gramineae	Kusha, Darbha, Dabh, Siru, Ulu, Thatch grass, Woolly grass	Roots, flower-heads	Used for the sacrificial thread of the Hindus; rhizomes eaten raw and used as a remedy for chest colds in children; the ash of the plant is used as a salt substitute; roots- astringent, emollient, restorative, haemostatic and antifebrile, used in the fumigation of piles; rootbark is febrifuge; fluff from the flower heads a substitute for cotton-wool in treating sores.
113	<i>Ipomoea purpurea</i> (Linn.) Roth	Convolvulaceae	Morning Glory	Whole plant	The plant is used as purgative and antisiphilitic. The stem yields a soft resin (4.8%), which is its active principle.
114	<i>Iris nepalensis</i> D. Don	Iridaceae	Shalbo, Chiluchi, Shoti, Sosan	Whole plant	Roots- diuretic, aperient, and deobstruent; useful particularly in bilious obstructions.
115	<i>Jacaranda mimosifolia</i> D. Don	Bignoniaceae	Blue Jacaranda, Jacaranda	Bark, leaves	Bark and leaves- used for syphilis and blennorrhagia. Leaves also used as a vulnerary; their infusion given as a pectoral.
116	<i>Jasminum humile</i> Linn.	Oleaceae	Yellow Jasmine, Svamajuthica, Hemapushpika, Peeli chameli, Peela-jui, Malto, Pitmalti	Flowers, roots, milky juice	Flowers yield an essential oil used in perfumery. A yellow dye extracted from the roots, which is used also for ringworm. Milky juice of the bark used in sinuses and fistulae.
117	<i>Jasminum officinale</i> Linn.	Oleaceae	Common Jasmine, White Jasmine, Chambeli, Chetaki, Jati, Malti, Chameli, Jati	Whole plant	Plant accredited with anthelmintic, diuretic and emmenagogue properties. Fresh juice of leaves applied to corns; leaves chewed in ulceration of the mouth.
118	<i>Juglans regia</i> Linn.	Juglandaceae	Khrot, Akhrot, Common Walnut, Persian Walnut, European Walnut, Akschota	Leaves, bark, fruit	Leaves astringent, tonic and anthelmintic. Yield an essential oil. Bark- anthelmintic, detergent. Fruit- alterative in rheumatism.
119	<i>Justicia adhatoda</i> Linn.	Acanthaceae	Bainshta, Bainshti, Vasaka, Arusha, Adulasa, Basuti	Leaves, flowers, roots	Fresh or dried leaves- constitute the drug <i>Vasaka</i> , used in bronchial troubles and consumption. Leaf juice- used in diarrhoea, dysentery and glandular tumours. Powdered leaves used for skin affections. Chief principle is vasicine (yield 0.54-1.1%). Vasicine has also been found to be a promising uterotonic and abortifacient. It may also find use in stopping postpartum haemorrhage. Leaves are rich in vitamin C (upto 250 mg/100 g) and carotene (4500 μ g/100 g) and yield an essential oil. Leaves- used in rheumatism, insecticidal. Leaves, flowers and roots- antispasmodic; used in cough, chronic bronchitis, asthma and phthisis.
120	<i>Kalanchoe integra</i> (Medik.) Kuntze	Crassulaceae	Haiza, Rungru, Tataru	Leaves	Juice of leaves- purgative and tonic. Leaves insecticidal; they are burnt and applied to abscesses.
121	<i>Lamium album</i> Linn.	Lamiaceae;	White Deadnettle	Whole plant	Plant- astringent; decoction used in haemorrhages of

		Labiatae			uterus and nose. Plant yields an essential oil. Roots resolvent and vulnerary. Flowers mild astringent, haemostatic, hypnotic, depurative and tonic. Leaves edible, a good source of carotene.
122	<i>Lannea coromandelica</i> (Houtt.) Merrill	Anacardiaceae	Pechka, Indian Ash Tree, Wodier, Jhingan, Kaimil, Mohin	Bark, gum	Source of Jhingan Gum.; used as a flocculating agent for clarification of cane juice. Bark astringent, extract used for dyeing and textile printing.
123	<i>Lantana camara</i> L. var. <i>aculeata</i> (L.) Moldenke	Verbenaceae	Phool-lakri, Lantana, Wild Sage	Whole plant	Leaves yield an essential oil with a pleasant lasting odour reminiscent of sage (<i>Salvia officinalis</i> Linn.); used for itch and may also be useful as an antiseptic for wounds. Plant credited with vulnerary, diaphoretic, carminative and antispasmodic properties; used in fistulae, pustules and tumours; decoction given in tetanus, rheumatism and malaria, and for ataxy of abdominal viscera.
124	<i>Lepidium apetalum</i> Willd.	Brassicaceae; Cruciferae		Whole plant	Plant used in impetigo. Aqueous extract of the herb causes a brief drop in blood pressure of mice and rabbits.
125	<i>Leucas lanata</i> Benth.	Lamiaceae; Labiatae	Bhuna, Dhurlu-ghas	Tender shoots	Tender shoots- given for cough after frying.
126	<i>Lyonia ovalifolia</i> (Wall.) Drude	Ericaceae	Ayar	Young leaves, buds	Infusion of young leaves and buds used for cutaneous troubles; leaves also insecticidal, contain a toxic substance and romedotoxin. Honey from the flowers reported to be poisonous.
127	<i>Mallotus philippensis</i> (Lam.) Muell.-Arg.	Euphorbiaceae	Kaimbal, Kungu, Kamal, Kamala Tree, Rechanaka, Kamila, Kamala, Sindur, Rohini	Glandular hairs from fruits	Glandular hairs from fruits yield a dye called <i>Kamala Powder</i> , used as an anthelmintic, cathartic and styptic; also for cutaneous affections.
128	<i>Malva rotundifolia</i> Linn.	Malvaceae	Khubasi	Leaves, seeds	Dried leaves- used as an emollient and demulcent. Seeds- demulcent; used in bronchitis, cough, inflammations of bladder and hemorrhoids.
129	<i>Malva verticillata</i> Linn.	Malvaceae	Beoli, Chinese Mallow	Whole plant	Plant- eaten as vegetable, as leaves and stems considered digestive. Root used as an emetic in whooping cough. Ash of dried leaves employed in the preparation of a drink given in scabies.
130	<i>Malvastrum coromandelianum</i> (Linn.) Garcke	Malvaceae		Whole plant	Plant- emollient and resolvent; decoction given in dysentery. Flowers used as a pectoral and diaphoretic.
131	<i>Melia azedarach</i> Linn.	Meliaceae	Jek, Bakain, Persian Lilac, Bead Tree, Mahanimba, Drek, Bakain	Leaves, bark, gum, fruit	Leaves, bark and fruit- accredited with insect-repellent properties. Leaf juice- anthelmintic, diuretic and emmenagogue. A gum collected from the tree used in spleen enlargement. Infusion of bark- used in ascariasis. Fruits tonic, but cases of severe poisoning have been recorded.
132	<i>Mentha longifolia</i> (L.) Hudson	Lamiaceae; Labiatae	Jungli Pudina, Horse-mint, Pudina	Whole plant	Herb- carminative, antiseptic and stimulant, specifically dried leaves and flower heads. Leaves soaked in water, give an infusion which is drunk as a cooling medicine. Decoction is used in fever. Eaten in form of chutney. Leaves and flowering tops yield an essential oil which can be used as a substitute for imported peppermint oil for flavouring confectionary.
133	<i>Meriandra strobilifera</i> Benth.	Lamiaceae; Labiatae	Buthi, Kafurkapat	Leaves	Strong decoction of leaves used as a lotion for ulcers and for the treatment of raw skin abrasions. Leaves used as a condiment; considered tonic, carminative, astringent and antiseptic. Infusion of leaves used as a gargle in sore throat and as mouth wash in aphthae. Leaves also used as a substitute for hops.
134	<i>Micromeria biflora</i> (Buch.-Ham. ex D. Don) Benth.	Lamiaceae; Labiatae	Indian Wild Thyme	Whole plant	Plant- used for worm infested wounds of cattle.
135	<i>Mirabilis jalapa</i> Linn.	Nyctaginaceae	Four O'Clock Plant, Marvel of Peru, Krishnakeli, Gulabbas, Gulabash	Whole plant	Leaves and stems- used as a tonic in China. Seeds- used as an adulterant of black pepper. Bruised leaves- applied to boils and abscesses. Juice of leaves- applied to wounds and bruises, and for allaying itching in urticaria.
136	<i>Morchella esculenta</i> Persoon ex St. Amans	Morchellaceae	Common Morel, Honey Combed Mushroom	Whole plant	Excellent if cooked slowly, large quantities should not be eaten at one sitting. All the morels must never be eaten raw, and must be thoroughly washed, boiled and resulting liquid strained off before cooking. Eaten both fresh and dry; having aphrodisiac and narcotic properties. It contains 35.68 g crude protein, 2.41 g fat and 17.77 g ash per 100 g of dry weight respectively, rest being carbohydrates and fibres. Also a rich source of calcium, phosphorus, iron and potassium (Kaul, 1978).

137	<i>Morus australis</i> Poir.	Moraceae	Kimu, Shalmali, Tut	Fruits, bark, leaves, roots	Fruit- aromatic, cooling, laxative; allays thirst, grateful in fevers. Bark- anthelmintic and purgative. Leaves- decoction used as gargle in inflammation of vocal cords. Root- anthelmintic and astringent.
138	<i>Murraya koenigii</i> Spreng.	Rutaceae	Gadhela, Gandhela, Curry Leaf Tree, Surabhinimba, Katnim, Mitha neem, Kurry-patta, Gandhela, Barsanga	Leaves, root, bark	Leaves, root and bark- tonic, stomachic, and carminative. Leaves- used for diarrhoea and dysentery, and for checking vomiting. Juice of roots- taken for relief from renal pain.
139	<i>Myrsine africana</i> Linn.	Myrsinaceae	Jhinjru, Jhurlu, Chapra	Fruits, gum, leaves	Fruit- edible, anthelmintic particularly for tapeworms, embelin is the active principle; also used as a laxative in dropsy and colic; form a constituent of an ointment used for ringworm and other skin affections. Gum- a remedy for dysmenorrhoea. Decoction of leaves- used as a blood purifier.
140	<i>Nasturtium officinale</i> R. Br.	Brassicaceae; Cruciferae	Aalam, Water-Cress, Common Watercress, Halim	Whole plant	Plant- antiscorbutic, appetizing, stimulant and good source of vitamins and minerals; used in strangury, goiter, asthma and tuberculosis. Juice used to cure polypus in the nose; and decoction used as a vermifuge and diuretic.
141	<i>Neolitsea pallens</i> (D. Don) Momiyama & Hara	Lauraceae	Chirudi, Chindi, Chirindi	Fruits	Fruits- yield an oil; applied to skin affections, also used as an illuminant.
142	<i>Nerium indicum</i> Mill.	Apocynaceae	Indian Oleander, Sweet-scented Oleander, Karavira, Kaner, Karber, Kuruvira	Roots, bark, leaves	Roots- resolvent and attenuant; an oil extracted from root-bark used in skin diseases of scaly nature. Bark- contains several glycosides with digitalis-like activity. Leaves contain oleandrin, a cardio-tonic.
143	<i>Nicandra physaloides</i> (Linn.) Gaertn.	Solanaceae	Apple of Peru	Whole plant	Plant- diuretic, anthelmintic and insecticidal; used as a fly poison.
144	<i>Nicotiana tabacum</i> Linn.	Solanaceae	Ghane-ra-tambaku, Tobacco, Tamakhu, Tambaku, Tamaku	Leaves	Leaves- employed in medicine as a sedative, antispasmodic, emetic and vermifuge; used in skin troubles, gastro-intestinal disorders and local affections.
145	<i>Ocimum basilicum</i> Linn.	Lamiaceae; Labiatae	Tulsi, Sweet Basil, Common Basil, Munjariki, Surasa, Varvara, Babui tulsi, Gulal tulsi	Whole plant	Plant- stomachic, alexipharmac, antipyretic, diaphoretic, expectorant, carminative, stimulant and anthelmintic. Juice of leaves- used as a nasal douche and for ringworm. Seeds- demulcent, stimulant, diaphoretic and diuretic; used in cases of habitual constipation and piles; also in poultices for sores and sinuses.
146	<i>Onychium lucidum</i> (D. Don) Spr.	Cryptogrammeae	Sulu	Leaves, rhizomes	Leaves and rhizomes- contain a glycoside which yields kaempferol and rhamnose on hydrolysis.
147	<i>Opuntia stricta</i> (Haw.) Haw. var. <i>dillenii</i> (Ker-Gawler) Benson	Cactaceae	Chapte-sru, Rasoi, Prickly Pear, Slipper Thorn, Vidara, Nagphana	Whole plant	Fruit- refrigerant, useful in gonorrhoea. Baked fruit- used in whooping cough, their syrup increases the flow of bile and control spasmodic cough and expectoration. Mashed up stems- used as a poultice to allay inflammation; also, hot ones applied to boils to hasten suppuration and for poulticing guinea-worm abscesses. Pulp also applied in ophthalmia.
148	<i>Origanum vulgare</i> Linn.	Lamiaceae; Labiatae	Common Marjoram, Wild Marjoram, Sathra	Whole plant	Plant contains a volatile oil and tannin. Origanum oil is carminative, stomachic, diuretic, diaphoretic and emmenagogue; used as a stimulant and tonic in diarrhoea and colic, also applied in chronic rheumatism, tooth-ache, and ear-ache; given in whooping cough and bronchitis because of its spasmolytic action; also employed in cosmetics and soaps.
149	<i>Osyris quadripartita</i> Salz ex Decne.	Santalaceae	Dalmi	Leaves	Infusaion of leaves is a powerful emetic. Leaves contain tannin (20%) and may prove a good substitute for Sumach (<i>Cotinus cogygria</i> Scop.).
150	<i>Oxalis corniculata</i> Linn.	Oxalidaceae	Khat-maroli, Indian Sorrel, Amlika, Amrul-Sak, Chuka-tripati	Whole plant	Fresh juice of plant given in dyspepsia, piles, anaemia and tympanitis. Infusion of leaves used to cure opacity of the cornea. Leaf juice is given to counteract <i>Datura</i> poisoning.
151	<i>Parmelia perlata</i> (Huds.) Ach.	Parmeliaceae	Mehandi, Groots Child Moss (E.); Chharila (H.)	Whole plant (thallus)	As a diuretic, astringent, laxative, tonic, carminative, aphrodisiac, headache remedy, sedative, and antibiotic for wounds. It has also been considered useful in dyspepsia, spermatorrhoea, amenorrhoea, calculi, diseases of the blood and heart, stomach disorders, enlarged spleen, bronchitis, bleeding piles, scabies, leprosy, excessive salivation, soreness of the throat, toothache, scorpion-sting, snake-bite and pain in general.
152	<i>Parthenium hysterophorus</i> Linn.	Asteraceae; Compositae	Congress Grass	Whole plant	Plant used as tonic, febrifuge, emmenagogue, and analgesic; decoction of roots given in dysentery.

153	<i>Phragmites communis</i> Trin.	Poaceae; Gramineae	Narkul, Nal, Common reed, Reed grass	Rhizomes, roots	Rhizomes and roots- antiemetic, diuretic and diaphoretic; used also in diabetes.
154	<i>Phytolacca acinosa</i> Roxb.	Phytolaccaceae	Narail, Jalga, Jharka, Sweet Belladonna, Indian Poke, Matazor, Sarangun Matazor	Whole plant	Tender leaves and twigs cooked as a vegetable. Plant has narcotic effect, which is destroyed on boiling. Fruit occasionally used as a flavouring agent. It is sometimes mistaken for <i>Atropa acuminata</i> Royle (Indian Belladonna) by local people, resulting in serious food poisoning; for the same reason its roots and leaves are often found mixed with that of Indian Belladonna. Seeds yield a fatty oil. Oil from root is used for pain in joints.
155	<i>Pimpinella diversifolia</i> DC.	Apiaceae; Umbelliferae		Whole plant	Herb- used as carminative.
156	<i>Pinus roxburghii</i> Sargent	Pinaceae	Chil, Chir, Himalayan Long-Leaved Pine, Chir Pine, Sarala	Oleoresin	Source of an oleoresin which yields turpentine oil. One of the most important basic raw materials for the synthesis of terpene chemicals used in a wide variety of industries. It is expectorant, useful in chronic bronchitis and especially recommended for gangrene of lungs. Given as a carminative in flatulent colic and also used to arrest minor hemorrhages in tooth-sockets and nose. Externally used as a rubefacient in rheumatic affections and for deep-seated inflammations, especially of abdomen.
157	<i>Pinus wallichiana</i> A. B. Jackson	Pinaceae	Himalayan Blue Pine; Bhutan Pine Kail, Blue Pine	Resin, needles	The resin from young saplings is used as liniment for healing of the cuts and wounds. Needle-oil shows antibacterial property.
158	<i>Pistacia chinensis</i> Bunge subsp. <i>integerrima</i> (Stewart) Rech. f.	Anacardiaceae	Kakkar, Kakarsinghi, Kareya, Kakra	Galls on the leaves	Galls on the leaves- tonic, expectorant; employed in asthma, phthisis, other diseases of respiratory tract and dysentery. Galls contain an essential oil which is used as a carminative.
159	<i>Plantago erosa</i> Wall.	Plantaginaceae	Lahuriya	Whole plant	Plant- hemostatic and wound-healing in burns and inflammation of tissues. In homoeopathy, used in disorders of epidermis and in headache, earache, and toothache. Leaves- cooling, febrifuge, diuretic, astringent, and vulnerary; their infusion used in diarrhoea and piles; decoction used as an eye-wash and their ointment in skin troubles. Roots- astringent and febrifuge. Seeds- demulcent, stimulant, diuretic and tonic; used in diarrhoea and dysentery; contain mucilaginous matter mainly in the seed coat and used as an adulterant of <i>Isabgol</i> . Seeds contain an oil suitable for edible purposes.
160	<i>Plantago lanceolata</i> Linn.	Plantaginaceae	Baltanga	Whole plant	Leaves and roots- astringent and vulnerary; used in cough, asthma and other pulmonary diseases. Leaves- applied to wounds and sores; extracts of young leaves showed antibacterial action. Seeds- diuretic, purgative and hemostatic; contain mucilage and used as an adulterant of Black Psyllium (<i>P. psyllium</i>), also contain tannin and fatty oil.
161	<i>Plectranthus mollis</i> (Ait.) Spreng.	Lamiaceae; Labiatae		Leaves, flowering tops	Crushed leaves- used to stop bleeding and as a febrifuge; also used as a mosquito repellent. Leaves and flowering tops- yield an essential oil which acts as a cardiac depressant, respiratory stimulant and vasoconstrictor; also exhibits relaxant activity on smooth and skeletal muscles.
162	<i>Plumbago zeylanica</i> Linn.	Plumbaginaceae	Chitraka, Chitrak, Chitra	Roots	Root- abortifacient, vesicant and diuretic; used in dyspepsia, piles, anasarca, diarrhoea and skin diseases; paste of the root applied for opening abscesses; infusion of roots used in influenza and black-water fever. Root-bark contains plumbagin, the active principle.
163	<i>Podophyllum</i> <i>hexandrum</i> Royle	Podophyllaceae	Bankakri, Indian Podophyllum, Bakrachimaka, Bhavanbakra, Papra, Papri	Rhizomes and roots	Rhizomes and roots- constitute the drug Indian Podophyllum which yields a medicinal resin called Podophyllum Resin or Podophyllin, commonly used as a purgative; podophyllotoxin is the active principle. Podophyllin is an effective vermifuge; recently it has acquired importance because of its use in controlling some forms of cancer.
164	<i>Pogostemon</i> <i>benghalensis</i> (Burm. f.) O. Ktze.	Lamiaceae; Labiatae		Leaves, roots	Leaves yield an essential oil; used as a stimulant and stypitic; their juice used in colic and as a febrifuge. Roots stimulant and antihemorrhagic. Herb is an important source of honey.
165	<i>Polygala abyssinica</i> R. Br. ex Fresen.	Polygalaceae		Roots	Further study of expectorant action of roots for their possible use as a substitute of Senega (<i>P. senega</i> Linn.) has been suggested.
166	<i>Polygonatum</i>	Liliaceae	Meda	Whole plant	Herb used as a tonic and vulnerary. Leaves eaten as

	<i>cirrhifolium</i> (Wallich) Royle				vegetable. Rhizomes used as salep.
167	<i>Polygonatum multiflorum</i> (Linn.) Allioni	Liliaceae	Solomon's Seal	Whole plant	Rhizomes tonic and demulcent; their poultice used for bruises, piles, inflammations, tumours and discolouration of the skin resulting from blows. Rhizomes eaten. Young shoots boiled and eaten like asparagus.
168	<i>Polygonatum verticillatum</i> (Linn.) Allioni	Liliaceae	Whorled Solomon's Seal, Mahameda, Mitha Dudia	Whole plant	Plant considered diuretic, contains a glucoside of digitalis group. Rhizomes valued as salep, a nutritive food. Shoots are eaten, when young.
169	<i>Polygonum hydropiper</i> Linn.	Polygonaceae	Water Pepper, Pepper-Wort	Whole plant	Herb- acrid, stimulant, diuretic, styptic, emmenagogue, and lithontriptic; used in amenorrhoea, and also as a flavouring agent. Liquid extract of herb used as an oral contraceptive; infusion used in uterine disorders and as a hemostatic. Roots- stimulant, diuretic, carminative, tonic and anthelmintic; their juice used for skin affections. Bruised leaves and seeds- used as a vesicant.
170	<i>Polygonum nepalense</i> Meissn.	Polygonaceae	Manana, Satbalon	Leaves	Leaves- applied to swellings.
171	<i>Populus ciliata</i> Wall. ex Royle	Salicaceae	Chalun, Chalan, Himalayan Poplar, Tilaunja	Bark	Bark- tonic, stimulant and blood purifier.
172	<i>Potentilla fragarioides</i> Linn.	Rosaceae	Banakru	Leaves	Infusion of leaves astringent. Rootstock contains tannin.
173	<i>Potentilla leschenaultiana</i> Ser.	Rosaceae	Banakru	Leaves	Infusion of leaves is astringent. Rootstocks contain tannin.
174	<i>Potentilla nepalensis</i> Hook.	Rosaceae	Rattanjot, Laljari	Roots	Root-stock depurative; their ash mixed with oil and applied to burns.
175	<i>Primula denticulata</i> Sm.	Primulaceae		Roots	Powdered roots used for killing leeches. They may also be used as a substitute for Senega (<i>Polygala senega</i> Linn.). Flowers eaten in salads.
176	<i>Prinsepia utilis</i> Royle	Rosaceae	Bekhal, Bekhli, Bhekal, Karanga	Seeds	Seeds yield a semi-drying oil; oil rubefacient, employed in rheumatism and pain due to fatigue.
177	<i>Prunus armeniaca</i> Linn.	Rosaceae	Khumani, Khurmani, Chuli, Common Apricot, Khubani, Zardalu	Kernels	Fruits edible. Kernels extracted during preparation of dry apricots are used for extraction of fatty oil used for cooking, in pharmaceutical and cosmetic industry, and for burning.
178	<i>Prunus cerasoides</i> D. Don	Rosaceae	Paja, Paddam, Padmaka, Padmakashtha, Himalayan Wild Cherry	Smaller branches, kernels	Smaller branches- used as a substitute for hydrocyanic acid; kernels- used in stone and gravel.
179	<i>Prunus persica</i> (Linn.) Batsch	Rosaceae	Gatheru, Peach, Aru, Shaftalu	Kernels, leaves, bark, flowers	Kernels yield a fatty oil. Leaves yield a volatile oil. Infusion of leaves or bark given for whooping cough. Flowers anthelmintic. Favourite table fruit.
180	<i>Pteridium aquilinum</i> (L.) Kuhn var. <i>wightianum</i> (Ag.) Tryon	Pteridiaceae	Bracken fern	Herb	It is a somewhat notorious fern as because of its pest value, the carcinogens and cyanide it contains which make severe problems to cattle in spring, and its invasive dominance of upland agricultural lands. It is also widely eaten as pickled young shoots in China and Japan and high incidences of stomach cancer prevalent there can possibly be attributed to its consumption.
181	<i>Punica granatum</i> Linn.	Punicaceae	Daru, Wild Pomegranate, Dadima, Jangli Anar, Daru	Bark, fruits, rind, flower-buds	Bark- used to expel tapeworms, iso-pelletierine is the most potent among the active principles; given as decoction. Rind is used as an astringent in diarrhoea and dysentery. Flower-buds used in bronchitis. Fruit a good source of sugars, vitamin C and iron.
182	<i>Quercus leucotrichophora</i> A. Camus	Fagaceae	Ban, Ban Oak, Grey Oak	Acorns	Acorns used as a diuretic in gonorrhoea and as an astringent in indigestion and diarrhoea, especially in children. Yields manna, used in confectionery.
183	<i>Ranunculus laetus</i> Wall. ex D. Don	Ranunculaceae	Badailtu	Herb	Herb- known for its acrid and toxic properties.
184	<i>Rhamnus triquetra</i> (Wallich ex Roxb.) Lawson	Rhamnaceae	Gardhan, Gaunt	Bark	Bark- used as a tonic and deobstruent.
185	<i>Rhamnus virgatus</i> Roxb.	Rhamnaceae	Thalt, Indian Buckthorn, Chato, Chadua	Fruits	Fruit- emetic and purgative, used in spleen affections.
186	<i>Rhododendron arboreum</i> Sm.	Ericaceae	Buransh, Bras, Tree-Rhododendron, Rose-Tree, Burans	Bark, petals	Bark used in the preparation of a kind of snuff. A sub-acidic jelly or preserve is made from the petals; also used in diarrhoea and dysentery.
187	<i>Ricinus communis</i>	Euphorbiaceae	Castor, Eranda, Arand,	Seeds, leaves,	Seeds yield Castor Oil, a fatty oil used as a cathartic and

	Linn.		Erandi	roots	also for lubrication and illumination. Purgative action is due to local irritation of the intestines caused by the ricinoleic acid formed by hydrolysis under the influence of the lipolytic enzymes. Poultice of leaves is applied to boils and sores. Decoction of roots given in lumbago.
188	<i>Robinia pseudoacacia</i> Linn.	Papilionaceae	Robinia, False Acacia, Black Locust	Leaves, flowers	Leaves antispasmodic and laxative; infusion used in digestive disorders. Flowers diuretic, contain robinin; yield an essential oil used as a flavouring and in the preparation of aromatic waters and sherbets.
189	<i>Rosa brunonii</i> Lindley	Rosaceae	Kuja, Khajin, Himalayan Musk Rose, Sewati, Kubjaka, Kuji, Kujai, Karer	Flowers, roots	Flowers used for preparation of rose water and otto (attar) of rose. Root (Rajatarini) used in eye troubles.
190	<i>Roscoeia purpurea</i> J. E. Smith var. <i>gigantea</i> Wall.	Zingiberaceae	Sharduli, Kakoli, Safed-musli	Tubers	Root-tuberous, tonic, used in seminal debility; also used in veterinary medicine.
191	<i>Roylea cinerea</i> (D. Don) Baillon	Lamiaceae; Labiatae	Karwi, Kauri, Chhoti-karwi, Dargu, Patkarru	Leaves	Decoction of leaves used as a bitter tonic and febrifuge.
192	<i>Rubia cordifolia</i> Linn.	Rubiaceae	Munjtua, Indian Madder, Manjistha, Kalameshika, Manjit, Manjith	Whole plant	Roots- tonic, antidysenteric, antiseptic and deobstruent. Decoction of leaves and stems used as a vermifuge; extract forms a constituent of the drug septilin, used for rhinosinal infections. Roots also used for colouring medicinal oils.
193	<i>Rumex nepalensis</i> Sprengel	Polygonaceae	Marmaila, Jangli Palak	Leaves	Infusion of leaves given in colic and applied to syphilitic ulcers; strong decoction used for bilharziasis. Leaves rubbed on the affected part for relief from irritation caused by stinging nettle (<i>Urtica dioica</i> Linn.)
194	<i>Salix babylonica</i> Linn.	Salicaceae	Majnu, Weeping Willow	Catkins, leaves, young twigs	Catkins and young twigs used as an antipyretic; infusion of leaves given in rheumatism.
195	<i>Salix tetrasperma</i> Roxb.	Salicaceae	Besu, Laila, Indian Willow, Varuna, Baishi, Bhinsu, Laila, Jalmala, Bent	Leaves, bark	Dried leaves, mixed with sugar, are given in rheumatism, epilepsy, venereal diseases, stone in the bladder, piles and swellings. Bark used as a ferbrifuge.
196	<i>Salvia lanata</i> Roxb.	Lamiaceae; Labiatae		Roots, leaves	Roots used as an adulterant of Kuth (<i>Saussurea lappa</i> C. B. Clarke). A good substitute for <i>Salvia moorcroftiana</i> Wall. ex Benth., i.e., roots given in cold and cough; seeds emetic, given in dysentery, colic and applied to boils; leaves used as a medicine for guinea-worm and itch, in form of poultice applied to wounds.
197	<i>Sapindus mukorossi</i> Gaertn.	Sapindaceae	Doda, Reetha, Ritha, Soapnut Tree of North India, Phenila, Urista, Reetha, Ritha	Fruits	Fruits emetic and expectorant, contain saponins; used in excessive salivation, epilepsy and chlorosis. They act as a fish-poison; powdered seeds considered insecticidal.
198	<i>Sapium insigne</i> (Royle) Benth. ex Hook. f.	Euphorbiaceae	Baloza, Biloza, Khinna, Khirun, Khiria, Khindra, Dudla	Latex	Milky juice acrid and vesicant.
199	<i>Sarcococca saligna</i> (D. Don) Muell.-Arg.	Buxaceae		Leaves	Leaves used in rheumatism and as a febrifuge.
200	<i>Selinum candollii</i> DC.	Apiaceae; Umbelliferae	Dum-dona, Bhootakeshi	Roots	Roots- regarded as nervine sedative and used as a substitute for Jatamansi; also employed as incense. The oil from the root has hypotensive, sedative and analgesic properties.
201	<i>Selinum vaginatum</i> (Edgew.) Clarke	Apiaceae; Umbelliferae	Bhogli, Muramansi, Bhootakeshi	Roots	Roots used as a nervine sedative; also employed as incense; yield an essential oil with hypotensive, sedative and analgesic properties.
202	<i>Senecio nudicaulis</i> Buch.-Ham. ex D. Don	Asteraceae; Compositae		Herb	Credited with medicinal virtues. A new alkaloidal component (0.05%) has been isolated.
203	<i>Silene vulgaris</i> (Moench) Garcke	Caryophyllaceae	Dhunpri, Bladder Campion	Whole plant	Plant is considered as an emollient and used in baths; also as a fumigant in Spain. Plant juice is used in ophthalmia. It contains saponin.
204	<i>Sisymbrium irio</i> Linn.	Brassicaceae; Cruciferae	London-Rocket, Khubkalan, Maktrusa, Jangli-sarson	Seeds	Seeds expectorant, febrifuge, and rubefacient; used in asthma, and employed in the preparation of stimulating poultices.
205	<i>Skimmia laureola</i> (DC.) Sieb. & Zucc. ex Walp.	Rutaceae	Kasturi-ra-charan, Ner, Nair, Kasturipatra	Leaves	Leaves used in small-pox; the smoke produced by their burning is said to purify the air; also used as incense; yield a volatile oil which is a potential source of linalyl acetate and may be used as a substitute of Petitgrain Oil (<i>Citrus aurantium</i> Linn.). Seeds yield a semi-drying oil.
206	<i>Smilax aspera</i> Linn.	Liliaceae		Roots	Roots used as a substitute for Indian Sarsaparilla

					<i>(Hemidesmus indicus R. Br.)</i>
207	<i>Smilax glaucophylla</i> Klotzsch	Liliaceae	Shondlu-ri-lo, Kukardari	Herb	Extracts of different parts of the herb show antispasmodic action on isolated guinea pig ileum.
208	<i>Solanum erianthum</i> D. Don	Solanaceae	Potato-Tree, Vidari, Asheta	Roots, leaves	Decoction of roots used for body pains, vertigo and urinary troubles. Leaves given in vaginal discharges. Also, given to horses afflicted with glanders.
209	<i>Solanum melongena</i> Linn.	Solanaceae	Bhata, Egg-plant, Brinjal, Bhantaki, Vartaku-vatigama, Vatigana, Baigun, Baingan	Roots, leaves, fruits	Roots antiasthmatic and general stimulant; juice employed for otitis; pounded and applied to ulcers in the nose. Leaves sialagogue, used in bronchitis, asthma and dysuria. Fruits given in liver complaints; they stimulate interhepatic metabolism of cholesterol. Aqueous extract of fruits inhibit choline esterase activity of human plasma; contains high percentage of vitamin B ₂ .
210	<i>Solanum myriacanthum</i> Dunal	Solanaceae	Ban-bhata	Whole plant	A rich source of solasodine. Alcoholic extract of the plant affects the contraction of isolated ileum of guinea pig and also influence central nervous system.
211	<i>Solanum nigrum</i> Linn.	Solanaceae	Kakamachi, Black Nightshade, Makoi	Whole plant	Plant- antiseptic and antidyenteric; used in cardalgia and gripe. Infusion of herb applied to anthrax pustules. The herb also used as a diuretic and laxative; decoction narcotic and antispasmodic. Freshly prepared extract of herb is effective in cirrhosis of liver. Juice of fresh leaves produces dilatation of the pupils. Berries tonic, diuretic and cathartic, used in anasarca and heart diseases. They are employed as a domestic remedy in fevers, diarrhoea and eye troubles. Leaves and tender shoots are boiled and eaten like spinach. Leaves used as an adulterant of belladonna. Immature fruits contain four steroidal glycoalkaloids.
212	<i>Solena amplexicaulis</i> (Lamk.) Gandhi	Cucurbitaceae	Mokhri, Tarali, Amantmul	Roots, leaves, fruits	Roots, leaves and fruits eaten. Root stimulant, invigorating and purgative; used in dysuria and spermatorrhoea. Juice of leaves applied to parts inflamed by marking-nut juice (<i>Semecarpus anacardium</i> Linn.)
213	<i>Sonchus asper</i> (Linn.) Hill	Asteraceae; Compositae	Spiny-leaved Sow Thistle, Didhi	Herb	Herb- used as an emollient; it is pounded and applied to wounds and boils.
214	<i>Sonchus oleraceus</i> Linn.	Asteraceae; Compositae	Dudhli, Milk Thistle, Dudhi, Dodak	Whole plant	Plant- valued as a galactagogue and for liver troubles. Leaves and roots used in indigestion and as a febrifuge. Roots vermifuge. Stems given as a tonic and sedative. Gum produced by evaporating the latex is a cathartic, used for ascites and hydrothorax. Herb used as an anti-opiate. Subcutaneous injection of aqueous or oil suspension produces histologically demonstrable damage to <i>Sarcoma-37</i> cells.
215	<i>Spiraea bella</i> Sims	Rosaceae		Seeds	Seeds contain saponin.
216	<i>Spiraea canescens</i> D. Don.	Rosaceae	Taku, Chaku	Seeds	Seeds contain saponin.
217	<i>Tagetes minuta</i> Linn.	Asteraceae; Compositae	Gandhal-phool, Stinking-Roger	Herb	Flower heads- stomachic, aperient, diuretic and diaphoretic; contains a volatile oil which shows tranquillizing, hypotensive, spasmolytic, bronchodilatory and anti-inflammatory properties. The whole plants on steam-distillation yield a volatile oil known as 'Tagetes Oil'. It is toxic because of presence of tegetone and thus its use is restricted to perfumery; also as fly and vermin repellent, effective larvicide and killing maggots in wounds.
218	<i>Tagetes patula</i> Linn.	Asteraceae; Compositae	Genda, Marigold, French Marigold, Taugla	Herb	Herb yields a volatile oil much used in perfumery. Roots and seeds purgative. Essential oil from the fresh floral heads is used as an antiseptic, as a fly repellent and as a modifier in hair lotions. Decoction of capitula used as a carminative; their juice contains iodine and is applied to cuts and wounds.
219	<i>Taraxacum officinale</i> Weber ex Wiggers	Asteraceae; Compositae	Dudhli, Common Dandelion, Dulal, Kanphul	Rhizomes, leaves	Rhizomes and roots constitute the drug taraxacum, used as a mild laxative, probably increases the flow of bile; also used as a diuretic, stomachic, hepatic stimulant, and tonic. Leaves are antiscorbutic.
220	<i>Taxus baccata</i> Linn. subsp. <i>wallichiana</i> (Zucc.) Pilger	Taxaceae	Barmi, Thuna, Himalayan Yew, Manduparni, Thuno, Thuner, Birmi	Leaves, fruits	Leaves antispasmodic and emmenagogue, used for nervousness, hysteria and epilepsy and as a lithontriptic. A tincture made from young shoots has long been in use for headache, giddiness, feeble and falling pulse, coldness of extremities, diarrhoea and severe biliousness. Aqueous extract of leaves showed a depressant effect on the central nervous system of rats, indicating the presence of a

					tranquillizing principle. All parts of the tree except the fleshy aril are poisonous; used as fish-poison. Fleshy arils eaten, stomachic, carminative and expectorant. Extracts of various parts of the tree added to hair lotions, beauty and shaving creams and dentifrices.
221	<i>Tecoma stans</i> (Linn.) Juss. ex Kunth	Bignoniaceae	Yellow Trumpet-bush	Roots, leaves	Roots- powerful diuretic, vermifuge and tonic. Leaves- contain the alkaloids tecomine and tecostanine which are potent hypoglycaemic agents when given intravenously.
222	<i>Thalictrum foliolosum</i> DC.	Ranunculaceae	Pili-jari, Mamiri, Pilazari	Roots	Roots are much valued for ophthalmia, used as extract, decoction or powder. Also used as diuretic, purgative and bitter tonic during convalescence and atonic dyspepsia.
223	<i>Thlaspi arvense</i> Linn.	Brassicaceae; Cruciferae	Common Pennycress, Fan-weed	Herb	Herb is used as a diuretic and blood purifier. Seeds stimulant; may be eaten with caution as a condiment.
224	<i>Thymus linearis</i> Benth.	Lamiaceae; Labiatae	Ban ajwain, Wild Thyme	Whole plant	The plant is bitter and is considered to be antispasmodic, antiseptic, expectorant, carminative, anthelmintic and stimulant due to its essential oil known as 'Oil of Wild Thyme'. This oil is extracted from leaves and floral-tops (0.5%) and used as a cheap flavouring agent and also in tooth-ache. Leaves and floral-shoots are employed in weak vision, complaints of stomach and liver, suppression of urine and menstruation; infusion used in skin diseases. Seeds given as a vermifuge.
225	<i>Toona ciliata</i> M. Roem.	Meliaceae	Tuni, Tunsh, Toon, Red Cedar, Moulmein Cedar, Nandivriksha, Tunna, Tun, Mahanim	Bark	Bark used for chronic dysentery of infants; also used in external applications for ulcers.
226	<i>Trichosanthes bracteata</i> (Lam.) Voigt.	Cucurbitaceae	Shvetapushpi, Mahakala, Lal-indrayan	Fruits, roots	Fruits are pounded in coconut oil and applied to sores. Root is an ingredient of a paste used on carbuncles. Roots used also in veterinary medicine for inflammation of lungs.
227	<i>Tridax procumbens</i> Linn.	Asteraceae; Compositae	Mexican Daisy, Coat- buttons	Leaves	Leaves- used in bronchial catarrhal, dysentery and diarrhoea. Leaf juice- insecticidal and piscicidal; used to check hemorrhage of wounds.
228	<i>Trifolium pratense</i> Linn.	Papilionaceae	Purple Clover, Red Clover, Broad-leaved Clover	Herb	Flowers depurative and sedative; their extracts used for corns and cancerous ulcers. Herb used by American Indians for sore eyes and as a salve for burns.
229	<i>Trifolium repens</i> Linn.	Papilionaceae	White Clover, Dutch Clover, Shamrock	Leaves, flowers	Leaves- detergent and depurative. Tincture of flowers- used as an astringent and in ointments for gout.
230	<i>Urtica ardens</i> Link.	Urticaceae	Bichhu-buti, Shishona, Kaniyali, Bichhu	Whole plant	Roots used for treatment of fractures and dislocations. Leaves and inflorescences prescribed as a tonic and a cleaning agent after parturition. Decoction of herb given as a febrifuge.
231	<i>Urtica dioica</i> Linn.	Urticaceae	Bichhu-buti, Common Nettle, Stinging Nettle, Bichhu-booti, Bichhu	Whole plant	Plant- hemostatic and powerfully diuretic; used in uterine hemorrhage, bleeding from the nose and vomiting of blood; also used in sciatica, palsy and rheumatism. In USSR, leaves are used in a medicine used for chronic hepatitis, cholangitis, cholecystitis and habitual constipation. Roots and seeds prescribed in diarrhoea and intestinal worms. Infusion of leaves and roots used as a hair-stimulant and for cleaning dandruff.
232	<i>Valeriana jatamansi</i> Jones	Valerianaceae	Indian Valerian, Tagara, Mushkbala, Tagar	Roots	Roots used medicinally as a substitute for Valerian (<i>V. officinalis</i> Linn.). Roots yield 0.5-2.12% of the volatile oil. Used as incense and in perfumes; also used medicinally for hysteria, nervous unrest, hypochondriasis, emotional troubles, and as a carminative and in urinary troubles. Decoction used as a sedative after parturition. Essential oil is used as an adjunct to certain flavours for tobacco, honey, etc.; also used as a tonic and stimulant. Drug has yielded a new group of iridoid or monoterpenic derivatives known as valepotriates, used as tranquilizers and sedatives.
233	<i>Valeriana pyrolaefolia</i> Decaisne	Valerianaceae	Nihani	Roots	Roots used as a substitute for the Indian Valerian (<i>Valeriana jatamansi</i>). In general, roots of both the species are unknowingly mixed at the time of collection.
234	<i>Vallisneria spiralis</i> (L.) O. Kuntze	Apocynaceae	Kali Bainshti, Kali Basuti, Bhadravalli, Bhadramunja, Vishalayakrit, Ramsar, Chamari-ki-bel	Latex, bark	Latex- mildly irritant; applied to wounds and sores. Bark- bitter and astringent; forms a constituent of <i>Vishagarbha taila</i> , an Ayurvedic medicine. Seeds yield a fatty oil.
235	<i>Verbascum thapsus</i> Linn.	Scrophulariaceae	Cow's Lungwort, Common Mullein,	Whole plant	Leaves and fruits used in diarrhoea and pulmonary diseases of cattle. Leaves used as demulcent in pectoral

			Gidar-tamaku, Ban-tamaku, Phulla		complaints, and as local application in piles, sun burns, and inflammation of mucous membranes. Dried leaves smoked to relieve irritation. Decoction of leaves used as a heart stimulant. Roots febrifuge; their decoction used for cramps and migraine. Seeds narcotic, used as a fish-poison. Herb yields an essential oil which is a bactericide. In Europe, it is a popular remedy for frost-bites, bruises and piles. A conserve of flowers is given for ring worm.
236	<i>Viburnum cotinifolium</i> D. Don	Sambucaceae	Java, Borla, Bankunch	Bark	Bark used in menorrhagia and metrorrhagia.
237	<i>Viola canescens</i> Wallich	Violaceae	Banaksha	Flowers	One of the adulterants of <i>V. odorata</i>
238	<i>Viscum album</i> Linn.	Loranthaceae	Narata, European Mistletoe, Banda	Whole plant	Plant- used in hypertension, arteriosclerosis, tumours and arthrosis; reputed as a cardiogenic, nervine sedative, antispasmodic, diuretic and purgative and as an emetic with narcotic action; also used for enlargement of liver and spleen, hysteria, epilepsy, uterine hemorrhages, piles and lumbago. Leaves, berries and bark- yield a highly sticky, greenish resin, known as viscin, used in the production of strongly sticking plasters and bird-lime.
239	<i>Vitex negundo</i> Linn.	Verbenaceae	Bhouna, Banah, Bana, Nirgundi, Sambhalu, Shambalu, Shivari, Nisinda, Nirgandi	Leaves, roots, flowers	Leaves- tonic and vermifuge; smoked for relief in catarrhal and headache; their decoction employed in medicinal baths for catarrhal and rheumatic affections. Leaves and roots- possess tranquillizing effect and form a constituent of <i>Vishagarbha taila</i> , an Ayurvedic preparation. Leaves yield an essential oil. Extract of leaves showed anticancer activity against <i>Ehrlich ascites</i> tumour-cells. Roots- tonic, febrifuge, diuretic; used in rheumatism and dyspepsia and as an anthelmintic; also employed as a demulcent in dysentery and piles. Flowers astringent; used in diarrhoea, fever and liver complaints. Seeds eaten after boiling.
240	<i>Woodfordia fruticosa</i> (Linn.) Kurz	Lythraceae	Dhavsha, Fire-flame bush, Shiranjitea, Dhataki, Agnijwala, Dhai, Dhaura, Dawi, Thawi, Santha, Dhaura	Fruits, flowers, buds	Dried flowers- astringent and stimulant. Commercially available drug consists of dried fruits, flowers, buds and broken pieces of inflorescences. It is much used in bowel complaints, hemorrhages, menorrhagia and seminal weakness. Flowers are used for making a cooling drink.
241	<i>Xanthium strumarium</i> Linn.	Asteraceae; Compositae	Cocklebur, Bur-weed, Arishta, Banokra, Gokhru, Chhotagokhru, Chhotadhatura, Adhasisi	Whole plant	Herb- diaphoretic, diuretic, emollient and sedative. Decoction used in chronic malaria, leucorrhoea and urinary diseases. Fruits- rich in vitamin C and considered cooling and demulcent. Buds- tonic, diuretic and sedative. Seeds- used for resolving inflammatory swellings and their oil for bladder affections, herpes and erysipelas. Fruits contain β -D glucoside of β -sitosterol; it is known to possess anti-inflammatory activity. It is added to pharmaceutical preparations or food products for regulation of hormonal activity and treatment of urogenital diseases. Leaves- astringent, diuretic and antisyphilitic; used in scrofula and herpes. Roots- bitter and tonic; used against cancer and scrofula; extract applied to ulcers, boils and abscesses.
242	<i>Yucca gloriosa</i> Linn.	Agavaceae	Adam's needle, Spanish Dagger	Whole plant	Fruit purgative. Santals use the plant in rheumatism, oedema, sores and ulcers; also for dysentery, phthisis, bronchitis, asthma and hemorrhagic septicaemia.
243	<i>Zanthoxylum armatum</i> DC.	Rutaceae	Timbar, Timri, Timru, Timbra, Dhiva, Gandhalu, Tejbal, Tejphal, Nepali-dhaniya	Bark, fruits, seeds, stems	Bark, fruits and seeds- used as a carminative, stomachic and anthelmintic. Stems- exhibit hypoglycaemic activity. Fruits and seeds- employed as a tonic in fever and dyspepsia. Fruits- used for dental troubles and scabies; yield an essential oil which is deodorant and antiseptic and may find use in soap-making and dental preparations. Bark- used to intoxicate fish.
244	<i>Zizyphus mauritiana</i> Lamk.	Rhamnaceae	Baer, Ber, Indian Jujube, Common Jujube, Ajapriya, Madhuraphala, Badara, Karkandhu, Kuvala, Ber, Baer	Fruits, kernels, seeds, leaves	Fruits of wild trees considered cooling, anodyne, and tonic. They enter into the preparation of <i>Joshanda</i> , a medicine used in chest troubles. Kernels sedative, used as a soporific and to stop vomiting; also employed as an antidote to aconite poisoning and for abdominal pain in pregnancy. Seeds given in diarrhoea. Leaves eaten with catechu as an astringent; also considered diaphoretic.

Out of the total species, 244 species have been categorized as medicinal plants and 54 species as aromatic plants, based on the information available in the literature. The important ones are: *Adiantum venustum*, *Berberis aristata*, *B. lycium*, *Bergenia ciliata*, *Cannabis sativa*, *Dioscorea deltoidea*, *Jasminum humile*, *Juglans regia*, *Taxus baccata* subsp. *wallichiana*, *Valeriana jatamansi*, *Viola canescens*, *Xanthium strumarium*, *Vitex negundo*, *Vallisneria spiralis*, *Tridax procumbens*, *Thymus linearis*, *Thalictrum foliolosum*, *Solena amplexicaulis*, *Solanum nigrum*, *Solanum myriacanthum*, *Solanum erianthum*, *Selinum vaginatum*, *Schisandra grandiflora*, *Skimmia laureola*, *Rubia cordifolia*, *Potentilla nepalensis*, *Polygonatum cirrhifolium*, *Polygonatum multiflorum*, *Polygonatum verticillatum*, *Podophyllum hexandrum*, *Plumbago zeylanica*, *Malva rotundifolia*, *Malva verticillata*, *Justicia adhatoda*, *Geranium nepalense*, *Geranium wallichianum*, *Galium aparine*, *Euphorbia hirta*, *Datura stramonium*, *Boerhavia diffusa*, *Anemone obtusiloba*, *Ainsliaea aptera*, etc.

Pandravada *et al.* (2000) [13] studied species diversity on medicinal plants from Eastern Ghats and collected 207 species out of which 150 were medicinal, 14 aromatic, 18 were dye yielding and rest belonged to different agri-horticulture crops of wild species. In the similar manner, Samant and Pal (2003) [15] recorded 701 species of medicinal plants, of which 138 species were trees, 135 species were shrubs, 421 were herbs and 7 species were of fern during their studies of diversity and conservation status of medicinal plants in Uttarakhand state.

According to Sarin (2003) [16], the number of plant species yielding raw materials used by the industry on a regular basis and/or in substantially large quantities is put at approximately 340. Among these, 145 species occur wild in forests or other forms of natural vegetation, 54 grow as weed, 70 are grown as cash crop for other plant based products, 30 are cultivated as medicinal crop and around 40 are imported from other countries. It revealed that there has been a tremendous increase in the production of herbal medicines and other items in recent years. This has put a great pressure on the raw material resources and natural population of many medicinal plants thereby resulting in their decline to a great extent while a few are at the verge of extinction.

Himachal Pradesh, because of its geographical position and edapho-climatic conditions has the distinction of being a pioneer state in the country having rich natural resources of medicinal and aromatic plants. More than 100 aromatic plants have been reported from the state by Chauhan (1989) [2]. Earlier, Gupta (1964) [6] roughly estimated the secondary sources and reported availability of about 1000-2000 medicinal plant species in Himachal Himalayas. Likewise, Chauhan (1974b) [1] enumerated the commercially important medicinal and aromatic plants of Una Forest Division, Himachal Pradesh.

Chauhan (1999) [3] in his illustrated book on medicinal and aromatic plants of Himachal Pradesh has given information about 700 species of medicinal and aromatic plants under different heads. Verma (2000) [18] reported 256 species of plants from Kunihar Forest Division, District Solan, Himachal Pradesh, out of which 197 species are classified as medicinal and aromatic plants. Besides, Negi and Bhalla (2002) [11] studied the collection and marketing system of important medicinal and aromatic plants in tribal areas of Himachal Pradesh, India and found that *Jurinea macrocephala* and *Picrorrhiza kurroa* were the two most important species

followed by *Salvia moorcroftiana*, *Viola serpens* and *Aconitum* spp., which were being collected from the area. Chauhan (2003) [4] have highlighted the most important medicinal and aromatic resources of Himachal Pradesh, India as: 179 species of commercial importance for drugs and phyto-pharmaceuticals, 32 species yielding essential oils, 16 species utilized for manufacturing of dhoop and incense, 30 species as source of phyto-chemicals, 40 species useful for tans and dyes, and 42 species that can be used as potent substitute for exotic species, thus, discouraging import and saving foreign exchange reserve.

Nilay (2005) [12] carried out survey to assess the medicinal plant wealth of Nahan area, District Sirmour in Himachal Pradesh, and documented a total of 403 species, Out of which 166 species were further classified as medicinal and aromatic plants, based upon their commercial utilisation. Similar studies were conducted by Virajman (2005) on the diversity of medicinal and aromatic plants of Sangla Valley in Himachal Pradesh and collected a total of 253 species and information on the traditional uses of 45 plant species as herbal medicines has also been recorded. Moreover, Meenakshi (2006) [9] documented the medicinal and aromatic plants of Kinnaur Forest Division. Altogether 376 plant species have been described. Among them, 187 species have been categorised as medicinal and/or aromatic plants, based on the available literature. The medicinal and aromatic importance of 223 plant species has been documented based on the available literature by Gupta (2006) [5] in Chopal Forest Division, Himachal Pradesh. Priya Ranjan (2009) [14] did the documentation of medicinal and aromatic plants of Dodra-Kawar region in Shimla District of Himachal Pradesh.

Conclusion

The extensive field surveys during flowering/fruitlet period were carried out to facilitate the process of identification, covering all seasons of the years 2009 and 2010. The nomenclature has been made up to date with the help of recent taxonomic literature. About 244 species have been categorized as medicinal plants based on the information available in the literature. These plants have immense potential in curing various diseases due to which they have been harvested for making medicines. Keeping in view the importance of these plants, they should be protected to avoid their extinction; instead they should be multiplied in the nurseries for continuing their regular supply in medicines. The information can be utilised for many purposes such as ethnobotanical uses, further research in the field of medicinal plants, pharmacological research and forest department.

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