



Ethno-medicinal plant diversity: A case study of Bageshwar district Uttarakhand

Naveen Chandra Pandey, Deepika Bhatt, Mahesh Kumar, Deepshikha Arya

Regional research Institute of Himalayan Flora, (CCRAS) Tarikhet, Ranikhet -263 663, Uttarakhand.

Abstract: 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 of Bageshwar district of Uttarakhand. The paper describes distribution and local/traditional uses of the 144 medicinal plants representing 64 families (62- Angiospermic families, 2-Gymnospermic families), in which trees 15% were, shrubs were 22%, herbs were 56% and climbers were 7% in total. Various plant parts used in formulations, such as: root- 27%, rhizomes- 5%, tuber/ bulb- 4%, leaves- 29%, whole plant- 9%, bark- 11%, seeds- 4%, resin /latex/oil-2%, flowers and inflorescences-3% ,Heart wood- 1% and fruits - 5% were used in the treatment of ailments. **Ethno-medicinal plant diversity: A case study of Bageshwar district Uttarakhand.** *Nat Sci* 2023,21(5):7-26]. ISSN 1545-0740 (print); ISSN 2375-7167(online). <http://www.sciencepub.net/nature> 02. doi:[10.7537/marsnsj210523.02](https://doi.org/10.7537/marsnsj210523.02).

Keywords: Medicinal plant, Diversity, Bageshwar, ailments, families.

Introduction:

Uttarakhand state encompasses an area of 53,485 sq km., lies between 28°53'24" and 31°27'50" N latitudes and between 77°34'27" and 81°2'22" E longitudes, accounts for nearly 15.5 percent of total geographical area of western Himalaya (Adhikari et al. 2003) and traditionally called as Gold Mine of medicinal plants. Most of the northern part of the state is covered by high Himalayan range and glaciers, while the lower reaches are densely forested. Due to these great altitudinal variation, wide array of climatic zones, the area favours the luxuriant growth of diversified and rich vegetation which also has a number of raw drug described in Ayurvedic texts, (Gangwar. et.al 2010).

All humans are dependent on plants in order to meet various requirements for survival (Phillips and Meillieur, 1998). Man has been using plants as medicines, edible/food, fodder, fuel, timber, agricultural tools and various other purposes (Samant and Dhar, 1997; Samant et al., 1996a, 1998b) from the dawn of earth. Globally, about 85% of the traditional medicines used for primary health care are derived from plants (Fransworth, 1988).

The Medicinal plants and their products have a long history of being utilized and traded in the lower Himalayan region and plain of India from the higher Himalayan Mountains. Plants found in the Himalayan region including species of particularly high demand value (Anonymous 2002). There are about 1748 medicinal plants, reported from Indian Himalayan region (IHR) (Samant et al., 1998) and playing an important role in primary health care system among the local people. As the local people are settled far from

urban area, they cannot avail modern health care facilities and are totally dependent on traditional medicinal practices for their primary health care. (Prakash, 2014).

According to WHO approximately 80% of world population in developing countries depends on traditional medicines for primary healthcare (WHO, 2002) and in modern medicine too, nearly 25% are based on plant derived drugs (Tripathi, 2002). With the present day urge to gather knowledge of natural resources for their scientific and economic exploitation for various uses, the urgency of assessing botanical information at micro-level has received special attention and thus requires afresh surveys to be conducted to know not only the floristic richness of the area but also the ethno-medicinal practices prevalent therein. (Kumari, et al 2011).

Material and Methods

Study area:

The Present study was based on a field survey of Bageshwar district, lies between 29.85° North latitude and 79.77° East longitude, covering an area of 2,302Km² with an average elevation of 1,004 m (3,294ft) on the confluence of Gomti river with Sarayu river which is a tributary of Kali River. The district is situated in the eastern Kumaun Himalaya of Uttarakhand bounded by Pithoragarh district on the east, Chamoli district on the west, and Almora district on the South (Fig:1).

As the empirical research involved the use of Participatory Rural Appraisal (PRA) tools thus the study is based on ethno-medico botanical survey,

identification of ethno-medicinal plants and documentation of traditional medicines with the help and participation of local/ rural peoples, farmers, traditional knowledge holders/ local *vaidyas* to know the local names and medicinal importance of the mentioned plants. The information was collected with the help of questionnaire from the local persons and the tours were conducted from March 2013 to March 2014

in four villages i.e. Jhuni, Shama, Kanda and Kapkote of Bageshwar district. The collected plants specimens were identified with the help of different floras and manuscripts and matched with the Herbarium specimen of Regional Research Institute of Himalayan Flora, CCRAS, Ranikhet. The well preserved plant specimens were deposited in the Herbarium of RRIHF, CCRAS, Ranikhet (RKT).

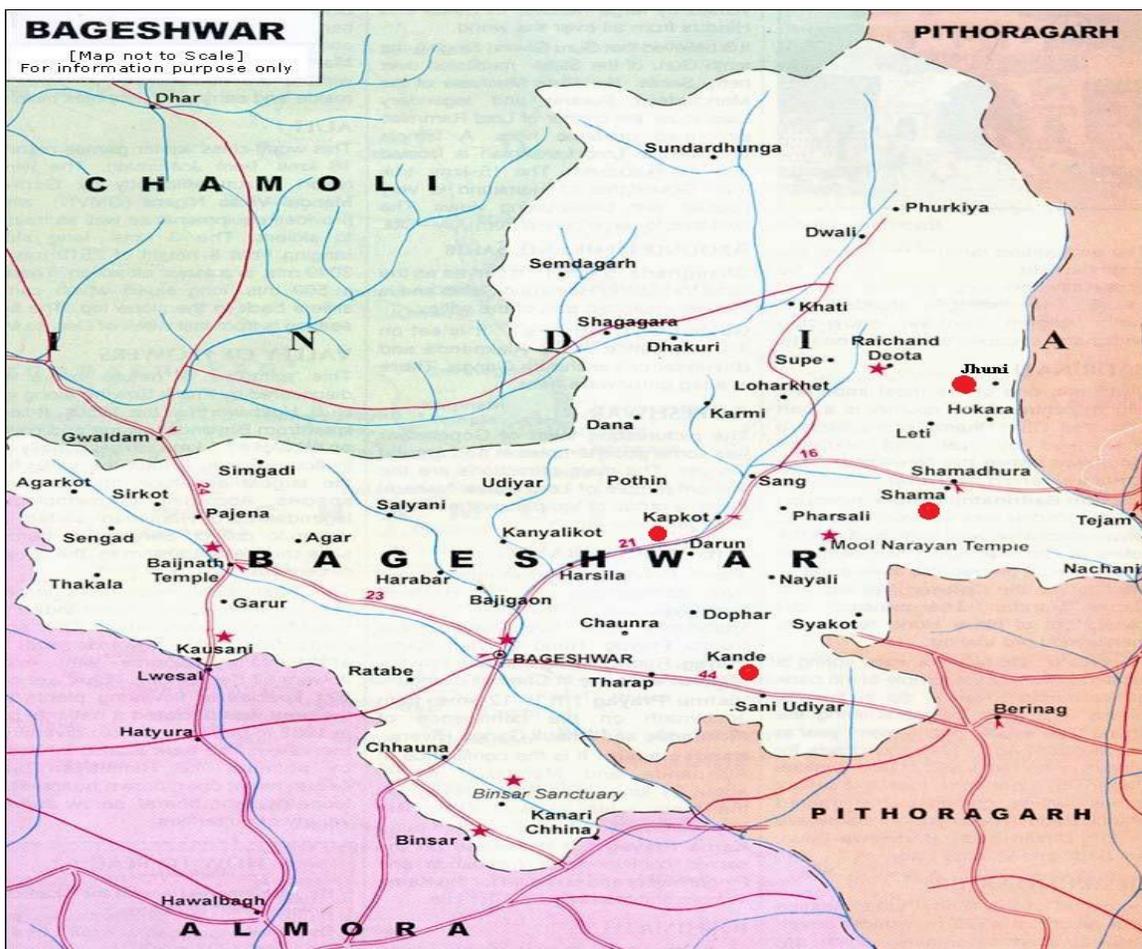


Figure: 1: Study area Bageshwar District

Result:

The compiled inventory documents uses of contain 144 medicinal plant species (Table:1), which belong to 64 families out of which ten major families (Liliaceae, Euphorbiaceae- 8 Sps each, Lamiaceae, Solanaceae, Asteraceae- 7 Sps each, Rosaceae- 6 sps, Rutaceae, Urticaceae- 4 sps each. are shown in the Figure:2. It is the result of a systematic treatment of the recorded taxa and presents the valid scientific and

vernacular nomenclature, associated authorship, distributional range, plant habits (Tree-15%, Shrub- 22%, Herb- 56%, Climber- 7%), plant parts used in formulations (root- 27%, rhizomes- 5%, tuber/ bulb- 4%, leaves- 29%, whole plant- 9%, bark- 11%, seeds- 4%, resin /latex/oil- 2%, flowers and inflorescences- 3%, Heart wood- 1% and fruits - 5% were used in the treatment of different ailments. (Figures: 3, 4).

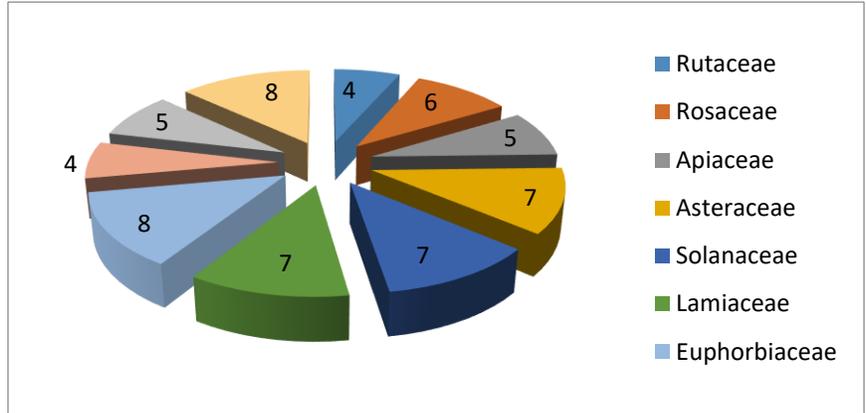


Figure 2: Top ten families supporting Ethno-medicines in Bageshwar district

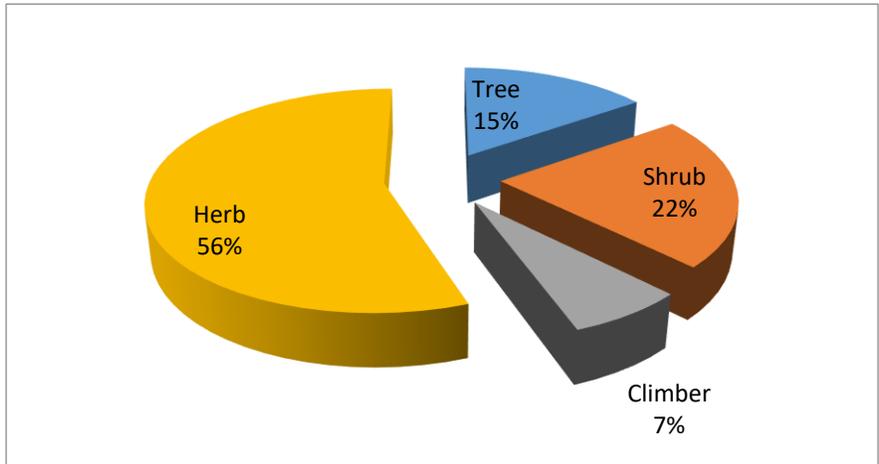


Figure 3: Habit of plants used in Ethno-medicines in Bageshwar district

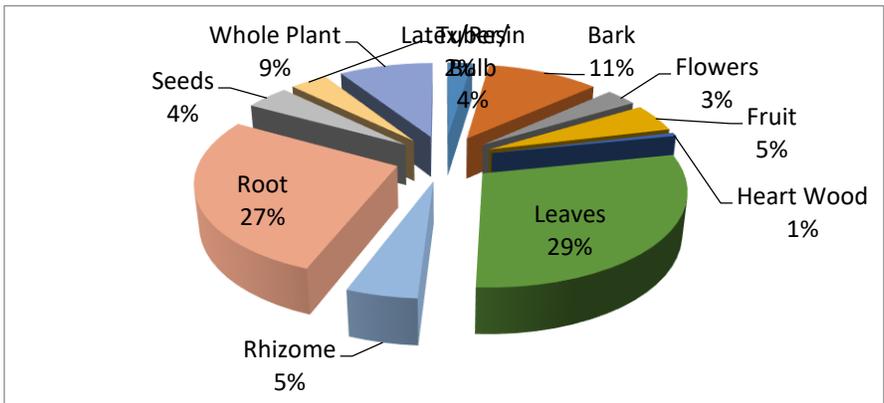


Figure 4: Plant parts used in preparing ethno- medicines

Discussion:

The geographical and geological peculiarities make the Himalaya create a very diverse system subtending a wide range of vegetation types. The Himalayan biodiversity is severely threatened by natural and anthropogenic disturbances. A large number of medicinal plants grow in these forests such as: *Taxus baccata* Linn., *Betula utilis* D. Don, *Rhododendron arboreum* Smith., *Polygonatum verticillatum* (L.) Allioni, *Dioscorea deltoidea* Kunth., *Angelica glauca* Edgew., *Dactylorhiza hatagirea* (D. Don) Soo., *Nardostachys grandiflora* DC., *Picrorhiza kurroa* Royle ex Benth., *Podophyllum hexandrum* Royle, *Aconitum heterophyllum* Wall. ex Royle., *Stephania glabra* (Roxb) Mierr., *Paeonia emodi* Wall. ex Royle, *Viola serpens* Wall., etc. Local populations use these plants for curing the different diseases by traditional knowledge and also used as food and other purposes. In the present study, there are 144 plant species are documented with the help of local healers and Vaidyas, which are being used traditionally for health care purposes to treat various ailments. Among these species some are recorded under various threat categories by IUCN viz. *Aconitum heterophyllum* Wall. ex Royle., *Taxus baccata* Linn., *Zanthoxylum armatum* DC., *Bergenia ligulata* Engl., *Valeriana hardwichii* Wall. ex Roxb. *Malaxis acuminata* D. Don. *Habenaria edgeworthii* Hook. f. ex. Collet, *Habenaria intermedia* D. Don., *Costus speciosus* Smith., ex. Sm., *Curculigo orchioides* Gaertn., *Dioscorea deltoidea* Kunth., *Paris polyphylla* Sm., *Gloriosa superba* Linn., *Polygonatum cirrhifolium* (Wall) Royle, *Polygonatum verticillatum* (L.) Allioni, *Acorus calamus* Linn., All the species used to treat health problems, are extracted and exploited unscientifically from the natural habitat by the local traders and healers, which causes remarkable destruction in the natural population of the flora. Some other reason of declining the population of important species important species are deforestation, forest fire, illegal trade, urbanization, habitat destruction/fragmentation, unscientific harvesting and lack of pollinator. Some picture of important medicinal plants is given in Photo plate: 1 and 2.

The present study is step forward to document the traditional knowledge along with the conservation of local flora by creating the awareness among Farmers and local people with their participation in cultivation of important medicinal plants at least on their barren and fallow land. Another way to conserve the bio-diversity is to preserve the traditional health care systems which are prevailing in the local community. 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.

Acknowledgement: We are grateful to the local and tribal people /local vaidyas for their immense help during the tenure of the study.

References:

- [1]. Adhikari, B.S., Babu, M.M., Saklani, P.L., and Rawat, G.S., Medicinal Tree of Uttaranchal State: Distribution, Use Pattern and Prospects for Conservation. *Indian Forester*, 2003, Vol. 129 (2)
- [2]. Anonymous. Report of Task force on Conservation and Sustainable use of medicinal Plants: *Planning Commission*, Yojana Bhawan, New Delhi, 2000.
- [3]. Anonymous, WHO Traditional medicine strategy 2002-2005. *World health organization*, Geneva, 2002.
- [4]. Fransworth J.D., Screening plants for new medicines. In Wilson E.O. (ed.), *Biodiversity*. National Academy Press, Washington, DC, 1988, PP. 83-97.
- [5]. Gangwar, K.K., Depali, and Gangwar, R.S., Ethno medical plant diversity in Kumaun Himalaya of Uttarakhand, India *Nature and science*, 2010, Vol.8(5).
- [6]. Joshi HC, Arya SC and Samant SS., Diversity, distribution and indigenous uses of medicinal and edible plants in a part of Nanda Devi Biosphere Reserve I. *Himalayan Biosphere Reserve 1* (land2): 1999, 49-65.
- [7]. Joshi HC, Arya SC and Samant SS. Diversity, distribution and indigenous uses of plant species in Pindari area of Nanda Devi Biosphere Reserve-II. *Indian Journal of Forestry*. 2001, 24 (1): 514-536.
- [8]. Joshi HC., *Assessment of habitat diversity, forest vegetation and human dependence in the buffer zone of Nanda Devi Biosphere Reserve of west Himalaya*. Ph.D. Thesis, Kumaun University, Nainital, 2002.
- [9]. Kumari, P., Joshi, G.C. and Tewari, L.M., Diversity and status of ethno-medicinal plants of

Almora district in Uttarakhand, India. *International Journal of Biodiversity and Conservation* 2011, Vol. 3(7), pp. 298-326.

[10]. Maikhuri RK, Nautiyal S, Rao KS and Saxena KG., Medicinal plant cultivation and Biosphere Reserve management: a case study from the Nanda Devi Biosphere Reserve, Himalaya. *Current Science*. 1998 a, 74(2): 157-163.

[11]. Maikhuri RK, Nautiyal S, Rao KS and Saxena KG., Role of medicinal plants in the traditional health care system: a case study from Nanda Devi Biosphere Reserve. *Current Science*, 1998 b, 75(2): 152-157.

[12]. Phillips O.L. and Meilleur B.A., Usefulness and economic potential of the rare plants of the United States: a statical survey. *Economic Botany* 1998, 52: 57-67.

[13]. Prakash, R., Traditional uses of medicinal plants in Uttarakhand Himalayan region, *Scholar Academic Journal of Biosciences(SAJB) Sch.Acad.J.Biosci.*,2014,Vol.2(5), pp.345-353.

[14]. Samant, S.S. and Dhar, U., Diversity, endemism and economic potential of wild edible plants of Indian Himalaya. *International J. of sustainable Dev. And world Ecol.* 1997, 5:000-000.

[15]. Samant, S.S., Dhar, U. & Palni, L.M.S., *Medicinal Plants of Indian Himalaya. In proceeding of Seminar Fodder Problems Faced by the Himalayan Region in India.* SHERPA, Lucknow. 1998b, pp.111-123.

[16]. Samant, S.S., Dhar, U. & Rawal, R.S., Natural resources use by some natives within Nanda Devi Biosphere Reserve in West Himalaya. *Ethnobotany*, 1996 a, 8: 40-50.

[17]. Tripathi, G., Indigenous knowledge and traditional practices of some Himalayan medicinal plants, In: Samant,SS, Dhar,U.,Palni LMS (eds) *Himalayan medicinal plants potential and prospects*, Gyanodayaparakshan, Nainital, 2002, pp.151-156.

5/22/2023

S. No.	Local Name	Botanical Name	Family	Habit	Altitudinal Range	Part use	Uses	Accession Number
1.	Atis	<i>Aconitum heterophyllum</i> Wall. ex Royle.	Ranunculaceae	Herb	3600 to 4500 m.	Root	Root paste given orally to cure chronic fever and stomachache.	26231
2.	Mamiri	<i>Thalictrum foliolosum</i> DC.	Ranunculaceae	Herb	1700 to 2600 m.	Root	Root paste is used to cure boils. Two to three drops of root infusion is dropped in eyes to cure conjunctivitis.	25101
3.	Angeli	<i>Anemone rivularis</i> Ham.	Ranunculaceae	Herb	1600 to 4000 m.	Rhizome	Decoction / powder are prepared by rhizomes to cure bronchitis.	26197
4.	Chandrayan	<i>Paeonia emodi</i> Wall. ex Royle	Paeoniaceae	Herb	2700 m.	Leaf	Leaves are eaten raw or as vegetable in dysentery and diarrhoea.	26481
5.	Giloe	<i>Tinospora sinensis</i> (Lour.) Merr.	Menispermaceae	Climber	1500 m.	Bark	Bark decoction is used to cure various diseases such as fever, malarial fever, arthritis, jaundice, gout and diabetes.	16877
6.	Pari	<i>Cissampelos pareira</i> Linn.	Menispermaceae	Climber	2600 m.	Leaf, Root	Leaf paste is applied over eyelids to cure conjunctivitis. Root juice is given to the infants to cure diarrhoea.	23068
7.	Ganjaroo	<i>Stephania glabra</i> (Roxb) Mierr.	Menispermaceae	Climber	900 to 1800 m.	Root	Crushed roots are dipped in water and the filtrate is given orally to cure diabetes.	22998
8.	Kilmora	<i>Berberis aristata</i> DC.	Berberidaceae	Shrub	1700 to 2600 m.	Root	Paste of root bark is applied over eyelids to cure conjunctivitis. Root powder mixed with honey is given orally to cure jaundice. Decoction / infusion of roots is used to cure diabetes and high blood pressure.	26535
9.	Ban Kakari	<i>Podophyllum hexandrum</i> Royle.	Podophyllaceae	Herb	3300 to 4000 m.	Root	The root paste is applied on ulcers, cuts and wounds. It is also used as purgative, for curing skin diseases and arresting tumours growth.	26483
10.	Pitpapara	<i>Fumaria parviflora</i> Lam.	Fumariaceae	Herb	2200 m.	Whole Plant	The whole plant is boiled in water and used in itching, pimples and boils of skin.	25406

11.	Banafsa	<i>Viola serpens</i> Wall.	Violaceae	Herb	2500 to 3600 m.	Whole Plant	Whole plant decoction is used to cure high blood pressure.	25120
12.	Banafsa	<i>Viola biflora</i> Linn.	Violaceae	Herb	2500 to 3600 m.	Whole Plant	Decoction of whole plant is used during cold, cough and fever.	26092
13.	Badyalu	<i>Stellaria media</i> (L.) Villars	Caryophyllaceae	Herb	3600 m.	Whole Plant	Plant paste is externally applied on burns, wounds and boils.	22823
14.	Denusha	<i>Sida cordifolia</i> (Burm.f) Boss.	Malvaceae	Shrub	250 to 2700 m.	Stem bark, Root	Stem bark or root powder is given in general debility.	24954
15.	Semal	<i>Bombax ceiba</i> Linn.	Bombacaceae	Tree	1500 m.	Root	Root decoction of <i>Bombax ceiba</i> and <i>Curculigo orchioides</i> is filtered and given to the patient twice a day for period of 10-15 days to cure leucorrhoea.	25408
16.	Piuli	<i>Reinwardtia indica</i> Dumort.	Linaceae	Herb	300 to 2300 m.	Whole Plant	Poultice made through bark is plastered on fractured bones.	26412
17.	Laljari	<i>Geranium nepalense</i> Sweet	Geraniaceae	Herb	1700 to 2500 m.	Root	Root extract used in jaundice, ulcer, wounds healing and stomach disorders.	23605
18.	Chalmori	<i>Oxalis corniculata</i> Linn.	Oxalidaceae	Herb	2900 m.	Leaf juice	Leaf juice is instilled in eyes to cure cataract. Juice is also instilled to cure toothache and earache in respective organs.	26387
19.	Timur	<i>Zanthoxylum armatum</i> DC.	Rutaceae	Shrub	1100 to 2500 m.	Leaf, Fruit	Leafs and fruits chewed for mouth wash and tooth care. Seed paste is applied on teeth in toothache.	26396
20.	Karipatta	<i>Murraya koenigii</i> (L) spr.	Rutaceae	Shrub	1500 m.	Leaf, Bark	Extract of leaf, bark and tonic used as health tonic. Branches uses as tooth brush.	25169
21.	Pisumar	<i>Boennighausenia albiflora</i> (HK) Reichb. ex Meissn.	Rutaceae	Herb	1600 to 3300 m.	Leaf	Leaf paste is applied on cuts and wounds.	25202
22.	Ner-Pati	<i>Skimmia laureola</i> (DC.)	Rutaceae	Shrub	2400 to 3500 m.	Root, Leaf	Paste of root is used as antidote against snake and scorpion sting.	25159

		Siebold and Zucc. ex Walp.					Dried leafs are burnt and inhaled to cure sinus under nasal tract.	
23.	Batain	<i>Melia azedarach</i> Linn.	Meliaceae	Tree	1500 m.	Bark, Leaf, Seeds	Bark and leaf powder is used as blood purifier. Decoction of leaf and bark is used to cure dermatitis. Crushed seeds paste is applied on head to cure headache.	26343
24.	Ber	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	Shrub	200 to 1200 m.	Fruit	Fruit juice is given in diarrhea.	25317
25.	Tang	<i>Rhus parviflora</i> Roxb.	Anacardiaceae	Shrub	1500 to 2100 m.	Leaf	Leaf decoction used in treatment of cholera.	25151
26.	Salprani	<i>Flemingia bracteata</i> (Roxb) ex Aiton	Fabaceae	Herb	300 to 2300 m.	root	Powder or decoction of root is administrated orally to cure asthma.	25113
27.	Chamlai	<i>Desmodium elegans</i> DC.	Fabaceae	Shrub	1500 to 2700 m.	Root	Root decoction is given in renal disorders.	24105
28.	Kanchnar	<i>Bauhinia variegata</i> Linn.	Caesalpinaceae	Tree	300 to 1900 m.	Bark	Bark decoction is used to cure gonorrhoea.	24056
29.	Malujhan	<i>Bauhinia vahlii</i> (Wt & Arn.) Benth.	Caesalpinaceae	Climber	1500 m.	Bark	Stem bark is pasted and applied on skin irruption.	25573
30.	Banar	<i>Cassia tora</i> Linn.	Caesalpinaceae	Shrub	1200 m.	Seed	Seeds are used in skin diseases, cuts, wounds and bone fracture.	24638
31.	Siris	<i>Albizia chinensis</i> (Osbeck) Merrill in Amer.	Mimosaceae	Tree	300 to 1500 m.	Stem bark	Fresh bark decoction is used three times daily in stomach troubles and dysentery.	24454
32.	Lajvanti	<i>Mimosa pudica</i> Linn.	Mimosaceae	Herb	1500 m.	Leaf	Leaf paste is applied on uterus with the help of cotton to get rid from prolapsed uterus.	26783

33.	Padam	<i>Prunus cerasoides</i> D. Don.	Rosaceae	Tree	600 to 2500 m.	Bark	Decoction of bark is given to decrease the muscular pain and swelling.	26886
34.	Bajardant ii	<i>Potentilla fulgens</i> Wall. ex HK.f.	Rosaceae	Herb	1600 to 4800 m.	Root, Leaf	Root and leaves decoction is useful in teeth cleaning, toothache and pyorrhoea.	25209
35.	Bhikafal	<i>Fragaria indica</i> Wall.	Rosaceae	Herb	1500 m.	Leaf	Leaf extract used in gastric, ulcer, diabetes and wound healing.	24958
36.	Hisalu	<i>Rubus ellipticus</i> Sm.	Rosaceae	Shrub	800 to 2400 m.	Fruit	Juice of fruits is administered orally in cholera.	24623
37.	Bhekal	<i>Prinsepia utilis</i> Royle.	Rosaceae	Shrub	600 to 3000 m.	Root	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.	26394
38.	Bani	<i>Cotoneaster microphyllus</i> Wallich ex Lindl.	Rosaceae	Shrub	1200 to 2600 m.	Root	Root paste is applied on cuts and wounds.	21860
39.	Silphora	<i>Bergenia ligulata</i> Engl.	Saxifragaceae	Herb	1500 to 3200 m.	Rhizome	Decoction of rhizome is given orally to cure kidney stone. Rhizome powder is mixed with honey is used cure chronic cough and asthma.	26215
40.	Siplphra	<i>Bergenia stracheyi</i> (H.k.f. & Th.) Eng.	Saxifragaceae	Herb	3000 to 4100 m.	Rhizome	Fresh rhizome are removed and washed thoroughly, cut in to pieces and chewed like candy to cure urinary and kidney trouble.	26114
41.	Jamun	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Tree	1500 m.	Leaf	Tender leafs are chewed to cure bleeding piles.	26041
42.	Kurz	<i>Woodfordia fruticosa</i> (L.)	Lythraceae	Shrub	2000 m.	Root, Flower	Root paste is applied over burn scars. Infusion of flowers is given to cure urinary tract infection.	26377

43.	Mahandi	<i>Lawsonia inermis</i> Linn.	Lythraceae	Shrub	2000 m.	Leaf	Leaf paste used in wound healing.	22439
44.	Bhootkes hi	<i>Selinium tenuifolium</i> Wall.	Apiaceae	Herb	2500 to 4900 m.	Root	Decoction of root is given in nephritis. Roots are also used as fragrance stick to fumigate.	23323
45.	Gandhrayan	<i>Angelica glauca</i> Edgew.	Apiaceae	Herb	3500 to 4000 m.	Root	Root paste is used in gastritis, stomachache and anorexia.	26233
46.	Brahmi	<i>Centella asiatica</i> (L). Urban.	Apiaceae	Herb	2100 m.	Leaf	For brain fever.	26220
47.	Jangli Jira	<i>Carum carvi</i> Linn.	Apiaceae	Herb	2500 to 4900 m.	Seed	Seeds are boiled with roots of <i>Bergenia stracheyi</i> , and the decoction is given to cure rickets.	26571
48.	Bazeer	<i>Pimpinella diversifolia</i> DC.	Apiaceae	Herb	2000 to 3200 m.	Leaf, root, flower	Leaf, root and flower paste is taken with water to relieve form gastric disorder.	27459
49.	Majethi	<i>Rubia cordifolia</i> Linn.	Rubiaceae	Climber	1300 to 2200 m.	Whole Plant	Root decoction is used as blood purifier. Whole plant paste is applied over boils.	26308
50.	Padera	<i>Leptodermis lanceolata</i> Wall.	Rubiaceae	Shrub	1300 to 3500 m.	Leaf	Leaf juice is dropped in between the fingers to cure athlete feet. Leaf juice is also instilled in ear to cure various ear problems.	25116
51.	Ghari	<i>Randia tetrasperma</i> Benth. & Hook. f. ex. Brandis	Rubiaceae	Shrub	1300 to 2600 m.	Root	Root extract used in treatment of jaundice and stomach pain.	24157
52.	Jatamasi	<i>Nordostachys grandiflora</i> DC.	Valerianaceae	Herb	3400 to 5000 m.	Root	Roots are dipped in mustard oil and oil is massaged over joints affected by arthritis.	25817
53.	Sameo	<i>Valeriana hardwichii</i> Wall. ex Roxb.	Valerianaceae	Herb	1200 to 4000 m.	Whole plant	Leaf juice is given to infants to cure diarrhoea. Whole plant decoction is used to cure old fever.	24744

54.	Sameo	<i>Valeriana wallichii</i> DC.	Valerianaceae	Herb	1500 to 3300 m.	Root	Root decoction is given in mental disorders. Roots also act as insecticide.	25138
55.	Kuth	<i>Saussurea lappa</i> C. B. Clarke.	Asteraceae	Herb	3000 to 3500 m.	Root	Root paste/ decoction is used to cure asthma. Root paste is applied in dermatitis.	24285
56.	Pati	<i>Artemisia nilagirica</i> (C.B. Clarke) Pamp.	Asteraceae	Shrub	1880 m.	Root, Leaf	Fresh and washed root/leaf are dipped overnight in cold water and drunk for 5-6 days before meal to cure intestinal worm.	24767
57.	Pati	<i>Artemisia maritima</i> Linn.	Asteraceae	Shrub	3000 to 4000 m.	Root	Fresh root juice is applied externally on skin to cure boils.	23793
58.	Pushkar-mool	<i>Inula cappa</i> (Buch.-Ham. ex D. Don) DC.	Asteraceae	Herb	2500 m.	Root	Decoction of Root is taken orally to cure boils. Root paste is applied externally on skin to cure same disease.	24729
59.	Kantela	<i>Echinops cornigerus</i> DC.	Asteraceae	Herb	1000 to 2500 m.	Root	Root juice is taken in urinary trouble and fever.	26874
60.	Arka-Jhar	<i>Bidens bipinnata</i> Linn.	Asteraceae	Herb	1000 to 2500 m.	Leaf	Leafs crushed and juice rubbed on itching feet during rainy season.	25663
61.	Poth	<i>Anaphalis adnata</i> DC.	Asteraceae	Herb	800 to 3200 m.	Whole plant	Whole plants is pasted and applied on cut and wounds.	23997
62.	Burans	<i>Rhododendron arboreum</i> Smith.	Ericaceae	Tree	1800 to 3300 m.	Flower, Leaf, Stem, Bark	Decoction of corolla mixed with 1 table spun sugar is used to cure cardio-vascular diseases. Dried flower powder is given in dysentery. Leaf paste is applied on forehead in headache.	26108
63.	Anyar	<i>Lyonia ovalifolia</i> (Wallich) Drude	Ericaceae	Tree	700 to 3500 m.	Leaf	The extracts of leafs are rubbed on itching area.	21160
64.	Chitrak	<i>Plumbago zeylanica</i> Linn.	Plumbaginaceae	Shrub	1500 m.	Root	Powdered root is given with milk in backache. Decoction of root if administrated orally, acts as	26414

							abortifacient.	
65.	Lodh	<i>Symplocos crataegoides</i> Buch.-Ham. ex D. Don	Symplocaceae	Tree	2000 m.	Bark	Decoction of bark is given to check the regular abortion in females.	24596
66.	Harsingar	<i>Nyctanthes arbor-tristis</i> Linn.	Oleaceae	Shrub	1400 m.	Leaf	Young leaves of <i>Nyctanthes arbor-tristis</i> 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.	22283
67.	Dudhi-Be l	<i>Cryptolepis buchanani</i> Roem. & Schult.	Asclepiadaceae	Climber	1500 m.	Bark, Leaf	Extract of bark and leaf used in cough, cold and fever.	25160
68.	Chirayita	<i>Swertia angustifolia</i> Buch.-Ham. ex D. Don	Boraginaceae	Herb	600 to 2600 m.	Whole plant	Decoction of whole plant is used to cure pneumonia, cold and cough and chronic fever.	25110
69.	Aakashi-b el	<i>Cuscuta reflexa</i> Roxb	Cuscutaceae	Climber	900 to 2000 m.	Whole Plant	Paste of the plant applied to painful joints.	26140
70.	Makoi	<i>Solanum nigrum</i> Linn.	Solanaceae	Herb	800 to 3000 m.	Whole Plant	Juice of whole plant is administered orally during intermittent fever and to cure jaundice.	27452
71.	Kantkari	<i>Solanum xanthocarpum</i> Sch. & Wendl.	Solanaceae	Herb	300 to 1800 m.	Fruit	Smoke of fruit is inhaled to cure toothache.	24965
72.	Barhanta	<i>Solanum indicum</i> Linn.	Solanaceae	Herb	2000 m.	Fruit	Fruit are used in cough, asthma, and fever.	24309
73.	Rosbhari	<i>Nicandra physaloides</i> Gaertn.	Solanaceae	Herb	1000 to 2000 m.	Leaf	Leaf paste is applied on pains, body ache and swelling.	24045
74.	Asgandha	<i>Withania</i>	Solanaceae	Herb	800 to 1400 m.	Leaf,	Decoction of the leaf is taken as remedy for worm	24970

		<i>somnifera</i> (Linn.) Dunal.				Root	infestation. The Root powder mixed with black pepper used in rheumatic swellings.	
75.	Dhatura	<i>Datura metal</i> Linn.	Solanaceae	Herb	300 to 1200 m.	Whole Plant	Decoction of whole plant is given to cure fever. Warm leafs are tied over affected part to cure boils.	25186
76.	Kala Dhatura	<i>Datura</i> <i>stramonium</i> Linn.	Solanaceae	Herb	200 to 2200 m.	Flower, Seed	Juice of flowers is dropped in ear during earache. The paste prepared from roasted seeds of drug in mustard oil is applied locally on ring worm.	23384
77.	Kutki	<i>Picrorhiza kurroa</i> Benth.	Scrophulariaceae	Herb	3300 to 4800 m.	Root	Root powder is given orally in fever and stomachache.	25822
78.	Akulbir	<i>Verbascum</i> <i>thapsus</i> Linn.	Scrophulariaceae	Herb	1000 to 4000 m.	Flower, Leaf	Powder of flowers mixed with mustard oil is applied on boils. Leaf juice is dropped in eyes to cure cataract.	26450
79.	Jhinti	<i>Barleria cristata</i> Linn.	Acanthaceae	Herb	200 to 2000 m.	Leaf	Leaf paste is applied externally on cuts and wounds for healing purpose. Decoction of the leafs in given once a day to alleviate headache.	26327
80.	Kawgori	<i>Dicliptera</i> <i>bupleuroides</i> Nees.	Acanthaceae	Herb	500 to 2200 m.	Leaf	Leafs heated over flame are touched around neck to cure laryngitis in infants.	26954
81.	Basing	<i>Adhatoda vasica</i> Nees.	Acanthaceae	Shrub	1600 m.	Leaf	Leafs are boiled with Jiggery and decoction is given to cure asthma and chronic cough.	15375
82.	Siwain	<i>Vitex negundo</i> Linn.	Verbenaceae	Shrub	1400 m.	Leaf	Leaf juice is instilled in nostril to cure headache. Leaf decoction is used to cure arthritis.	25171
83.	Daiya	<i>Callicarpa</i> <i>macrophylla</i> Vahl.	Verbenaceae	Shrub	300 to 1500 m.	Seed, leaf, fruit	Seeds are chewed to cure stomatitis. Leafs heated and applied on affected part in rheumatoid syphilis. Fruits are eaten in urinary disorders.	25188
84.	Ban Tulsi	<i>Origanum vulgare</i>	Lamiaceae	Herb	1500 to 4000 m.	Whole	Leafs used as tea to cure cold and cough.	25103

		Linn.				plant	Decoction of whole plant is given orally in urinary disorders.	
85.	Ratpati	<i>Ajuga parviflora</i> Benth.	Lamiaceae	Herb	600 to 2200 m.	Root	Root decoction is given orally to cure headache, fever and anorexia. Root infusion is given orally in stomach disorders.	26408
86.	Ratpatiya	<i>Ajuga bracteosa</i> Wall. ex Benth.	Lamiaceae	Herb	1200 to 5100 m.	Leaf	The decoction of leaves is given to regulate menstrual cycle	25182
87.	Podina	<i>Mentha arevensis</i> Linn.	Lamiaceae	Herb	1200 to 3000 m.	Leaf	Leaf juice is given to infants during high fever.	4353
88.	Bursong	<i>Colebrookia oppositifolia</i> Sm.	Lamiaceae	Shrub	1500 m.	Root	Root paste mixed with cow's urine is applied over boils to squeeze out pus.	26358
89.	Pathar Choor	<i>Coleus forskohlii</i> (Willd.) Briq.	Lamiaceae	Herb	600 to 2500 m.	Root	Root juice is administrated orally in constipation.	24499
90.	Banajwayan	<i>Thymus serpyllum</i> Linn.	Lamiaceae	Herb	1500 to 4500 m.	Whole plant	Whole plant paste is applied to cure dermatitis.	25435
91.	Pipswas	<i>Leucas lanata</i> Benth.	Lamiaceae	Herb	1000 to 2000 m.	Leaf	Leaf paste is applied externally in septic wounds and also to check bleeding and heating.	20538
92.	Punarnava	<i>Boerhaavia diffusa</i> Linn.	Nyctaginaceae	Herb	1800 m.	Root	Juice of fresh roots is used as eye drops. Root juice is administered orally in asthma and urinal disorder. Watery extract of the root is given orally in jaundice.	26895
93.	Lahuryia	<i>Plantago major</i> Linn.	Plantaginaceae	Herb	1200 to 3300 m.	Seed	The husk of the Seeds yields colloidal mucilage, used to cure gastric complaints, burning sensation in stomach and dysentery.	26201
94.	Apamarg	<i>Achyranthus aspera</i> Linn.	Amaranthaceae	Herb	2000 m.	Root	Roots of the plant are soaked in water over night and filtrate is given in empty stomach with <i>Bans-mishri</i> .	26313
95.	Apamarg	<i>Achyranthus bidentata</i> Blume.	Amaranthaceae	Herb	600 to 2600 m.	Root, Seed	Root of the plant is tied around the abdominal region of the women to facilitate delivery but the root is immediately removed after delivery. Seeds are chewed to get energy.	26251

							Plant extract is used to cure jaundice.	
96.	Jangli Palak	<i>Rumex nepalensis</i> Spr.	Polygonaceae	Herb	1200 to 4200 m.	Leaf	Young Leafs are crushed and applied on nettle stung portion for immediate relief.	24084
97.	Bhilmora	<i>Rumex hastatus</i> Don.	Polygonaceae	Herb	300 to 2600 m.	Leaf	Leafs paste is applied over insect sting.	26804
98.	Chirar	<i>Litsea umbrosa</i> Nees	Lauraceae	Tree	1300 to 2500 m.	Bark	Bark paste is applied over fracture/ injured bone to set it.	20781
99.	Amla	<i>Emblica officinalis</i> Gaertn.	Euphorbiaceae	Tree	1500 m.	Fruit	Fruit juice is given to increase the flow of urine, act as diuretic, also given in diarrhoea, dysentery and to cure Jaundice.	21022
100	Kmbhal	<i>Mallotus philippensis</i> (Lamk.)	Euphorbiaceae	Tree	1800 m.	Fruit	Reddish powder of ripe fruits mixed with rice water is given for expulsion of round worms.	26752
101	Arandi	<i>Ricinus communis</i> Linn.	Euphorbiaceae	Shrub	2500 m.	Leaf	Few drops of oil mixed with milk relives from constipation. To cure arthritis, leaves are heated over utensil and fastened around affected joints. Juice is given to cure jaundice.	24626
102	Bhumiam la	<i>Phyllanthus urinaria</i> Linn.	Euphorbiaceae	Herb	1500 m.	Whole Plant	Whole plant powder is given to cure abdominal disorders and jaundice.	23026
103	Dudhi	<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	Herb	2000 m.	Latex	Latex of plant is dropped on the root of tooth during toothache.	26907
104	Choti Dudhi	<i>Euphorbia thymifolia</i> Linn.	Euphorbiaceae	Herb	700 to 1200 m.	Whole Plant	Whole plant is crushed with water and taken in diarrhoea and cholera.	24286
105	Suin	<i>Euphorbia royleana</i> Boiss.	Euphorbiaceae	Shrub	600 to 1500 m.	Stem	The latex obtained from fresh twigs is instilled in ear and tooth cavities to check the pain. Fresh twigs is heated and rolled over the knee to relieve the pain.	7511

106	Safed Arand	<i>Jatropha curcas</i> Linn.	Euphorbiaceae	Shrub	2500 m.	Latex, Seed	Milky latex of plant is applied on affected part to check bleeding.	26903
107	Satpura	<i>Sarcococca saligna</i> (D.Don) Muell-Arg.	Buxaceae	Shrub	1500 to 2400 m.	Leaf	Leaf paste is applied on joint pain.	26707
108	Bichhu-g has	<i>Urtica dioica</i> Linn.	Urticaceae	Shrub	3000 to 4500 m.	Leaf	Flogging of Leaf is done during Bone fracture.	25889
109	Bichhu-g has	<i>Urtica parviflora</i> auct.non Roxb.	Urticaceae	Shrub	3600 m.	Leaf	Flogging of Leaf is done during bone fracture.	25808
110	Gheti	<i>Boehmeria rugulosa</i> Wedd.	Urticaceae	Tree	300 to 1600 m.	Bark	Bark paste is applied over boils. Bark paste is applied over fractured bone to set it.	27432
111	Kandeli	<i>Gerardinia heterophylla</i> Decne.	Urticaceae	Shrub	1200 to 3000m	Leaf	Leaf juice given in gonorrhoea.	22919
112	Bedu	<i>Ficus palmata</i> Forsk.	Moraceae	Tree	2300 m.	Latex	Milky latex is applied on boils, cuts and wounds.	26372
113	Pipal	<i>Ficus religiosa</i> Linn.	Moraceae	Tree	1600 m.	Stem bark	Bark grounded with turmeric powder is applied externally on cuts, wounds and skin diseases.	7193
114	Akhrot	<i>Juglans regia</i> Linn.	Juglandaceae	Tree	1600 to 3000 m.	Bark,	Bark paste is applied on athlete feet. The bark is boiled in water. After filtration it is used as mouthwash, very useful in loose teeth.	26532
115	Kaphal	<i>Myrica esculenta</i> Ham.ex D. Don.	Myricaceae	Tree	1600 to 2400 m.	Bark	Bark paste is inhale to cure cold and headache. Bark decoction is used as mouth freshener and to cure toothache.	24288
116	Bhojpatra	<i>Betula utilis</i> D.Don	Betulaceae	Tree	1600 to 3000 m.	Resin	Resin and seed kernels of <i>Prunus persica</i> and <i>Betula utilis</i> ground into paste, mixed with milk and drunk to conceive pregnancy and for internal strength.	23134
117	Banj	<i>Quercus</i>	Fagaceae	Tree	1200 to 2500 m.	Leaf,	Seeds are roasted on fire and given to cure cough.	27416

.		<i>leucotrichophora</i> A. Camus				Bark, Seed	Stem bark juice is dropped in tooth cavities.	
118	Hatazari	<i>Dactylorhiza</i> <i>hatagirea</i> (Don.) Soo.	Orchidaceae	Herb	2800 to 4000 m.	Tuber	Tuber fried in cow's ghee is given to cure menstruation problems, metrorrhiza and general debility after delivery.	26089
119	Rsabhak	<i>Malaxis muscifera</i> (Lindl) Kuntz.	Orchidaceae	Herb	1600 to 3800 m.	Tuber	Powder of tuber is used as tonic in general debility. Used as an ingredient of <i>Chyawanprash</i> .	21447
120	Jivak	<i>Malaxis</i> <i>acuminata</i> D. Don.	Orchidaceae	Herb	1200 to 2400 m.	Tuber	Powder of tuber is used as tonic in general debility. Used as an ingredient of <i>Chyawanprash</i> .	25177
121	Ridhi	<i>Habenaria</i> <i>edgeworthii</i> Hook, F. ex. Collet	Orchidaceae	Herb	1200 to 2500 m.	Tuber	Tuber extract used as nervine and cardiac tonic.	9065
122	Vridhi	<i>Habenaria</i> <i>intermedia</i> ,D. Don.	Orchidaceae	Herb	1500 to 2500 m.	Tuber	Tuber extract used as health tonic.	24504
123	Kakoli	<i>Roscoea procera</i> Wall.	Zingiberaceae	Herb	1300 to 3300 m.	Root	Decoction of root used in jaundice.	25112
124	Kevkand	<i>Costus speciosus</i> Smith.	Zingiberaceae	Herb	2600 m.	Rhizome	Roasted roots are ground and mixed with <i>Piper nigrum</i> , made into tablets and taken orally to cure arthritis. Fried rhizome is administered orally with jiggery (<i>gur</i>), is said to work as abortifacient.	25180
125	Ban Haldi	<i>Hedychium</i> <i>spicatum</i> Ham. ex. Sm.	Zingiberaceae	Herb	1000 to 2500 m.	Rhizome	Powder of rhizome is used orally in neuromuscular disorders.	25881
126	Kali Musali	<i>Curculigo</i> <i>orchioides</i> Gaertn.	Hypoxidaceae	Herb	2000 m.	Rhizome, Leaf	Powder of rhizome used in urinary disorder, diarrhea, jaundice, aphrodisiac tonic and piles. Paste of leaves used in wounds healing.	25350

127	Rambans	<i>Agave americana</i> Linn.	Agavaceae	Shrub	1200 to 1800 m.	Leaf, Root	Leaf and root extract used as diuretic and purgative.	940
128	Gethi	<i>Dioscorea bulbifera</i> Linn.	Dioscoreaceae	Climber	2100 m.	Rhizome	Rhizome are roasted in hot ash and given with salt to cure old cough.	24963
129	Tarur	<i>Dioscorea deltoidea</i> Kunth.	Dioscoreaceae	Climber	3100 m.	Rhizome	Dry rhizome paste is applied on cuts, boils and pimples.	26518
130	Satua	<i>Paris polyphylla</i> Sm.	Lilliaceae	Herb	1500 to 2600 m.	Root	Root powder with cow's milk is given to cure general debility and stomach disorders.	25460
131	Kalihari	<i>Gloriosa superba</i> Linn.	Lilliaceae	Herb	400 to 2000 m.	Root	Paste of root is applied externally on joints to cure rheumatoid arthritis.	23912
132	Meda	<i>Polygonatum cirrhifolium</i> (Wall) Royle	Lilliaceae	Herb	1500 to 4600 m.	Root	Root boiled with cow's milk is given to the patient suffering from anaemia. Used as an ingredient of <i>Chyawanprash</i> .	26144
133	Mahamed a	<i>Polygonatum verticillatum</i> (L) Allion.	Lilliaceae	Herb	2000 to 4700 m.	Root	Roots are used as tonic. Used as an ingredient of <i>Chyawanprash</i> .	25894
134	Ban Pyaj	<i>Urgenia indica</i> (Roxb.) Kunth.	Lilliaceae	Herb	1600 m.	Bulb	Paste of bulb fried in mustard oil is applied over joints pains/ arthritis.	7657
135	Jambu	<i>Allium stracheyi</i> Baker	Lilliaceae	Herb	3500 to 4500 m.	Leaf	A clean cloth dipped in the decoction of leaves is applied on wounds.	25040
136	Kariu or Shatavar	<i>Asparagus curillus</i> Buch.-Ham. ex Roxb.	Lilliaceae	Herb	2000 m.	Leaf	Leaf decoction is given to cure diarrhoea and gastric trouble.	24658
137	Shatavar	<i>Asparagus adscendens</i> Roxb.	Lilliaceae	Herb	1000 to 2200 m.	Root	Root pounded in water and administered orally in allergy.	25155
138	Kukurdar	<i>Smilax aspera</i> Linn.	Smilacaceae	Climber	900 to 2600 m.	Stem bark	Stem bark is burnt with mustard oil and applied over cracks on feet and hands.	26417
139	Vacha	<i>Acorus calamus</i>	Araceae	Herb	1400 to 2300 m.	Root	Root powder used in children in worm infection.	26329

.		Linn.					Root powder is given with milk in general debility.	
140	Sap ka Bhuta	<i>Arisaema tortuosum</i> (Wall.) Schott	Araceae	Herb	1800 to 2500 m.	Root	Wounds are washed with decoction of root. Paste of root is applied on affected part.	7801
141	Doob	<i>Cynodon dactylon</i> (L.) Pers. Dub	Poaceae	Herb	3000 m.	Whole Plant	The whole parts are crushed with water. Two to three drops of this extract are poured in the nostril to cure nasal bleeding.	26038
142	Thuner	<i>Taxus baccata</i> Linn.	Taxaceae	Tree	1800 to 3400 m.	Leaf, Bark	Decoction of Leafs and bark is used as tea to cure general debility and stomachache. Decoction of stem bark is administrated orally to cure cough.	22855
143	Deodar	<i>Cedrus deodara</i> Loud.	Pinaceae	Tree	1500 to 3700 m.	Heart Wood	Oil extracted from heart wood is massaged over joints pain.	26285
144	Ragu	<i>Abies spectabilis</i> Spach.	Pinaceae	Tree	2400 to 4000 m.	Leaf	Juices of fresh Leafs are administered orally to get rid of fever.	26095



Aconitum heterophyllum Wall.ex Royle.



Adhatoda vasica Nees



Asparagus curillus Buch.-Ham ex Roxb.



Berberis aristata DC.



Berginea ligulata Engl.



Cissampelos pareira Linn.



Coleus forskohlii (Willd.) Briq.



Costus speciosus Smith.



Gloriosa superba Linn.



Litsea umbrosa Nees



Malaxis acuminata D. Don.



Murraya koenigii (L) spr.

Photo Plate : 01