

Original Research

Diversity and use pattern of ethno-medicinal plants of Kumaun Himalaya

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ABSTRACT:

Kumaun Himalaya, in the Indian Himalayan region, has a rich diversity of medicinal plants, which are widely used in traditional medicinal systems. The present paper concludes the diversity, vernacular names, associated authorship, ethno-medicinal uses and use pattern, life form; plant part used and accession number of the medicinal flora together. The paper describes distribution and local/traditional uses of the 256 medicinal plants representing 96 families, in which pteridophytes were 1%, trees were 18%, shrubs were 25%, herbs were 52%). Various plant parts used in formulations, such as: underground part- 33%, leaves- 24%, whole plant- 11%, bark- 7%, seeds- 7%, resin /latex/oil- 4%, stem/ shoot/ wood- 4%, flowers and inflorescences- 5%, fruits and nuts- 5% were used in different ailments.

Keywords:

Kumaun Himalaya, Biodiversity, Correlation, Ethno-medicinal plants, Traditional medicinal system, Vaidyas.

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## INTRODUCTION

All people are reliant on plants keeping in mind the end goal to meet different necessities for survival (Phillips and Meillieur, 1998). Man has been utilizing plants as medicines, edible/food, fodder, fuel, timber, farming tools and different purposes (Samant and Dhar, 1997; Samant *et al.*, 1996a, 1998b). Internationally, around 85% of the customary medicines utilized for primary human health are obtained from plants (Fransworth, 1988). People have knowledge of utilizing available plants to treat various illnesses. Distinctive kinds of illness are pervasive in various cultural groups and ethnic groups spread throughout the world (Charles, 1968). As such, variations exist in traditional systems of health care among different geographical regions.

The importance of plants used in therapy can be evaluated by the estimation of the World Health Organization (WHO) that the present demand for medicinal plants is about US\$14 billion a year, and that the demand for medicinal plant-based raw materials is growing at the rate of 15–25% annually. Accordingly, there is a developing risk on the utilization of therapeutic plants, their products and the indigenous medicinal practice as the deforestation and encroachment of

individuals are quickly prompting agricultural land and urbanization in the previous jungle. As the consequence of the prevalence of therapeutic plants and their related indigenous knowledge, the quantity of people and national and universal institutions looking for data on these plants is expanding quickly; so that there is an earnest need to merge and arrange all accessible data on therapeutic plants of the area.

The Kumaun Himalaya, lying between 28°44' N and 78°45' - 81°1'E, harbors a rich diversity of ethno-botanical species, which generate considerable benefits from social and economic perspectives. The region is well known for various forms of non-formal (traditional) medical treatments (Figure 1). Among the different ancestral ethnic groups of the district, the Tharu, Buxas, Rajis and Bhotiyas to a great extent rely on wild assets (Farooquee, 1994; Maikhuri *et al.*, 2000; Nautiyal *et al.*, 2000). Because of the outrageous inhospitable conditions, tribal groups are subject to collection and exchange of medicinal plants, and they have step by step gotten familiar with the healing properties of the accessible plants. This has resulted in a traditional system of cure, which has remained non formal and undocumented. A consolidated account and analysis of

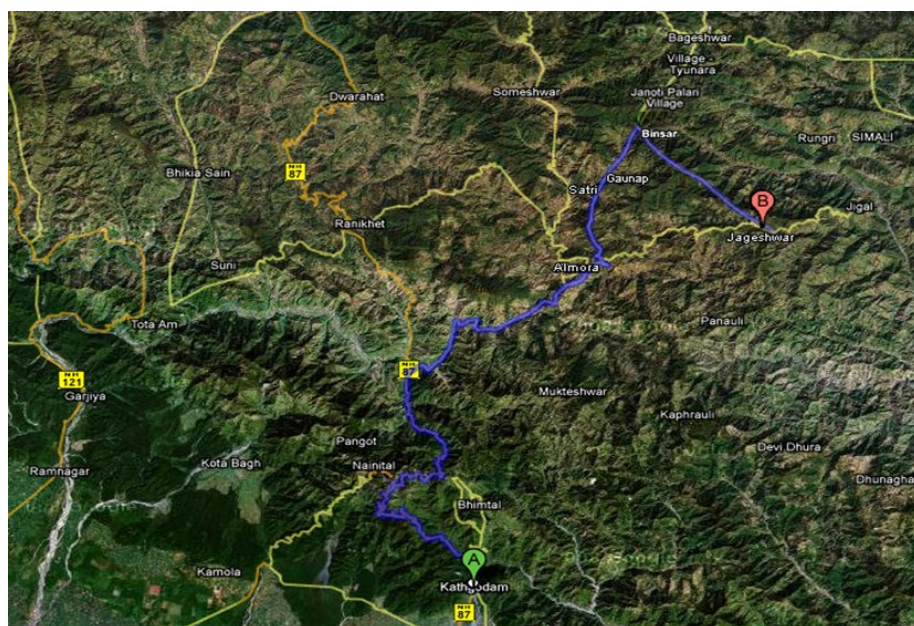


Figure 1. Kumaun Himalaya: Location Map

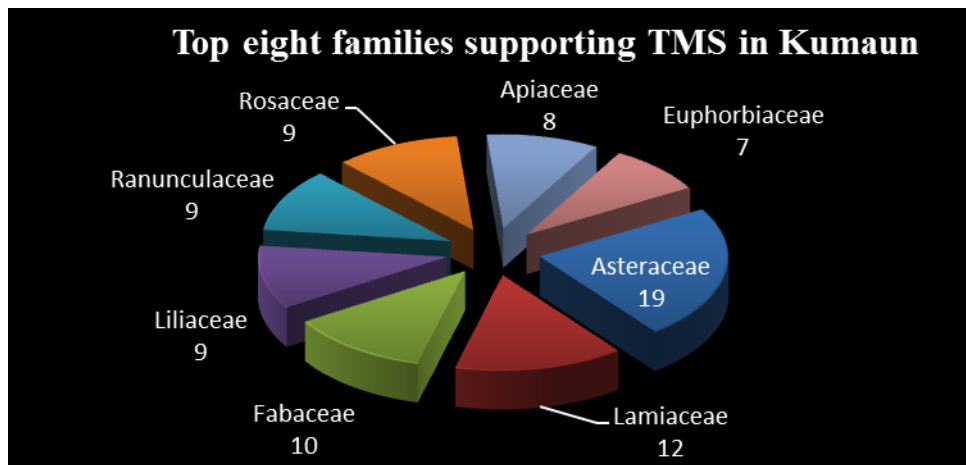


Figure 2. Top eight families supporting TMS in Kumaun

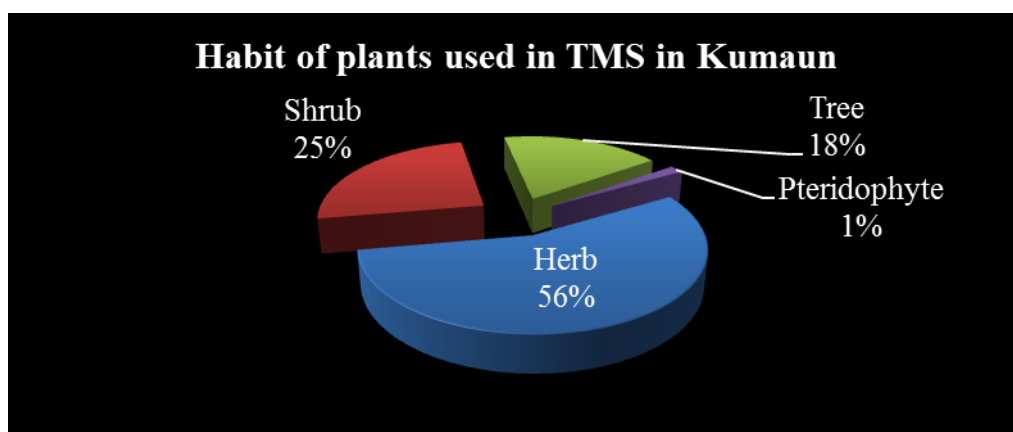


Figure 3. Habit of plants used in TMS in Kumaun

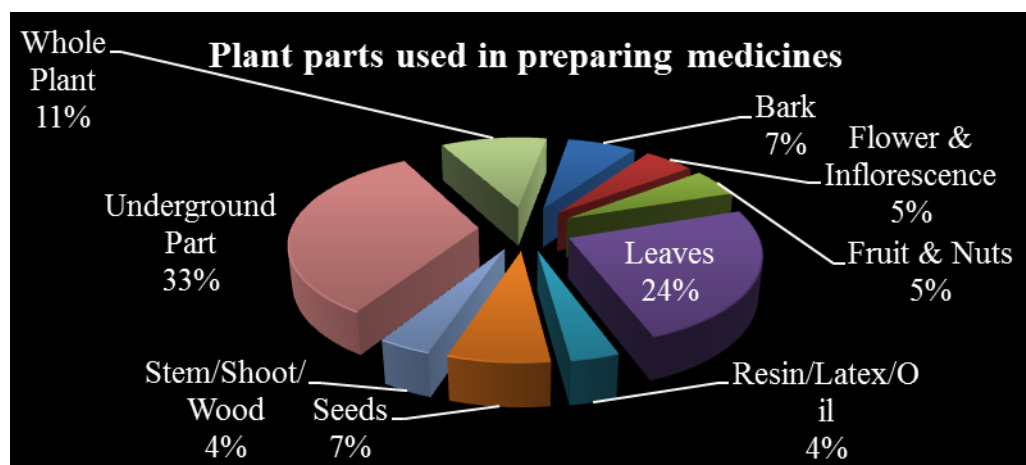


Figure 4. Plant parts used in preparing medicines

the total use pattern with regard to ailments and traditional treatments is not available. Therefore, this study aims to (i) prepare an inventory of locally

occurring important plant species (ii) document some of the major plant species with their use in various therapies

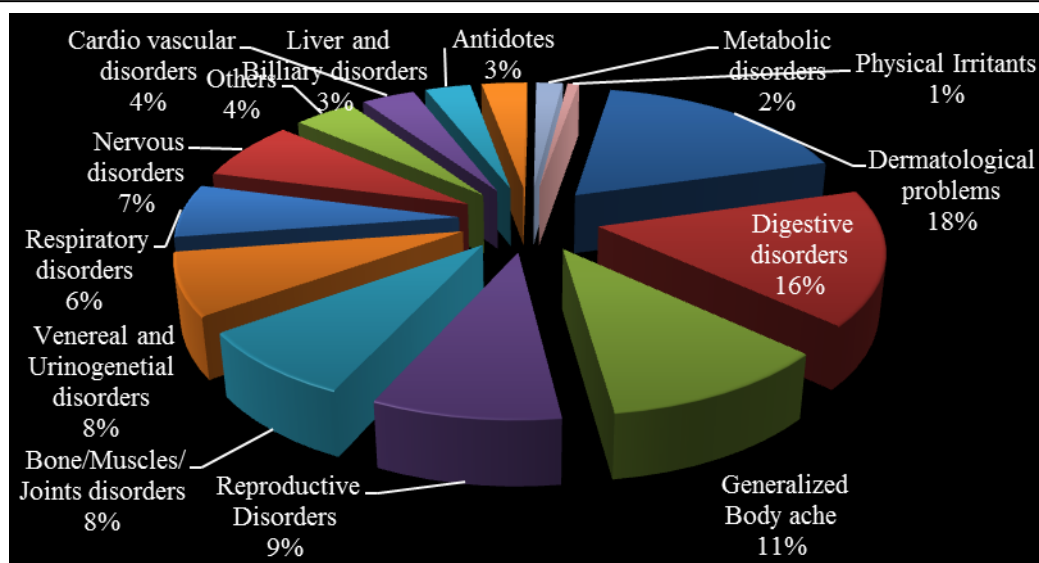


Figure 5. Categories of prevalent diseases in Kumaun

(iii) to access the population structure of threatened plants.

#### MATERIALS AND METHODS

To document the ethno-medicinal plants used in TMS in Kumaun through literature survey was done. To assess the distribution range, use pattern and formulations general interviews and gatherings were carried out in remote places of study area. To distinguish the plants, field trips made with professionals, herbarium specimens was additionally prepared. To evaluate the collected information for the quantity of illness treated by each particular plant species, the medicinal plants were classified into fourteen wide classes of diseases: dermatological disorders, digestive disorders, Generalized Body Ache (GBA), respiratory disorders, venereal and urinogenetal disorders, reproductive issues, liver and billiary disorders, nervous disorders, cardio-vascular disorders, metabolic disorders, bone/muscles/ joints disorders, anti-toxic substance/antidote, physical irritant, etc. Different specialists and Mandi proprietors were likewise counseled to analyze the data. Medicinal practitioners were counseled in characterizing all the documented 108 types of ailments into these expansive fourteen classes. The 256 recorded therapeutic

medications additionally were classified into these twelve classes of illnesses. The data were measured by checking the quantity of species and the quantity of natural medical formulations utilized as a part of curing the different ailments falling in every wide class of disorder.

#### RESULTS

The compiled inventory documents uses of 256 medicinal plant species (Table 1), which belong to 96 families out of which 8 major families (Asteraceae- 23%, Lamiaceae- 14%, Fabaceae- 12%, Liliaceae- 11%, Ranunculaceae- 11%, Rosaceae- 11%, Apiaceae-10%, Euphorbiaceae- 8%) are shown in the Figure 2. It is the aftereffect of an efficient treatment of the recorded taxa and presents the legitimate scientific and vernacular classification, related authorship and synonymous, distributional range, plant habits (Pteridophytes- 1%, Tree-18%, Shrub- 25%, Herb- 52%), plant parts used in formulations (Underground part- 33%, Leaves- 24%, Whole plant- 11%, Bark- 7%, Seeds- 7%, Resin/Latex/ Oil- 4%, Stem/ Shoot/ Wood- 4%, Flowers and Inflorescences- 5%, Fruits and Nuts- 5%) (Figures 3 and 4).

S. No.	Taxa	Altitudinal Range (m.)	Local Name	Life Form	Plant Parts Used	Ethno-medicinal Uses	System witch effected	Accession No.
<b>Family- Acanthaceae</b>								
1	<i>Adhatoda vasica</i> Nees ( <i>Justicia adhatoda</i> L.)	300-1600	Vasa	Sh	Lf, Fl	Decoction of flowers and leaves are given for treating coryza, cough and fever	Respiratory system (URTI-Upper respiratory tract infection)	2537
2.	<i>Barleria cristata</i> L.	200-2000	Kala-bansa	H	Lf	Leaf paste is applied externally on cuts and wounds for healing purpose. Decoction of leaves is given once a day to alleviate headache	Dermatological system, GBA	2524
3	<i>Dicliptera bupleuroides</i> Nees	500-2000	Kuthi	H	Sd, WP	Seeds or whole plant decoction is useful in dysentery.	Digestive System	2542
<b>Family-Achyranthaceae</b>								
4	<i>Achyranthes bidentata</i> Blume	1000-2200	Apamarga	H	Lf, Rt	Tablets are made from the leaf paste of <i>A. bidentata</i> Bl. and jiggery. It is given during dog bite for three days. Root paste is applied on mouth blisters.	Antidote (anti rabies), Others	25904
<b>Family-Adiantaceae</b>								
5	<i>Adiantum lunulatum</i> Houtt. ( <i>philippense</i> L.)	1800-2600	Hansraj	Pt	Rt, WP	Root paste mixed with mustered oil is applied externally on skin patches and eczema. Whole plant is powdered and taken orally during old fever.	Dermatological system, antipyretic	14314
<b>Family-Agavaceae</b>								
6	<i>Agave americana</i> L.	500-1800	Rambansh	Sh	Lf, Sd	Warm leaf poultice is applied on syphilis to control further infection. Seeds are used as abortifacient.	Veneral and urogenital, reproductive system	940
<b>Family- Amaranthaceae</b>								
7	<i>Amaranthus caudatus</i> L.	1000-2300	Kedari chua	H	Sd	Seeds are grounded and applied on abscess to get relief from pain.	Dermatological system	25885
<b>Family-Alliaceae</b>								
8	<i>Allium stracheyi</i> Baker	3500-4500	Jambu	H	Lf	A clean cloth dipped in the decoction of leaf is applied on wounds. Leaf decoction is given to cure diarrhea and gastric trouble.	Dermatological system, digestive system	24971
<b>Family- Anacardiaceae</b>								
9	<i>Rhus parviflora</i> Roxb.	1000-2000	Samak Dana	Sh	Br, Lf, St	Decoction of bark and leaves is given at intervals during cholera and stomach ache. Twig of stem is used to brush teeth.	Digestive system dental pathology	25151
<b>Family-Apiaceae</b>								
10	<i>Angelica glauca</i> Edgew.	3000-3700	Gandhrayan	H	Rt	Roots were boiled with water on moderate flame for up to 15min and left to cool. The liquid is drunk to cure vomiting and indigestion, dysentery, gastric complaints, stomach disorders Roots dried in shady place are chewed directly to cure dyspepsia.	Digestive system	25088
11	<i>Bunium persicum</i> B.Fedtsch.	2500-3200	Bhotia- jeera	H	Sd	Seeds are chewed to increase the lactation among women. Same formulation is also given to cure abdominal pain, loss of appetite and liver problems.	Reproductive system, digestive system	24736

Continued...

12	<i>Carum carvi</i> L.	2500-5100	Thoya	H	Sd	Seeds are boiled with the roots of <i>Berginia strcheyi</i> (HK.f. and Th) Engler, and the decoction is given to cure Rickets.	Bone, muscles and joints	24654	
13	<i>Centella asiatica</i> (L.) Urb.	Upto-2100	Mandook-parmi	H	Lf, Rt	Leaf juice is administered orally to treat in mental disorders. Root are ground and given to patient suffering from heat stroke.	Nervous system, physical irritant	21873	
14	<i>Chaerophyllum villosum</i> Wall. ex DC.	2100-3500	Ginjari	H	Rt	Root paste is applied on cuts and wounds.	Dermatological system	21840	
15	<i>Hieracium candicans</i> Wall. ex DC.	2200-3800	Gandhraj	H	Fr, Rt	Fruits are used as aphrodisiac and nerve tonic, and for intestinal parasites. Root paste is applied on eczema, ring worm infection, leucoderma.	Reproductive system, nervous system, digestive system, dermatological system	23533	
16	<i>Pleurosperrnum angelicoides</i> (Wall) ex DC.) Benth. ex C.B. Clarke	3100-3700	Chippi	H	Rt	Decoction of root is given in dyspepsia, ascariasis, dysentery and gastric trouble.	Digestive system	23230	
17	<i>Selinum wallichianum</i> (DC.) Rai-zada and H.O. Saxena	3000-3800	Bhutkesi	H	Rt	Roots are burnt with ghee and fumes work as insecticide. Root extract is applied on skin to get relief from muscle pain and swelling.	Bone, muscles and joints	24080	
<b>Family-Apocynaceae</b>									
18	<i>Carrisa opaca</i> Stapf ex Haines	Upto-1200	Jangli- Karonda	Sh	Fr	Roots of <i>Raphanus sativus</i> L. and <i>Carrisa opaca</i> Stapf ex Haines are taken in raw form, taken orally to cure Jaundice.	Liver and biliary system	25490	
19	<i>Catharanthus roseus</i> (L.) G. Don	150-1500	Sadabahar	Sh	WP	Juice of whole plant is given to the patients of Diabetes.	Metabolic disorder	25584	
20	<i>Holarrhena antichysenterica</i> (L.) Wall. ex A. DC.	Upto-1500	Dhodhi	Sh	Ltx, St	Latex of plant is applied on Urticaria and Ring worm. Stem bark is chewed in stomachache and burning sensation.	Dermatological system Digestive system	22622	
21	<i>Nerium indicum</i> Mill.	600-1200	Kaner	Sh	Lf	A decoction of the leaves has been applied externally in the treatment of scabies and to reduce swellings.	Dermatological system	23887	
22	<i>Plumeria acutifolia</i> Poir.	600-1200	Akhia	Sh	Bt, Ltx	Decoction of bark or latex is used as gargle to reduce the dental pain.	Dental pathology	20649	
23	<i>Rauwolfia serpentina</i> (L.) Benth. ex. Kurz.	1000-1400	Sarpandha	Sh	Rt	Powdered root is given internally for three days to cure ulcers. Decoction of root is given in malarial fever and to decrease the high blood pressure. Also used as antidote.	Digestive system, Cardio-vascular system, Nervous system	24919	
<b>Family-Araceae</b>									
24	<i>Acoris calamus</i> L.	1400-2300	Vach	H	Lf, Fl, Rt	Leaves and flower decoction juice is given for treating Cough, Fever, Coryza. Root powder is used to cure worm infestation among children.	Respiratory system, Digestive system	23539	
25	<i>Arisaema flavum</i> (Forssk.) Schott	2400-3800	Bang	H	Rh	Wounds are washed with decoction of rhizomes. Rhizome paste with water is applied on the body part stung by Snake or Scorpion.	Dermatological system. Antidote (against snake bite)	1485 6	

Continued...

26	<i>Catolopis procera</i> (Aiton) R. Br.	R.	Upto-800	Aak	Sh	Lf, WP	Powder of dried leaves mixed with gur given orally before Sun-rises for 5 days to cure migraine. Juice of the whole plant is administered orally, it acts as Abortifacient.	Nervous system, reproductive system	25586
27	<i>Gymnema sylvestre</i> (Retz.) R. Br.	R.	300-1000	Gurmar	Sh	Lf	Leaf powder is given for treating Diabetes Mellitus patients.	Metabolic disorder	14205
28	<i>Hemidesmus indicus</i> (L.) R. Br.	R. Br.	500-1400	Anantmoool	Sh	Rt, Lf	Root of plant and Cumin seeds are grounded in equal quantities; sugar is mixed and given internally to reduce body heat. Leaf juice mixed with water is given to cure fever.	Physical irritant, GBA	22373
<b>Family- Asparagaceae</b>									
29	<i>Asparagus adscendens</i> Roxb	Roxb	1000-2200	Kairuwa	Sh	Rt	To cure redness in eyes, root is crushed slightly and used as eye pencil thrice a day.	Ophthalmic disease	25155
30	<i>Asparagus curtilius</i> Buch.-Ham. ex Roxb.	Buch.-Ham. ex Roxb.	1800-3000	Shata-var	Sh	Rt	Root paste of <i>A. curtilius</i> Buch.-Ham. ex D.Don, <i>Cuscuta reflexa</i> Roxb. and <i>Coleus barbatus</i> (Andr.) Benth. are given to infant babies to cure jaundice.	Liver and biliary system	23013
31	<i>Asparagus filicitinus</i> Buch.-Ham. ex D. Don	Buch.-Ham. ex D. Don	1200-1800	Shatavar	Sh	Rt	Root juice is given to cure fever. Root is tied on the naval region to facilitate the delivery.	GBA reproductive system	24198
<b>Family- Asteraceae</b>									
32	<i>Achillea millefolium</i> L.	L.	1800-3600	Gandan	H	Fl	Tea of flowers is given to treat urinary infection, menstrual regularization.	Veneral and urogenital system, reproductive system	16883
33	<i>Ageratum conyzoides</i> L.	L.	200-2000	-----	H	Lf	Juice of the leaves are applied on cuts to avoid bleeding and pus formation.	Dermatological system	24431
34	<i>Anaphalis adnata</i> DC.	DC.	800-3200	Poth	H	WP	Whole plant is pasted and applied on cut and wounds.	Dermatological system	23997
35	<i>Artemisia maritima</i> L.	L.	3000-4000	Pati	H	Rt	Fresh root juice is applied externally on skin to cure boils.	Dermatological system	23793
36	<i>Artemisia nilagirica</i> (C.B. Clarke) Pamp.	(C.B. Clarke) Pamp.	Upto-1800	Pati	Sh	Rt, Lf	Fresh and washed roots/leaf are dipped overnight in cold water and drunk for 5-6 days before meal to cure intestinal worm.	Digestive system	24767
37	<i>Aster asteroides</i> (DC.) Kuntze	(DC.) Kuntze	3700-4900	-----	H	Rt	Roots are given to check hemorrhage.	Blood disease	17003
38	<i>Aster thomsonii</i> C.B. Clarke	C.B. Clarke	-----	-----	H	Lf	Leaves are chewed during indigestion.	Digestive system	25642
39	<i>Bidens bipinnata</i> L.	L.	1000-2000	Arka-jhar	H	Lf	Leaves crushed and juice rubbed on itching feet during rainy season.	Dermatological system	25663
40	<i>Eclipta prostrata</i> (L.) L.	(L.) L.	200-1200	Bhiringraj	H	Lf	Paste of leaves are applied on wounds.	Dermatological system	25529
41	<i>Galinsoga parviflora</i> Cav.	Cav.	800-3000	Khursani	H	Lf	2-3 drops of leaf juice is dropped in Earache.	GBA	14447
42	<i>Inula cappa</i> (Buch.-Ham. ex Don) DC.	(Buch.-Ham. ex Don) DC.	Upto-2500	Pushkar-mool	Sh	Rt	Decoction of root is taken orally to cure boils. Root paste is applied externally on skin to the cure same disease.	Dermatological system	23456
43	<i>Jurinea dolomiaea</i> Boiss.	Boiss.	3400-4500	Dhooppjhar	H	Lf	Leaf paste is taken orally as antiseptic, also to cure Fever.	GBA	23779
44	<i>Saussurea costus</i> (Falc.) Lipsch.	(Falc.) Lipsch.	3000-4000	Kuth	H	Rt	Root paste is used for 10-12 days to cure leprosy. Root paste directly applied on skin to cure boils. Powdered root taken with water against Dysentery.	Dermatological System, digestive system	25097

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45	<i>Saussurea obvallata</i> (DC.) Edgew.	3800-4600	Briham-kamal	H	Sd, Fl	Seeds of plants are placed into a bowl made of bronze for overnight, and given to patient for 7 days to cure Jaundice. Paste of flowers given with milk is said to cure "Dhatu Rog". Root is ground with black Pepper and given during Epilepsy.	Liver and biliary system, reproductive system	25091	
46	<i>Senecio nudicaulis</i> Buch.-Ham. ex D. Don	-----	Rasdhaur	H	Rt		Nervous system	23261	
47	<i>Tagetes erecta</i> L.	1000-2000	Genda	H	Lf	Leaf paste is applied on the wounds to check bleeding.	Dermatological system	1296	
48	<i>Tagetes minuta</i> L.	1000-2400	Hajari	H	Lf	Leaf paste is applied on wounds to check bleeding	Dermatological system	19610	
49	<i>Tanacetum tomentosum</i> DC.	300-4500	Guggul	H	WP	Decoction of whole plant is given before 5 days of the starting of menstruation to regulate it.	Reproductive system	1214	
50	<i>Taraxacum officinale</i> Weber.	1800-4000	Dudhi	H	Inf, Ltx	Decoction of inflorescence is taken orally to cure blisters. Latex is applied externally during skin irruption.	Dermatological system	21368	
<b>Family- Begoniaceae</b>									
51	<i>Begonia picta</i> Sm.	600-2800	Lalpatti	H	WP	Decoction of whole plant is taken in times of dyspepsia.	Digestive system	25187	
<b>Family- Berberiadaceae</b>									
52	<i>Berberis aristata</i> DC.	2000-3000	Kilmora	Sh	Rt	Root juice mixed with water is dropped in eyes to cure redness and infection.	Ophthalmic disease	24881	
53	<i>Berberis lycium</i> Royle	1600-3000	Rasaut	Sh	Rt	Roots are dipped in water for overnight and drunk early in the morning to cure Diabetes.	Metabolic disorder	22818	
<b>Family- Betulaceae</b>									
54	<i>Betula utilis</i> D. Don	2700-4300	Bhojpatra	T	Rs, Bk	Resin and seed kernels of <i>Prunus persica</i> (L.) <i>B. utilis</i> are ground into paste and mixed with milk. It is drunk to conceive and for internal strength.	Reproductive system	25093	
<b>Family- Bignoniaceae</b>									
55	<i>Kigelia pinnata</i> (Jacq.) DC.	-----	Balam-kheera	T	Fr	Fruits in pieces are eaten to remove the Kidney stones.	Veneral and urogenital system	24315	
56	<i>Oroxylum indicum</i> (L.) Kutz	400-1500	Pharkat	T	Br, Rt	Water extract of stem bark is given during stomachache. Root juice is given at intervals of 30 minutes until the patient regains consciousness.	Digestive system, Nervous system	23903	
<b>Family- Bombacaceae</b>									
57	<i>Bombex cieba</i> L.	200-1600	Semal	T	Rt, Br	Root decoction prepared from <i>Bombax ceiba</i> Linn. and <i>Curculigo orchioides</i> Gaertn. are filtered and preparation is given to the patient twice a day to a period of 10 -15 days for cure Leucorrhoea. Poultice made through bark is plastered on fractured bones.	Reproductive system bone, joints and muscles	25408	
<b>Family- Boraginaceae</b>									
58	<i>Arnebia benthamii</i> (Wall. ex G. Don) I.M. Johnston. all. ex G. Don) I.M. Johnston. Syn. ( <i>Macrotomia benthamii</i> ) (Wall. ex D. Don) A. DC.	2800-3800	Balchar	H	Rt	Dry roots are soaked in mustard oil for more than one week and the warm oil is massaged on the affected part(s) at bedtime to cure Arthritis. The dry roots are soaked in mustard oil for more than one week till its color changes to reddish pink. The oil is massaged on scalp act as hair tonic.	Bone, muscles and joints, dermatological system	15461	
59	<i>Cynoglossum zeylanicum</i> (Vahl ex Hornem.) Thunb. ex Lehm.	1000-4100	Chirkuri	H	WP	Whole plant is grounded and make into paste to heal the wounds.	Dermatological system	25176	

Continued...



<b>Family- Caesalpiniaceae</b>													
60	<i>Bauhinia vahlii</i> Wight and Amott	200-1300	Malu	Sh	Br				Stem bark is pasted and applied on skin irruption.			Dermatological system	25351
61	<i>Bauhinia variegata</i> L.	Upto-1900	Kachnar	T	Br				Fresh stem bark is warmed on fire and the juice extracted is given in Stomach-ache due to worms.			Digestive system	25989
62	<i>Cassia fistula</i> L.	Upto-1500	Amaltas	T	St, Br				Fresh stem bark is warmed on gentle fire and juice extracted from it is given in stomachache due to worms.			Digestive system	24812
63	<i>Cassia tora</i> L.	400-1300	Banar	H	Lf, Br, Rt				Leaves, barks and roots are applied externally on skin diseases such as ring worms and leprosy. Leaves are eaten raw to expel intestinal worm.			Dermatological system, digestive system	24638
64	<i>Saraca asoca</i> (Roxb.) De Wilde	Upto-1400	Ashok	T	Br				Decoction of bark is used as cardio tonic. To regulate menstruation and uterus problems this decoction is also used.			Cardio-vascular system, reproductive system	23575
<b>Family- Cannabaceae</b>													
65	<i>Cannabis sativa</i> L.	Upto-3000	Bhang	H	Sd, Lf				Oil extracted from dry seeds are applied to cure paralysis and joint pain. It is also applied to cure fever caused by severe cold. Concentrated and dried sap extracted from the leaves are mixed with mustard oil and applied internally, as well as externally to cure piles.			Nervous system Bone, joints and muscles digestive system	25601
<b>Family- Celastraceae</b>													
66	<i>Celastrus paniculatus</i> Willd.	1000-2000	Jyotismati	Sh	Fr				Oil extracted from seed are applied to skin to get rid of itching locally called Kamdu. Fruits are boiled and this decoction is applied on Rheumatoid arthritis			Dermatological system, bone, muscles and joints	22150
<b>Family- Clusiaceae</b>													
67	<i>Mesua ferrea</i> L.	400-1000	Nagkesar	T	Rt, Fl, Sd				Root paste is given orally as antidote against snake bite. Stamens of flowers are given before five days of menstruation to control Menorrhagia. The seed oil is considered for healing purpose as in sores, wounds and rheumatism.			Poisoning reproductive system, dermatological system, Infection bone, joints and muscles	248
<b>Family- Comberataceae</b>													
68	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight and Arn.	Upto-800	Arjun	T	Br				Spermatorrhoea is relieved with the decoction of bark of <i>Terminalia arjuna</i> (Roxb. Ex. DC) Wt. This decoction is also given as heart tonic as it works as heart stimulant.			Cardio-vascular System, reproductive system	11759
69	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	300-1300	Bahera	T	Fr				Powdered fruits of <i>Terminalia bellirica</i> (Gaertn.) Roxb and <i>Terminalia chebula</i> Retz are mixed in equal amount and taken with ghee in cough.			Respiratory system	25575
70	<i>Terminalia chebula</i> Retz.	150-1500	Harar	T	Fr				Fruits, <i>Piper nigrum</i> L. and <i>Zingiber officinale</i> Rosc. are taken in equal quantity, powdered and given with honey in asthma.			Respiratory system	20030
<b>Family- Convolvulaceae</b>													
71	<i>Ipomoea nil</i> (L.) Roth.	500-2000	Bharar	Sh	Sd				Crushed seeds are considered as abortifacient when taken in heavy doses.			Reproductive system	8903
72	<i>Ipomoea purpurea</i> (L.) Roth.	900-2400	-----	H	WP				Whole plant is grounded and poultice is applied on venereal infection called syphtilis.			Veneral and urogenital system	25523

Continued...

<b>Family- Corylaceae</b>												
73	<i>Corylus jacquemontii</i> Decne.	2400-2800	Bhoitya-badam	T	Fr		Fruit nuts are eaten as tonic to get rid of weakness.	Blood diseases	2807			
<b>Family- Costaceae</b>												
74	<i>Costus speciosus</i> (Koen.) Sm.	800-1500	Keva	H	Rh		Roasted roots are grounded and mixed with <i>Piper nigrum</i> L., made into tablets and taken orally to cure arthritis. Fried rhizome is administered orally with gur and are said to work as abortifacient. Rhizome is made into paste and eaten in anorexia due to intestinal worm.	Bone, joints and muscles reproductive system, digestive system	25180			
<b>Family- Crassulaceae</b>												
75	<i>Bryophyllum pinnatum</i> (Lam.) Oken	-----	Bishkapru	H	WP		Juice of whole plant is used over cuts.	Dermatological system	20473			
76	<i>Kalanchoe integrifolia</i> (Medik.) Kuntze (K. <i>spanthulata</i> DC)	1000-1800	Boi	H	Rt		Root paste is applied in deep septic wounds to remove the poisonous material.	Dermatological system	20115			
<b>Family- Cucurbitaceae</b>												
77	<i>Trichosanthes bracteata</i> (Lam.) Voigt	Upo-1200	Indrayan	H	Rt, Fr		Decoction of roots are administered orally in Fever. Rind of dried fruit pounded with water are applied on swollen neck glands.	GBA	23909			
<b>Family- Cupressaceae</b>												
78	<i>Juniperus communis</i> L.	3000-3800	Dhoop	Sh	St, Oil		Smoke of green wood is inhaled to cure vomiting. The heartwood oil is used regularly to cure boils, skin irruption and itching.	Dermatological system	24815			
<b>Family- Cuscutaceae</b>												
79	<i>Cuscuta reflexa</i> Roxb.	Up to-2000	Akasbel	H	WP		Fresh whole plant paste is applied on eczema thrice a day.	Dermatological system	25622			
<b>Family- Cyperaceae</b>												
80	<i>Cyperus rotundus</i> L.	300-2400	Motha	H	Rt		Tuber is made into paste and given for treating Stomachache.	Digestive system	17444			
<b>Family- Dioscoreaceae</b>												
81	<i>Dioscorea bulbifera</i> L.	150-2100	Gethi	H	Rh		Tubers are roasted in hot ash and given with salt to cure old cough.	Cardio vascular system	24963			
82	<i>Dioscorea deltoidea</i> Wall. ex Griseb. Family- Dicterocarpaceae	1500-3000	Tarur	H	Rh		Dry rhizome paste is applied on cuts, boils and pimples.	Dermatological system	20617			
83	<i>Shorea robusta</i> Gaertn.	Upto-1500	Sal	T	Rs		Powdered resin of plant with cow milk is given twice a daily during chest pain and indigestion.	GBA, digestive system	20754			
<b>Family- Ephenederaceae</b>												
84	<i>Ephedra gerardiana</i> Wall. ex Stapf.	2500-3900	Somlata	Sh	Rt, Lf		Dried twigs are chewed to cure asthma, hey fever. Roots and leaves with leaves of <i>Rhododendron anthopogon</i> D. Don are made into decoction is used in Hydrosele, weakness and cardio tonic.	Cardio-vascular system, GBA	23993			
<b>Family- Equisetaceae</b>												
85	<i>Equisetum arvensis</i> L.	Upto-1800	-----	Pteridophyte	WP, Lf		Paste of whole plant is applied as plaster on fractured bone. Juice of leaves are taken and used to cure Diuretic.	Bone, muscles and joints, veneral and urogenetal system	23870			

Continued...

<b>Family- Ericaceae</b>										
86	<i>Lyonia ovalifolia</i> (Wall.) Drude	1300-330	Anyar	T	Lf	The extract of leaves are rubbed on itching area.	Dermatological system	21160		
87	<i>Rhododendron anthopogon</i> Don	3000-4000	Bhotia chai	Sh	Br	Honey is mixed in the decoction of bark of <i>Rhododendron anthopogon</i> Don and drunk orally to facilitate easy delivery.	Reproductive systems	20120		
88	<i>Rhododendron arboreum</i> Sm.	1500-3300	Burash	T	Fl	Juice of calyx is dropped in eyes for treating cataract.	Ophthalmic diseases	22226		
89	<i>Rhododendron campanulatum</i> D. Don	2800-4400	Ratpa	Sh	Lf	Leaf powder is used to cure migraine and headache.	Nervous system	21894		
<b>Family- Euphorbiaceae</b>										
90	<i>Baliospermum montanum</i> (Willd.) Müll. Arg.	300-1000	Jangli-jamalgghota, Dantimool	Sh	Sd, Rt	Decoction of seeds are given to Ascites patients. Root is boiled with water and given to cure Arthritis.	Veneral and urogenetal system, bone, muscles and joints	23714		
91	<i>Euphorbia hirta</i> L.	Upto-2000	Dudhi	H	Lx	Latex of plant is dropped on the root of the tooth during toothache.	Dental pathology	25783		
92	<i>Euphorbia ligularia</i> Roxb.	Upto-1800	Syon	Sh	Lx	Lukewarm latex is dropped in ear during Ear ache.	GBA	13033		
93	<i>Euphorbia thymifolia</i> L.	700-1200	Choti-dudhi	H	WP	Whole plant is crushed with water and taken in times of diarrhoea and cholera.	Digestive system	25745		
94	<i>Emblica officinalis</i> Gaertn.	200-1500	Amla	T	Fr	Fruit juice is given to increase the flow of urine and acts as diuretic, also given in diarrhea, dysentery and to cure jaundice.	Veneral and urogenetal system, digestive system, liver and biliary system	25332		
95	<i>Mallotus philippensis</i> (Lam.) Müll. Arg.	Upto-1800	Ruain	T	Fr	Reddish powder of ripe fruits mixed with rice water is given for the expulsion of round worms.	Digestive system	20786		
96	<i>Ricinus communis</i> L.	Upto-2500	Arandi	Sh	Lf, Sd	Leaf is warmed on fire and tied over Mammary gland to dissolve the hardness. Oil extracted from seeds is massaged on painful joints.	Reproductive system, bones, muscles and joints	12433		
<b>Family- Fabaceae</b>										
97	<i>Abrus precatorius</i> L.	300-1200	Ratti	Sh	Rt, Sd	Roots are crushed with water and used for treating gonorrhoea and jaundice. Seeds are used as abortifacient.	Veneral and urogenetal system, liver and biliary system	24910		
98	<i>Ayloisia scarabaeoides</i> Benth.	400-1200	-----	H	Lf	Leaves are crushed/ rubbed at painful part due to sciatica. Leaves are chewed to cure Tonisils.	Reproduction system Bones, muscles and joints, GBA	24152		
99	<i>Butea monosperma</i> (Lam.) Taub.	Upto-1200	Dhak	T	Fl	Flowers are soaked in water; this water is applied on soles and palms to cure Insomnia. Paste is made from the flowers of <i>Butea monosperma</i> (Lamk.) Taub, <i>Syzygium aromaticum</i> (L.) Merr., leaves of <i>Urtica parviflora</i> Roxb, and applied externally as poultice to cure Hernia.	Nervous system, veneral and urogenetal system	25583		
100	<i>Crotalaria spectabilis</i> Roth	Upto-400	Chun-chuni	H	Lf	Juice extracted is given orally to check dysentery.	Digestive system	25344		
101	<i>Dalbergia sissoo</i> Roxb.	200-1400	Sisam	T	Lf, Fl	Leaf and flower extract is given in jaundice and liver disorders.	Liver and biliary system	25664		

Continued...

102	<i>Desmodium laburnifolium</i> (Poir.) DC.	Upto-1200	Sansarbhed	Sh	Rt	Paste of root together with fruits of <i>Dhatura metel</i> L. is applied on the Cyst. Root of plant ground into paste, mixed in some water is given in diarrhoea.	Dermatological system and digestive system	25011	
103	<i>Dolichos lablab</i> L.	-----	Chimi	H	Lf	Fresh juice is dropped in ear to get rid of ear ache.	GBA	25364	
104	<i>Flemingia strobilifera</i> (L.) R. Br.	300-2300	Salparni	H	Rt	Powder or decoction of root is administered orally to cure asthma.	Respiratory system	25270	
105	<i>Indigofera linnaei</i> Ali	1500-2500	Latahai bel	H	WP, Lf	Juice of whole plant is given in times of diarrhoea.	Digestive system	24771	
106	<i>Trifolium repens</i> L.	1500-2500	Tipatiya	H	WP	Fresh leaf juice is applied on scalp to remove dandruff. Plant paste is applied as poultice on cuts and wounds.	Dermatological system	24589	
<b>Family- Fagaceae</b>									
107	<i>Quercus leucotrichophora</i> A. Camus	140-2400	Banj	T	Fr	Fruits are used as diuretic.	Veneral and urogenital system	22432	
<b>Family-Fumariaceae</b>									
108	<i>Corydalis govaniiana</i> Wall.	3000-4800	Bhutkesi	H	Rh	Rhizome is heated with mustered oil and massaged on painful joints to cure arthritis.	Bones, muscles and joints	23692	
109	<i>Fumaria indica</i> Pugsley	Upto-1500	Pitta-papar	H	WP	The whole plant is boiled in water and is used in itching, pimples and boils of skin.	Dermatological system	9737	
<b>Family- Gentianaceae</b>									
110	<i>Swertia angustifolia</i> Buch.-Ham. ex D. Don	600-2600	Chirayata	H	WP, Rt	Decoction of whole plant / cold infusion is used orally to cure fever. Root juice is taken to give relief from cold and cough.	GBA Respiratory system	25110	
111	<i>Swertia chirayata</i> (Roxb. ex Karsten) Fleming	1500-2500	Chirayata	H	WP, Rt	The whole plant is dipped in water overnight and the bitter juice is taken the next morning to cure malarial fever. Decoction of the plant is used as tonic that influence on the digestive organs and also used as anthelmintic, especially for children. Juice of the root is taken to cure liver diseases; paste of the plant is also used in common ailments like cough, cold, asthma, headache and fever. Root, crush and paste are rubbed over joints for quick relief from pain; leaves warmed and paste prepared with mustard oil are applied over boils and scabies.	Cardio-vascular system, digestive system, liver and biliary system, respiratory system, GBA bone, muscles and joints dermatological system	25156	
<b>Family- Gesneriaceae</b>									
112	<i>Didymocarpus pedicellatus</i> R. Br.	500-2500	Ekpatta	H	Rt	Root extract is given to cure kidney stones. Decoction of roots mixed with Bans Mishri is given in leucorrhoea.	Veneral and urogenital system reproductive system	25099	
<b>Family-Helminthostachyaceae</b>									
113	<i>Helminthostachys zeylanica</i> (L.) Hook.	Upto-600	Sansari/Kamraj	Pteridophyte	Rh	Rhizome of the plant is cleaned thoroughly with water, crushed and deeply boiled along with cow's milk and decoction given with black pepper ( <i>Piper nigrum</i> ) to the patients for two months. The decoction of the rhizome is used for curing impotency.	Reproductive system	12038	
<b>Family- Hippocastanaceae</b>									
114	<i>Aesculus indica</i> (Wall. Cambess.) Hook.	1500-2500	Pagar	T	Fr	Warm paste of fruit is applied on the joints during Rheumatic pain.	Bone, muscles and joints	22221	

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<b>Family- Hypoxidaceae</b>									
115	<i>Curculigo orchioides</i> Gaertn.	Upto-1800	Kali-musli	H	Rt	Root is made into paste and applied externally as an antidote against snake bite. Root powder/ paste is administered orally for Worm infestation. Root is boiled with milk and given in general debility.	Antidote, digestive system, GBA	25350	
<b>Family-Juglandaceae</b>									
116	<i>Juglans regia</i> L.	1000-3000	Akhrot	T	St	Stem bark is rubbed and paste is applied on herpes, eczema, scrofula and syphilis.	Dermatological system, venereal and urogenital system	21948	
<b>Family-Lamiaceae</b>									
117	<i>Ajuga bracteosa</i> Wall. Benth.	1200-5100	Neelkanth	H	Lf	The decoction of leaves is given to regulate menstrual cycle Leaf juice is given to infants during high fever.	Reproductive system, GBA	25711	
118	<i>Colebrookea oppositifolia</i> Sm.	250-1700	Bursong	Sh	Lf	Leaf is chewed and juice is swallowed in cough.	Respiratory system	24944	
119	<i>Coleus forskohlii</i> (Willd.) Briq.	1000-2500	Pasan-bhed	H	Rt	Root decoction is used to increase to crush the Kidney stone and to increase urine flow.	Venereal and urogenital system	24499	
120	<i>Elsholtzia ciliata</i> (Thunb.) Hyl.	300-2000	-----	H	Fl	Decoction/Infusion is given as diuretic.	Venereal and urogenital system	1891	
121	<i>Nepeta ciliaris</i> L.	2300-3600	-----	H	Lf, WP	Decoction of dried leaves is mixed with 2-3 spoonfuls of honey to cure tuberculosis.	Cardio vascular system Venereal and urogenital system	25178	
122	<i>Ocimum sanctum</i> L.	400-1000	Tulsi	H	Lf	Whole plant decoction is acts as diuretic, given to cure painful urination. Juice of leaves with some piper powder is given in chronic fever, cold and cough.	GBA, respiratory system	18679	
123	<i>Origanum vulgare</i> L.	2600-3300	Van-Tulsi	H	WP	Decoction of whole plant is given orally in urinary disorders.	Venereal and urogenital system	22971	
124	<i>Pogostemono plactenthroides</i> (Burm. f.) Kuntze	-----	Masu-Peera	H	Lf	Leaf paste is heated with ghee and applied on wounds.	Dermatological system	25400	
125	<i>Roylea cinerea</i> (D. Don) Baill.	1200-3700	Kaural	Sh	Lf, Br	Infusion of leaves is given in throat diseases. Decoction of bark is given in times of Stomach ache and dysentery.	GBA, digestive system	25517	
126	<i>Sabia mukherjeea</i> Bennet and Raizada	1000-1600	Ghaniya	H	Lf	Leaf poultice is applied on forehead to cure migraine.	Nervous system	20517	
127	<i>Scutellaria repens</i> Buch.-Ham. ex D. Don	700-2400	Kurkum	H	WP	Whole plant decoction in water given with honey thrice a day to cure hyper acidity.	Digestive system	20501	
128	<i>Thymus linearis</i> Benth.	2400-3300	Van-Ajwain	H	Fl, WP	Infusion of flowers with water is given in whooping cough, bronchitis and congested lungs, as a gargle for throat and mouth infections, and to help settling indigestion and flatulence.	Respiratory system, GBA, digestive system	25435	
<b>Family- Lauraceae</b>									
129	<i>Cinnamomum tamala</i> (Buch.-Ham.) T. Nees and Nees	400-2000	Dalchini	T	Lf	Leaves are chewed; pills made from powdered leaves are taken for 4 days to cure cough and cold.	Respiratory system	25579	
130	<i>Litsea chinensis</i> Lam.	1000-2000	Meda-lakri	T	Fl, Lf	(a) Paste of flowers along with juice of leaves boiled in water is taken to cure burning sensation during Urination. (b) To increase physical strength and to avoid constipation the leaves are boiled in water and the extracted juice is taken.	Venereal and urogenital system, GBA, digestive system	24221	
<b>Family-Lecaeaceae</b>									
131	<i>Leea alata</i> Edgew.	Upto-500	-----	H	Rt	Roasted roots are powdered and administered orally in constipation. Oil prepared from root is applied locally in boils.	Digestive system, dermatological system	10825	

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<b>Family- Liliaceae</b>									
132	<i>Aloe barbadensis</i> Mill.	Upto-1800	Patkwar	H	Lf	Leaf is heated on low flame and tied over the affected part to cure rheumatic arthritis and gout. Leaf juice is given in constipation and diarrhoea.	Bone, muscles and joints digestive system	15539	
133	<i>Chlorophytum tuberosum</i> (Roxb.) Baker	800-1300	Safedmusali	H	Tb	Fleshy bulbs are eaten with Ghee as tonic. Grounded bulbs mixed with <i>Piper longum</i> L. is given to cure leucorrhoea.	GBA, reproductive system	24148	
134	<i>Drimys indica</i> (Roxb.) Jessop	1200-2400	-----	H	Bb	Juice of bulbs are given to induce vomiting to expel the poison.	Antidote	15562	
135	<i>Fritillaria roylei</i> Hook.	3000-4000	Kakoli	H	Bb	Bulbs are crushed and given with honey to cure asthma and bronchitis.	Respiratory system	21921	
136	<i>Gloriosa superba</i> L.	400-2200	Langli	H	Rt	Paste of the root is applied externally on joints to cure Rheumatoid arthritis.	Bone, muscles and joints	20825	
137	<i>Lilium polyphyllum</i> D. Don	1500-2200	-----	H	Rt	Decoction of Root is administered orally as tonic in general debility.	GBA	29454	
138	<i>Paris polyphylla</i> Sm.	1500-2400	SwetVach	H	Rt	1. Tuberos roots in the form of paste or poultice are used externally in skin diseases, cuts and wounds and in any poisonous bite. 2. Powder or infusion of root is taken orally to treat diarrhea and dysentery.	Dermatological system, antidote digestive system	25461	
139	<i>Polygonatum cirrhifolium</i> (Wall.) Royle	1700-3500	Meda	H	Rt	Bulbs are eaten orally with milk to cure general debility.	GBA	24319	
140	<i>Polygonatum verticillatum</i> (L.) All.	1500-3500	Mahameda	H	Rt	Powder of bulbs is taken orally with honey in tuberculosis. When bulbs are taken with milk, acts as tonic. Root powder is mixed with one glassful of water to cure Leucorrhoea.	Respiratory system, reproductive system	24320	
<b>Family- Linaceae</b>									
141	<i>Reinwardtia indica</i> Dumort.	30-2300	Pyoli	H	WP	Whole plant paste is applied on wounds.	Dermatological system	25772	
<b>Family-Loranthaceae</b>									
142	<i>Dendrophthoe falcata</i> L. f.	Upto-1200	-----	Sh	Lf	Leaf paste is applied on Itching.	Dermatological system	23852	
<b>Family- Lygodiaceae</b>									
143	<i>Lygodium flexuosum</i> (L.) Sw.	Upto-1200	Bariyari	Pteridophyte	Rh	Paste of rhizome mixed with sugar is given to cure gonorrhoea.	Venereal and urogenital system	24344	
<b>Family- Lythraceae</b>									
144	<i>Woodfordia fruticosa</i> (L.) Kurz	200-1800	Dhaul	Sh	Lf	Juice is good for treating dysentery.	Digestive system	22997	
<b>Family- Malvaceae</b>									
145	<i>Gossypium arboreum</i> L.	Upto-1500	Kapas	Sh	Sd	Seeds are pasted and applied on fractured bone for bone setting.	Bone, muscles and joints	23234	
146	<i>Sida cordifolia</i> L.	400-1200	Bala	Sh	Rt, St	Stem bark or root powder is given in general debility.	GBA	20326	
147	<i>Sida rhombifolia</i> L.	Uto-800	Atibala	Sh	Rt	Decoction of roots with ginger is given in intermittent fever. The powdered root bark is administered with milk and sugar as treatment for urinary trouble and leucorrhoea.	GBA, venereal and urogenital system, reproductive system	25197	
148	<i>Urena lobata</i> L.	200-1400	Van Pyaz	Sh	Bb	Paste of whole plant is administered orally with milk as tonic and to cure body ache.	GBA	24947	

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<b>Family- Meliaceae</b>													
149	<i>Azadirachta indica</i> A. Juss.	Upto-1000	Neem	T	Lf		Leaf paste with some salt is applied on abscess as dressing; it bursts with in 5-6 hours thereby reliving pain.					Dermatological system	24117
150	<i>Melia azedarach</i> L.	600-1400	Meetha Neem	T	Lf		Leaf decoction is drunk, it acts as diuretic.					Veneral and urogenetal System	22039
151	<i>Toona ciliata</i> M. Roem.	200-1700	Toon	T	Br		Bark is boiled with water and water extract is drunk to cure diabetes, fever and dysentery and gastric problems.					Metabolic disorders, Digestive system	20738
	<b>Family- Menispermaceae</b>												
152	<i>Cissampelos pareira</i> L.	200-2200	Patha	H	WP, Rt		Whole plant is grounded and administrated orally during hyper acidity. same application is given in diarrhoea, dysentery. Roots are chewed during stomachache.					Digestive system	12062
153	<i>Tinospora cordifolia</i> (Willd.) Miers	200-1200	Gurj	H	St		Decoction of stem is given orally during heart diseases. Juice of Stem is administrated orally with honey to cure the acute attacks of asthma.					Cardio-vascular system, respiratory system	23915
	<b>Family- Mimosaceae</b>												
154	<i>Acacia catechu</i> (L. f.) Willd.	200-1400	Khair	T	Br		The bark of the tree is used in chronic diarrhea.					Digestive system	20742
155	<i>Acacia nilotica</i> (L.) Willd. ex Delile	200-1100	Babool	T	St, Br, Rs		The twig of the plant is used as natural tooth brush. The extract of fresh bark is used as tonic. Gum is used as a powerful tonic after delivery if given with milk.					Dental pathology and reproductive system	25352
156	<i>Albizia lebbek</i> (L.) Benth.	250-1000	Siris	T	Br		Fresh Bark decoction is used three times daily in times of stomach troubles and dysentery.					Digestive system	20579
157	<i>Mimosa himalayana</i> Gamble	300-1900	Aal	Sh	Lf		Paste of leaves is applied on skin irruption.					Dermatological system	23010
	<b>Family- Moraceae</b>												
158	<i>Ficus benghalensis</i> L.	300-1400	Bar, Bargad	T	Rt		Root crushed and mixed with Bans Mishri is given to cure metrorrhagia.					Reproductive system	18571
159	<i>Ficus palmata</i> Forssk.	600-2300	Beru	T	Lx		Milky Latex is applied on boils, cuts and wounds.					Dermatological system	2147
160	<i>Ficus religiosa</i> L.	Upto-1600	Peepal	T	Br		Bark grounded with turmeric powder is applied externally on cuts, wounds and skin diseases.					Dermatological system	12946
	<b>Family- Myrsinaceae</b>												
161	<i>Embelia ribes</i> Burm. f.	400-1500	Bi- vidang	Sh	Sd		Seeds are used in round worms as an antidote to snake bite.					Digestive system antidote	1338
162	<i>Myrsine indica</i>	600-1400	-----	Sh	Fr		Fruit powder is given to children to kill worms.					Digestive system	23547
	<b>Family- Myrtaceae</b>												
163	<i>Syzygium cumini</i> (L.) Skeels	300-1500	Jamun	T	Sd		Seed powder/ decoction is given for treating diarrhea, dysentery and diabetes patients.					Digestive system metabolic disorders	15770
	<b>Family- Nyctaginaceae</b>												
164	<i>Boerhaavia diffusa</i> var. <i>hirsuta</i> Kuntze	300-1200	Punemava	H	Lf		Leaf juice of plant mixed with goat's milk is dropped in eyes to cure cataract problem. The Leaf juice mixed with water cures jaundice, dysentery, diarrhoea and dyspepsia.					Ophthalmic diseases	25532
165	<i>Mirabilis jalapa</i> L.	Upto-2000	Gulbans	H	Lf, Br		Bark is rubbed on burn scars.					Digestive system Liver and biliary system Dermatological system Respiratory system	25039
166	<i>Nyctanthes arbor-tristis</i> L.	-----	Parijat	Sh	Lf		Young leaves of <i>Nyctanthes arbor-tristis</i> L. and <i>Zingiber officinale</i> are taken together in equal quantities, boiled with water and taken twice a day for three days to cure cold and Cough.						24967

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<b>Family- Orchidaceae</b>									
167	<i>Coelogyne cristata</i> Lindl.	100-1800	Harjojan	H	Bb	Bulbs are crushed and plastered on fractured bone for bone setting.	Bone, muscles and joints	23895	
168	<i>Dactylorhiza hatagirea</i> (D. Don) So6	3200-3750	Salam-panja	H	Tb	Fresh Roots are crushed in cold water and filtered and drunk to regularize menstruation cycle for 15 days twice in a day. Dried and powdered tubers are mixed with two tablespoons mustard oil and paste rubbed externally on the effected part to check the bleeding. Tubers are used as a general tonic.	Reproduction system, dermatological system	25087	
169	<i>Habenaria intermedia</i> D. Don	1500-2500	Ridhi	H	Tb	Used as a tonic and to cure tuberculosis; slightly fried tubers are given to enhance sperm production.	GBA	24504	
170	<i>Malaxis acuminata</i> D. Don	1600-3600	Jeevak	H	Tb	Decoction of the tubers mixed with milk and one tablespoon of honey was drunk to check the excessive bleeding during child birth and also acts as a tonic.	Cardio-vascular system, reproductive system	24597	
171	<i>Satyrium nepalense</i> D. Don	1400-2000	Salam-misri	H	Tb	Decoction of leaves is used as eye drops in cataract treatment.	Reproductive system	29084	
<b>Family- Oxalidaceae</b>									
172	<i>Oxalis corniculata</i> L.	300-2900	Chalmora	H	Lf	The leaves are eaten raw or as vegetable to cure dysentery and diarrhoea.	Ophthalmic diseases	25696	
<b>Family- Paeoniaceae</b>									
173	<i>Paeonia emodi</i> Wall. ex Royle	2000-2500	Chandrain	H	Lf	Whole plant paste is applied on the affected part to cure Leprosy. The Leaf decoction is given in ulcers and malarial fever. Seeds are useful in dropsy and jaundice. Yellow juice of plant is applied on the scorpion sting. Decoction of Seeds is given in gout to reduce the frequency of pain.	Digestive system	21918	
<b>Family- Papaveraceae</b>									
174	<i>Argemone mexicana</i> L.	200-1500	Satyanasi	H	WP, Lf, Sd	Young stem bark is pasted and applied gently on and around boils twice a day for one week to get complete cure.	Dermatological system	5796	
175	<i>Papaver somniferum</i> L.	500-1800	Post	H	Sd	Used as poultice on suppurated boils.	Dermatological system	23528	
<b>Family- Pittosporaceae</b>									
176	<i>Pittosporium erocarpum</i> Royle	1200-1500	Agmbai	T	Br	Juice of fresh leaves is administered orally to cure fever.	GBA	25782	
<b>Family- Pinaceae</b>									
177	<i>Pinus roxburghii</i> Sarg.	1100-2100	Chir	T	Rs	Root powder of <i>Piper longum</i> L. mixed with honey is taken during throat infection. Powder or decoction of Fruit is administered orally to cure cough.	GBA	21113	
178	<i>Abies pindrow</i> Spach.	2400-4400	Talish-patra	T	Lf	The husk of the Seeds yields colloidal mucilage, used to cure gastric complaints, burning sensation in stomach and dysentery.	Digestive system	25556	
<b>Family- Piperaceae</b>									
179	<i>Piper longum</i> L.	200-1000	Peepi	H	Rt, Fr		Respiratory systems		
<b>Family- Plantaginaceae</b>									
180	<i>Plantago major</i> L.	1200-2600	Isabgol	H	Sd				

Continued...



<b>Family- Plumbaginaceae</b>													
181	<i>Plumbago zeylanica</i> L.	Upto-1400	Chitrak	H	Rt	Powdered root is given with milk to cure backache. Decoction of root if administered orally, acts as abortifacient.	GBA, reproductive systems	21930					
<b>Family- Poaceae</b>													
182	<i>Cynodon dactylon</i> (L.) Pers.	Upto-3000	Doob	H	W P	Entire above ground parts are crushed with water. Two to three drops of this extract are poured in the nostril to cure nasal bleeding.	GBA	25974					
183	<i>Desmostachys bipinnata</i> (L.) Stapf	Upto-800	Kush	H	Rt	Its root paste is used along with milk against Rheumatism. Poultice made of Roots is applied on carbuncle.	Bone, joints and muscles, dermatological system	7219					
184	<i>Paspalum scrobiculatum</i> L.	200-2200	Paplya	H	Rt	Root extract mixed with water seems to be diuretic on drinking this water, patient gets relief from painful urination.	Veneraeal and urogenetial systems	23281					
185	<i>Saccharum spontaneum</i> L.	200-1800	Munja	H	Lf	Leaf paste is applied on cuts and wounds to cure pus formation.	Dermatological system	25184					
186	<i>Setaria italica</i> (L.) P. Beauv.	900-2300	Kauni	H	Sd	Seeds are cooked with water and given to patients suffering from chicken pox. Seeds are also used as mattresses to cure same disease.	Dermatological system	7389					
<b>Family- Podophyllaceae</b>													
187	<i>Podophyllum hexandrum</i> Royle	2800-4200	Bankakri	H	Rt	The root paste is applied on ulcers, cuts and wounds. It is also used as purgative, for curing skin diseases and arresting tumors growth.	Dermatological system	24380					
<b>Family- Polygoniaceae</b>													
188	<i>Polygonum affine</i> D. Don	1600-4800	Inni	H	Rt	Roots astringent, refrigerant and their extract is used for washing ulcers, Seed are purgative, emetic, and tonic also given in times of colic pain.	Digestive systems	16480					
189	<i>Polygonum nepalense</i> Meisn.	1200-4100	-----	H	Lf	Leaves are chewed during Indigestion.	Digestive systems	13690					
190	<i>Rheum australe</i> D. Don	3000-4000	Dolu	H	Rt	Roots heated mildly and plastered on fractured part covered with a bandage which reduces swelling, pain and fracture.	Bones, joints and muscles	25094					
191	<i>Rheum webbianum</i> Royle	3600-4800	Tartri	H	Lf, Rt	A paste is made by the leaves and eaten to cure anorexia. The dry root is powdered and mixed with water, a thick paste is applied externally on the affected part to cure swelling.	Digestive system, bones, joints and muscles	16867					
192	<i>Rumex hastatus</i> D. Don	1000-2600	Bhilmora	H	Lf	Leaves are rubbed by the local against stings by insects.	Antidote	19943					
193	<i>Rumex nepalensis</i> Spreng.	1200-2500	Jangli Palak	H	Lf	Young leaves are crushed and applied on nettle stung portion for immediate relief.	Antidote	25244					
<b>Family- Ranunculaceae</b>													
194	<i>Aconitum ferox</i> Wall. ex Ser.	3100-3600	Meethavish	H	Rt	The Root are chewed twice a day to control abdominal pain and Vomiting. Also used in Fever, Body ache, and as an Aphrodisiac tonic.	Digestive systems	25092					

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195	<i>Aconitum heterophyllum</i> Wall. ex Royle	3000-3700	Ateesh	H	Rt	Paste of dried root with water and sugar are taken orally and used to treat diarrhoea, fever, body ache, and as an aphrodisiac tonic.	Digestive systems, GBA	23941	
196	<i>Actaea spicata</i> L.	2500-3700	Mamira	H	Rt	Roots are chewed to cure asthma, nerves disorders, rheumatism and paralysis	Respiratory system, nervous system, bones, joints and muscles	20489	
197	<i>Anemone obtusiloba</i> D. Don	2300-4200	Kan- clphool	H	Sd	Seeds are emetic and oil from the seeds are given in rheumatism. The decoction of the root bark is used for sores in the mouth.	Bones, joints and muscles and dental pathology	25984	
198	<i>Anemone rivularis</i> Buch.-Ham.	3000-4000	Daipha	H	Rh	Decoction / powder is prepared from rhizomes to cure Bronchitis.	Respiratory systems	21654	
199	<i>Clematis orientalis</i> L.	1500-3300	-----	Sh	Lf, WP	1-2 drops of leaf juice is dropped into the ear to check migraine. Whole plant paste is used for scabies and eczema.	Nervous system, dermatological system	14911	
200	<i>Delphinium cashmerianum</i> Royle	3000-4000	Nirbishi	H	Rt, Fl	Root decoction is given for purification of blood, heart problems, cough, typhoid, malaria and pneumonia fever, also applied on the place bitten by snake. Flower extract is used for eye redness and glaucoma and particularly for infections of eyes.	Blood diseases cardiovascular systems respiratory systems antidote (against snake bite) ophthalmic diseases	2533	
201	<i>Ranunculus laetis</i> Wall. ex Royle	1500-1800	Ainuwa	H	Lf, St	Leaf and stem paste is externally applied to cure boils.	Dermatological system	25648	
202	<i>Thalictrum foliolosum</i> DC.	1300-3400	Mamira	H	Rt	Roots are grounded and applied on wounds, swellings. Decoction of root is taken to cure uterine tumors, paralysis and nervous disorders.	Dermatological systems and nervous systems	25101	
<b>Family-Rhamnaceae</b>									
203	<i>Zizyphus mauritiana</i> Lam.	200-1200	Ber	T	Fr	Fruit juice is given in diarrhoea.	Digestive system	25405	
<b>Family-Rosaceae</b>									
204	<i>Cotoneaster</i> sp.	2000-5400	-----	Sh	Rt	Root decoction is made and drunk to treat scrofula.	Dermatological system	24890	
205	<i>Geum elatum</i> Wall. ex G. Don	3400-4200	-----	H	WP	Whole plant juice is given is taken during diarrhoea.	Digestive systems	25149	
206	<i>Potentilla fulgens</i> Wall. ex Hook.	1600-4800	Bajradanti	H	Rt, Lf	Root and leaf decoction is useful in teeth cleaning, toothache and pyorrhoea.	Dental pathology	25734	
207	<i>Prinsepia utilis</i> Royle	-----	Bhekol	Sh	Rt	Root extract is taken orally as an antidote to neutralize the effect of poison intake. Root paste after heating at low temperature in an earthen pot is applied on wounds.	Antidote (against poison), dermatological systems	23553	
208	<i>Prunus cerasoides</i> Buch.-Ham. ex D. Don	1200-2500	Padam	T	Br	Decoction of bark is given to decrease the muscular pain and Swelling.	Bone, muscles and joints	23524	

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209	<i>Rosa macrophylla</i> Lindl.	2100-3800	Jangli Gulab	Sh	Fl	Petals are chewed during diarrhoea.	Digestive system	20498	
210	<i>Rubus ellipticus</i> Sm.	1100-2400	Hisalu	Sh	Rt	Root of <i>R. ellipticus</i> Sm. with powder of pepper <i>nigrum</i> L. is given to cure stomachache.	Digestive system	24623	
211	<i>Rubus paniculatus</i> Sm.	1600-2900	Kala Hisalu	Sh	Rt	Root is grounded with water and given to control dysentery.	Digestive system	25630	
<b>Family- Rubiaceae</b>									
212	<i>Gallium aparine</i> L.	2000-4200	Kuri	H	Lf, WP	Dried leaves are powdered and applied on scars to remove it. whole plant is grinded in water and this preparation is used in worm infestation.	Dermatological system and digestive system	25514	
213	<i>Leptodermis lanceolata</i> Wall.	1800-3500	Chirar	Sh	Lf, Fl	Leaves and flowers are boiled with water and filtered water is drunk to cure fever.	GBA	25201	
214	<i>Rubia cordifolia</i> L.	1200-2200	Manjith	H	WP	Whole plant pulp rubbed with honey is recommended as a cure for acne and dark spots on face.	Dermatological system	25428	
<b>Family-Rutaceae</b>									
215	<i>Aegle marmelos</i> (L.) Corrèa	600-1100	Bel	T	Lf, Fr	Leaves of <i>Aegle marmelos</i> (L.) Corr. <i>Azadirachta indica</i> Juss. and powder of <i>Piper nigrum</i> L. is given to the patient of diabetes. Fruit juice is given to get rid from heat strokes and constipation.	Metabolic disorders, physical irritants, digestive system	25402	
216	<i>Boemninghausenia albiflora</i> (Hook.) Meisn.	600-3300	Pissumar	H	Lf, Rt	Poultice of leaf and red soil (Gent) is applied on burn scars to check the sensation.	Dermatological system	25204	
217	<i>Glycosmis arborea</i> (Roxb.) DC.	200-1000	Ban Nambu, Makranda	T	Br, Rt	Root bark is boiled with salt and decoction is given to the patient suffering from pyorrhea. Powder of root is administered orally with sugar to cure fever.	Dental pathology and GBA	4445	
218	<i>Skimmia laureola</i> (DC.) Siebold and Zucc. ex Walp.	2400-3200	Ner-Pati	Sh	Rt, Lf	Paste of root is used as antidote against snake and scorpion sting. Dried leaves are burnt and inhaled to cure sinus under nasal tract.	Antidote (against snake bite), GBA	24999	
219	<i>Zanthoxylum armatum</i> DC.	1100-2500	Timoor	T	St	Stem twig is used to brush the teeth to check bad breath and pyorrhea.	Dental pathology	25174	
<b>Family- Sapindaceae</b>									
220	<i>Sapindus mukorossi</i> Gaertn.	800-1500	Reetha	T	Fr	Fruit powder is given at intervals to regain the consciousness.	Nervous system	20607	
<b>Family- Saxifragaceae</b>									
221	<i>Berginia ligulata</i> Engl.	1600-3200	Silphora	H	Rh	Rhizome powder or decoction is given orally to cure Kidney stones.	Veneral and urogenital system	24860	
222	<i>Bergenia stracheyi</i> (Hook. f. and Thomson) Engl.	3600-4200	Silphari, Silphora	H	Rh	Fresh rhizome are removed and washed thoroughly, cut in to pieces and chewed like candy to cure urinary and kidney trouble.	Veneral and urogenital system	22861	
223	<i>Saxifraga diversifolia</i> Wall. ex Ser.	3000-4000	Silyans	H	Rt	Root decoction is used as vermifuge.	Digestive system	27841	

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<b>Family- Scrophulariaceae</b>									
224	<i>Bacopa monnieri</i> (L.) Pennell.	600-1000	Brahmi	H	WP	Juice of whole plant is given in mental illness. 2.-3 drops are dropped in eyes to cure conjunctivitis.	Nervous system Ophthalmic diseases	24577	
225	<i>Digitalis purpurea</i> L.	1000-1800	Tilpushpi	H	Lf	Leaf juice/decoction is used as cardio tonic.	Cardio-vascular system	25577	
226	<i>Lindenbergia indica</i> Vatke	300-2600	Makari-Jhar	H	Rt	Root is grounded and given to infant babies to cure throat problems.	GBA	21380	
227	<i>Picrohiza kurrooa</i> Royle ex Benth.	3300-4800	Kutki	H	Rh	Rhizome decoction boiled mildly for 5-10min and flavored with honey is given to cure stomach ache. Rhizome powder and black pepper mixed with honey is given orally to cure high fever.	GBA and digestive system	25001	
228	<i>Verbascum thapsus</i> L.	1000-4000	Aklbeer	H	Fl, Lf	Powder of flowers are mixed with mustered oil is applied on boils. leaf juice is dropped in eyes to cure cataract.	Dermatological system and ophthalmic diseases	25167	
<b>Family- Smilacaceae</b>									
229	<i>Smilax aspera</i> L.	1200-2600	-----	Sh	Rt	Root paste is given orally with water to get rid from diarrhoea.	Digestive system	23516	
<b>Family- Solanaceae</b>									
230	<i>Datura metel</i> L.	300-1200	Datura	H	WP	Decoction of whole plant is given to cure fever. Warm leaves are tied over affected part to cure boils.	GBA and dermatological system	25236	
231	<i>Datura stramonium</i> L.	200-2200	Krishna- Datura	H	Fl, Sd	Juice of flower is dropped in ear during earache. The paste prepared of roasted seeds of drug in mustered oil is applied locally on ring worm.	GBA and dermatological system (Infection)	23834	
232	<i>Solanum anguivi</i> L.	-----	Baigan Bhatta	Sh	Rt	Root is tied as belt around back to cure hernia.	Veneral and urogenital system	14158	
233	<i>Solanum nigrum</i> L.	800-3000	Gewain, Makoi	H	WP	Juice of whole plant is administrated orally during intermittent fever. Juice of whole plant is given to cure Jaundice.	GBA and liver and biliary system	24283	
234	<i>Solanum xanthocarpum</i> Schrad. and H. Wendl.	-----	Kant-Kari	H	Sd	Fumes of seeds are inhaled to check attacks of asthma.	Respiratory system	25530	
235	<i>Withania somnifera</i> (L.) Dunal	800-1400	Aswagandha	Sh	Lf, Rt	Decoction of the leaves is taken as remedy for worm infestation. The root powder mixed with black pepper used in rheumatic swellings.	Digestive system, bones, muscles and joints	24970	
<b>Family-Sterculiaceae</b>									
236	<i>Helicteres isora</i> L.	Upto-1000	Bendu, Maropphali	Sh	Rt	Roots of <i>Helicteres isora</i> L. together with Flowers of <i>Punica granatum</i> L. and black piper is given to facilitate the delivery. Root is crushed with water, one spoon of sugar is added and taken orally in diarrhoea.	Reproductive system, digestive system	18292	
<b>Family-Taxaceae</b>									
237	<i>Taxus baccata</i> subsp. <i>wallichiana</i> (Zucc.) Pilg.	1800-3400	Thuner	T	St, Lf	Decoction of stem bark is administrated orally to cure cough.	Respiratory system	24870	

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<b>Family- Thymelaceae</b>								
238	<i>Daphne cannabina</i> Wall. ex Steud	1400-2300	Satpura	Sh	Rt	Roots are boiled with mustered oil and massaged on painful joints.	Bones, muscles and joints	225086
<b>Family- Tiliaceae</b>								
239	<i>Grewia optiva</i> (Buch.-Ham. ex Roxb.) JR. Drumm. ex Burret.	150-1800	Bheemal	T	Fr, Br	Grounded fruits are given to facilitate delivery. Bark is used as shampoo to remove dandruff.	Reproductive System, dermatological system	25076
240	<i>Grevillea robusta</i> Burch.	100-1800	-----	T	Lf	Leaf paste mixed with mustered oil is applied on burn scars.	Dermatological system	2028
241	<i>Triumfetta rhomboidea</i> Jacq.	500-1500	Leswa-Kura	Sh	Lf	Leaves are pounded with curd and applied on cuts and wounds for healing purpose.	Dermatological system	25468
<b>Family- Urticaceae</b>								
242	<i>Urtica dioica</i> L.	3000-4500	Sisoon	Sh	Lf	Flogging of leaf is done during bone fracture.	Bones, joints and muscles	25889
243	<i>Urtica parviflora</i> Roxb.	600-3000	Bichhu	Sh	Lf	Flogging of leaf is done during bone fracture.	Bones, joints and muscles	25808
<b>Family- Valerianaceae</b>								
244	<i>Nardostachys grandiflora</i> DC.	3200-4000	Jatamasi	H	Rt	Locally roots are used as incense. The smoke is given to the patient of epilepsy at the time of fits. Roots are boiled with ghee and used to cure joint pain.	Nervous system, bones, joints and muscles	24996
245	<i>Valeriana wallichii</i> DC.	1500-3300	Sameo	H	Rt	Root decoction is given in mental disorders. Roots also act as insecticide.	Nervous system	25089
<b>Family- Verbenaceae</b>								
246	<i>Callicarpa macrophylla</i> Vahl	300-1500	Daya	Sh	Lf, Fr	Leaves are heated and tied over affected painful joints and rheumatic pain. Fruits are eaten during urinary trouble. Fruit paste mixed with yoghurt is eaten to cure mouth blisters.	Bones, muscles and joints, venereal and urogenital system	2565
247	<i>Clerodendron serratum</i> (L.) Moon	300-1600	Bharangi	Sh	Lf, Rt	Leaves are taken raw or are mixed with vegetable for curing diabetes, high blood pressure and asthma. Leaves are boiled and steam is inhaled to cure gonorrhoea.	Metabolic disorders, cardio-vascular system, respiratory system venereal and urogenital system	2503
248	<i>Vitex negundo</i> L.	100-1300	Nirgundi	Sh	Lf	Leaf juice is dropped in eyes to cure redness. 2-3 drops are dropped in nose to cure the migraine. Leaves are pounded with rice and water made into a syrup, given to patient suffering from syphilis.	Ophthalmic diseases, nervous system, venereal and urogenital system	25175

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<b>Family- Violaceae</b>									
249	<i>Viola canescens</i> Wall.	1400-2600	Banfsa	H	WP	Decoction of whole plant is used during cold, cough and fever.	Respiratory system	22600	
<b>Family-Vitaceae</b>									
250	<i>Cissus quadrangula</i> L.	Upto-1100	Ratgal	Sh	Rt	Root mixed with <i>Piper nigrum</i> L. is grounded and applied externally to decrease Swelling and inflammation. Fresh and tuberous roots are pounded together with some salt and applied on fractures bone for 1-2 months for bone setting.	Bone, muscles and joints	15577	
<b>Family- Zingiberaceae</b>									
251	<i>Curcuma angustifolia</i> Roxb.	800-1300	Jangli Haldi	H	Rh	Decoction of root or roots dipped in water for overnight is taken in jaundice.	Liver and biliary system	24573	
252	<i>Curcuma amada</i> L.	700-1300	Bayada	H	Rh	A gruel of rhizome with milk acts as a fantastic nutrient. Roasted rhizomes taken with <i>Syzigium aromaticum</i> (L.) Merr. is said to cure leucorrhea.	GBA, reproductive system	2825	
253	<i>Hedychium spicatum</i> Buch.-Ham. ex Sm.	1000-2000	Sathi	H	Rh	Powder of rhizome is used orally in neuro-muscular disorders.	Nervous system	24059	
254	<i>Roscoea alpina</i> Royle	2000-3500	Kakoli	H	Rh	Rhizomes grounded with milk are given to the newly formed mother to get rid from weakness.	Reproductive system	22083	
255	<i>Roscoea purea</i> Smith	1500-3000	Kakoli	H	Rh	Rhizomes grounded with milk are given to the newly formed mother to get rid from weakness	Reproductive system	22112	
<b>Family- Zygophyllaceae</b>									
256	<i>Tribulus terrestris</i> L.	Upto-600	Gokhru	H	Sd	Seeds are fried in Ghee and given to the patient suffering from asthma	Respiratory system	14087	

The recorded plant species were used in curing about 108 ailments. Most of the plant species were used to cure more than one ailment. Since the number of ailments is quite high, in order to describe and to include all of them in the analysis, the ailments were categorized and grouped into fourteen broad classes of diseases. The highest numbers of plant species were documented to cure dermatological problems (69 species, 18%), followed by digestive disorders (63 species, 16%), generalized body ache (43 species, 11%), Reproductive disorders (35 species, 9%), bone/muscles/joints disorders (32 species, 8%), venereal and urinogenital disorders (29 species, 8%), respiratory disorders (25 species 6%), nervous disorders (18 species, 7%), others (16 species, 4%), cardio vascular disorders (14 species, 4%), liver and billiary disorders (12 species, 3%), antidotes (12 species, 3%), metabolic disorders (7 species, 3%), physical Irritants (3 species, 1%) (Figure 5). Plants were the major ingredients in these medical formulations. The common ailments were cough and cold, followed by skin diseases, dysentery, arthritis and cuts and wounds.

## DISCUSSION

In spite of the improvement of provincial health administrations, villagers still utilize medicinal herbs to a substantial surviving for treatment of basic illness like cough, cold, fever, headache, and body ache, constipation, dysentery, cuts, burns, boils, ulcer, skin and respiratory ailments and so forth. The list of plants used in the treatment of various ailments and the formulations made by the vaidyas is diverse. Even within the minor altitudinal variations one can find diversified uses of the same plant species. Attempts have been made to explore, identify and prepare an inventory of plant resources of this region (Dhar *et al.*, 1997; Pande *et al.*, 1998; Kala, 2000; Pande and Joshi, 2001; Tewari and Pande, 2010; Pant *et al.*, 2009 and 2011; Bhatt *et al.*, 2009, 2010, Kumari *et al.*, 2009 and 2011). Such studies give an idea about the existing status of plant resources of a particular

region. The present study provides comprehensive database on the diversity, distribution, and utilization pattern and plant part used for the medicines in traditional medicinal systems in kumaun. Such baseline information on the useful species is very much important to access the population in wild and identify their conservation and economic values. This information is also useful in developing strategies for the conservation and management of the species that are under high anthropogenic pressure. Around 90% of the plant species utilized as a part of herbal industry and conventional systems of medications are straight forwardly separated from wild, majority of which originates from sub-alpine zones and alpine zones of the Himalaya (Uniyal *et al.*, 2002). *Aconitum heterophyllum* Wall. ex Royle, *Angelica glauca* Edgew., *Arnebia benthamii* (Wall. ex G. Don) IM. Jhonston, *Dactylorhiza hatagirea* (D. Don) Soo, *Nardostachys grandiflora* DC., *Picrorhiza kurrooa* Royle ex Benth., *Podophyllum hexandrum* Royle, *Rheum austral* D. Don, *Rheum webbianum* Royle, *Rhododendron anthopogon* D. Don are some of alpine species which are facing excessive pressure on wild populations due to continuous extraction from wild for trade. Grazing is another factor that is carrying out pressure on these species by both migratory animals of transhumance *i.e.* sheep, horses and goats of the inhabitants of adjacent lower valleys during snow free period (Ram and Singh, 1994). It can influence the vegetation by altering its composition, structure, and productivity. These effects are described variously by (Kala *et al.*, 1998; Kala and Rawat, 1999).

In the tropical and sub-tropical region, *Berberis aristata* DC., *Swertia angustifolia* Buch.-Ham. ex D. Don, *Paris polyphylla* Sm., *Polygonatum cirrhifolium* (Wall.) Royle, *Polygonatum verticilatum* (L.) All., *Habinaria intermedia* D. Don, *Malaxis acuminata* Lindl., *Zanthoxylum armatum* DC., *Berginia ligulata* (Wall.) Engler, *Tribulus terrestris* L. are the medicinal plant species which are also facing the threat of habitat

degradation and over exploitation. *Acorus calamus* L., *Baliospermum monatum* (Willd.) Muell.- Arg., *Curculigo orchioides* Gaertn., *Gloriosa superba* L., *Gymnema sylvestre* (Retz.) R. Br., *Cinnamomum tamala* Nees, *Rauwolfia serpentina* (L.) Benth. ex Kurz. etc. are tropical species used in pharmaceutical companies and traditional systems of medicines as raw material. In this region except the threat of overexploitation, grazing etc., flood is one of the main reasons of habitat destruction.

The over exploitation of some of high value species such as *Aconitum heterophyllum* Wall ex Royle, *Angelica glauca* Edgew, *Arnebia benthamii* (Wall. ex G. Don) I.M. Johnston, *Dactylorhiza hatagirea* (D. Don) Soo, *Nardostachys grandiflora* DC., *Picrorhiza kurrooa* Royle ex Benth., *Podophyllum hexandrum* Royle, *Berberis aristata* DC., *Swertia angustifolia* Buch.-Ham. ex D. Don, *Zanthoxylum armatum* DC., *Curculigo orchioides* Gaertn., *Cinnamomum tamala* Nees etc. for trade has caused severe threat to these species. Promotion of cultivation strategies of such medicinal herbs in villages may reduce the anthropogenic pressure on wild habitats. Success of such practices will provide enough time for these species to regenerate in natural conditions (Joshi *et al.*, 1999, 2001; Joshi, 2002; Maikhuri *et al.*, 1998 a and b). Large scale cultivation of threatened species in ex situ and In situ conditions will reduce not only the pressure on wild populations but will also help in socio economic upliftment of inhabitants. However, they urgently need proper market linkage and marketing strategies for their products. Grazing, trampling and other anthropogenic activities are the major reasons for the diminishing of species and ecological imbalance of forest zones. Thus, trampling and rotational grazing may be factors that can slow down the pressure from natural habitats and wild populations.

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