



Current Status of Medicinal Plants used by Traditional Vaidyas in Uttarakhand State of India

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Abstract

The current status of medicinal plants used by traditional **Vaidyas** was studied in Uttarakhand state of India. Information was gathered using semi-structured questionnaires among 60 traditional **Vaidyas**. They were questioned about the types of ailments treated with plants and the preparation of herbal medical formulations. A total of 243 herbal medical formulations prepared by **Vaidyas** treating 73 different ailments were documented. Plants were the major ingredients in these medical formulations. 156 medicinal plant species were documented during the survey. Of these 55% were cultivated and 45% were wild species. Of the cultivated species 80% were found growing in the kitchen gardens and 20% in the agricultural fields. The frequency of use of kitchen garden species was highest in preparing the medical formulations as in 243 formulations the relative frequency of use of such species was 87%. The relative frequency of use of the medicinal plants growing in the wild was 55% in preparing herbal medical formulations. There was a sharp decline in the number of traditional **Vaidyas** through generations. The loss of knowledge on preparing medicine was due to several reasons including the number of **Vaidyas** coming forward to adopt this traditional healing practice professionally.

Introduction

India is one of the leading countries in Asia in terms of the wealth of traditional knowledge systems related to the use of plant species. India is also known to harbour a rich diversity of higher plant species (about 17000 species) of which 7500 are known as medicinal plants (Shiva 1996). Such a huge number of medicinal plant species has allowed the evolution of many systems of herbal medicine. **Ayurveda** is arguably the oldest medical system in Indian sub-continent. Reportedly Ayurvedic medicine includes about 2000 plant species. Other traditional medicinal systems of India also employ large numbers of species: **Sid-**

dha (1121 species), **Unani** (751 species) and Tibetan (337 species) (Anonymous 2004, Kala 2002). In the evolution of **Ayurveda**, the Himalaya region has played an important role with restricted habitats of many valuable medicinal plant species (Kala *et al.* 2004). Uttarakhand is one of the hilly states in the Indian Himalaya region. Because of its unique geography and diverse climatic conditions it harbours the highest number of plant species known for medicinal properties among all the Indian Himalayan states (Kala 2004). The majority of the human population in Uttarakhand state (78%) live in rural areas. There are very few primary health centers in the state. Each primary health center caters to more than 31,000 people although the stipulated norm of 20,000 is expected for the hilly region of Uttarakhand (Samal *et al.* 2004). Therefore, the inhabitants of Uttarakhand are still dependent on the traditional **Vaidyas** (practitioners of **Ayurveda**) for treating diseases due to isolation and relatively poor access to modern medical facilities (Dhyani & Kala 2005, Kala 2000, 2005).

Usually, there are two routes to become a **Vaidya**. One may be trained through Universities or by another knowl-

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edgeable **Vaidya**. The traditional **Vaidyas** are those who received therapeutic knowledge either by means of family traditions or by being trained by another **Vaidya**. Being a family tradition, the herbal knowledge of traditional **Vaidyas** was primarily restricted to a few elders within the family. Over the years, rapid changes in socio-economic values have resulted in loss of the valuable traditional knowledge about herbal therapy accumulated through generations of traditional **Vaidyas**. Therefore, it is imperative to document such a valuable knowledge before it has vanished.

Uttaranchal is a less developed hilly state that harbours highest number of medicinal plants and is therefore one of the best study sites to document the maximum information on the medicinal plants used by traditional **Vaidyas**. Apart from documenting the current state of medicinal plants used by traditional **Vaidyas**, the present study aimed to understand the attitude of the younger generation toward learning **Ayurveda** and also to identify the causes of decline of traditional health care practices.

Methods

Study area

The present study area, Uttaranchal state comprises 13 districts and lies between 28° 43' to 31° 8' N and 77° 35' to 81° 2' E. Uttaranchal is bounded to the northwest by Himachal Pradesh, to the north by Tibet (China), to the east by

Nepal, and to the south by Uttar Pradesh (Figure 1). The state spans over 53485 km² with elevation ranges from 210 to 7817 m. The state has remained isolated from the rest of the agricultural plains of northern India, and thus some of the old practices, traditions and ethnic norms for various resource use patterns have been preserved (Kala *et al.* 2004).

The total human population of the state is around 8,479,562, of which 78% is rural. About 20% of the state population has been classified into the categories "Schedule Castes" and "Schedule Tribes", and they draw the associated benefits provided by the Government of India for underdeveloped communities.

Uttaranchal is known as the origin of many sacred rivers including the Gori-Ganga, Kali-Ganga, Alaknanda, Bhagirathi and the Ganga. The socio-cultural fabric in the state is characterized by diverse ethnic groups, which have developed their own cultures based on available natural resources, giving rise to high cultural diversity (Kandari & Gusain 2001).

The state has different forest types. Some of the major vegetation types classified along the altitudinal gradient are tropical, sub-tropical, temperate, sub-alpine and alpine. Uttaranchal obtains diverse climatic conditions and as a result there are several micro-climatic zones everywhere. The higher elevations (>2000 m) have relatively cooler climatic conditions whereas the lower elevation (<1200 m) has relatively warmer climatic conditions.

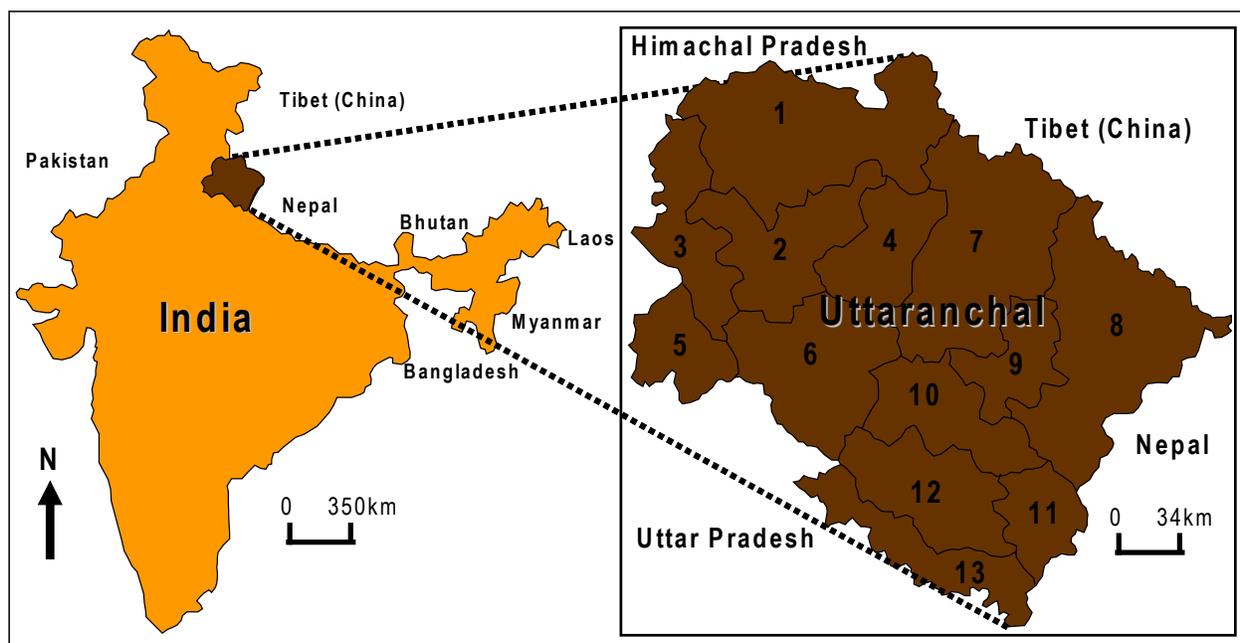


Figure 1. Location of study area (Indian state of Uttaranchal). The numerical values indicate the districts in the state: 1- Uttarkashi, 2- Tehri, 3- Dehradun, 4- Rudraprayag, 5- Haridwar, 6- Pauri, 7- Chamoli, 8- Pithoragarh, 9- Bageshwar, 10- Almora, 11- Champawat, 12- Nainital, and 13- Udham Singh Nagar.

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The **Vaidyas** of Uttaranchal have developed their medical system of therapy accordingly on the available bio-resources within this diverse region.

Survey methods

Field surveys were undertaken during 2001–2004 to gather data on the traditional uses of medicinal plant species across various localities in the state. Information was gathered using semi-structured questionnaires about the types of ailments treated by the traditional use of medicinal plants and the preparation of herbal medical formulations. This information was gathered from 60 traditional **Vaidyas** living across 8 districts of Uttaranchal (e.g., Uttarkashi, Pithoragarh, Pauri, Tehri, Chamoli, Rudraprayag, Bageshwar and Almora). For interviews, the **Vaidyas** were selected randomly from a list of 200 traditional **Vaidyas** who were identified during community workshops (see below). These **Vaidyas** resided across various places of Uttaranchal, such as Rishikesh, Maletha, Srinagar, Sumari, Balori, Pauri, Khirsu, Karnprayag, Rudraprayag, Gopeshwar, Lambgaun, Dunda, Dhontri, Uttarkashi, Joshimath, Bhyundar, Nauti, Gwaldam, Dewal, Talwari, Tharali, Pithoragarh, Bageshwar, Munsyari and Almora.

Five workshops were organized in different districts of Uttaranchal and various groups of indigenous people including **Vaidyas** were invited to participate through helping document their indigenous knowledge on medicinal plants. Information was also gathered in order to understand the attitude of the younger generation towards learning **Ayurveda** and also to identify the causes of decline in the tradition.

The data were cross checked by interviewing more than three **Vaidyas** on the uses of specific plant species and preparation of herbal formulations. A participant observation method was employed to understand the methods and techniques adopted by **Vaidyas** in preparation of various herbal formulations.

In order to verify the identity of local names of medicinal plant species field visits were undertaken with **Vaidyas**. Specimens of each species identified were brought to the H.N.B. Garhwal University herbarium for scientific identification where they were subsequently deposited.

Results

60 traditional **Vaidyas** were interviewed. Nine were young (16-25 years old), 22 were adults (26-45 years old) and 29 were old (>46 years old).

The interviews resulted in documentation of 156 medicinal plant species (Appendix 1) used in preparation of 243

herbal medical formulations (Kala 2005, in press) for the treatment of 73 types of diseases (Appendix 2).

Discussion

Traditional Vaidyas

In Uttaranchal, there are different categories of traditional **Vaidyas**. These include **Vish Vaidya**, **Haddi Vaidya**, **Pashu Vaidya** and common **Vaidya**. The categories of **Vaidyas** are based on their expertise in healing a particular group of diseases. For example, **Vish Vaidyas** have an expertise in treating the illness resulting from snake bites, scorpion bites, dog bites and fish poisons, **Haddi Vaidyas** are the bone settlers and treat bone related disorders, **Pashu Vaidyas** are the experts in treating animal diseases, and common **Vaidyas** treat all kinds of common diseases.

The pattern in age classes of traditional **Vaidyas** indicates a decline in the number of **Vaidyas** across generations. The decline in traditions is also due to the decline in number of **Vaidyas** coming forward to adopt this traditional healing practice professionally. Discussions and interviews with both old and young **Vaidyas** indicated that the attitude of the younger generation is not favourable toward continuing the **Vaidya** tradition because they realized less opportunity in this tradition for getting immediate benefits mainly in terms of cash.

Traditionally, the **Vaidyas** are marginal farmers providing their services free of cost. In return, the communities help **Vaidyas** in their agricultural practices and also offer some donation in the form of cereals, pulses and vegetables. Formerly, taking fees for any kind of treatment was highly discouraged. Realizing that health care is an essential need it was believed that if a fee was charged that the poor might be deprived from treatment. The low cost of herbal medicine and its unlikely income is one of the reasons that younger people are discouraged from carrying forward the **Vaidya** profession. On the other hand, the cost of modern medicine is twenty times higher than the cost of indigenous medicine so there is a public demand for services (Samal *et al.* 2004).

Traditional treatments and diseases

In general, the traditional **Vaidyas** have categorized all ailments into two broad types:

1. Those visible in any part of the body or organs.
2. Those invisible or functional that are in the state of infliction.

They assume that the cause of disease is either proximate or remote. In the proximate condition, the symptoms are visible on the organ or structure whereas in the remote condition the symptoms are difficult to find out.

Diseases are primarily treated with home-made herbal formulations accompanied by advise for balanced diets. **Vaidyas** alter the constitution of each herbal formulation based upon the requirements of the patient. Hence, they increase or decrease the potency of formulations based upon the needs of the patient and the duration of the treatment. In general, for treating diseases traditional **Vaidyas** prescribe three important things:

1. Herbal formulations.
2. Balanced diets.
3. Proper lifestyle regiments including good moral conduct.

This approach and practice is very similar as described in Ayurvedic texts (Dash 1982, Khory 2004).

Vaidyas believe that any disorder is a result of imbalance in 'vata' (air), 'pitta' (phlegm) and 'kaph' (cough). Traditional **Vaidyas** prescribe the use of *til* (*Sesamum orientale*) oil as the best medicine for treating the disorders related to 'vata', cow's ghee for 'pitta', and honey for 'kaph'. For proper digestion, they prescribe ginger, long pepper and black pepper as useful medicines for regulation of the activity of enzymes. Besides plant made formulations, traditional **Vaidyas** frequently use various milk products (milk, butter, refined butter, curd) and honey for treating diseases.

Medicinal plants and formulations

Ocimum sanctum, *Piper nigrum*, *Curcuma domestica*, *Brassica campestris* and *Raphanus sativus* are among the most frequently used plant species. The number of medical formulations developed by **Vaidyas** has a positive correlation with number of diseases to be treated (Figures 2 and 3). For instance, *Ocimum sanctum* is used in treating 14 types of diseases and the traditional **Vaidyas** prepare 16 types of herbal formulations by using *Ocimum sanctum* alone (Table 1).

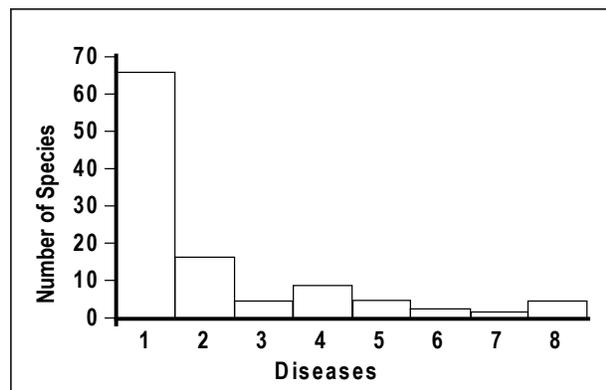


Figure 2. Frequency of use of plant species across with the amplitude of diseases (number of diseases to be treated).

Of the 156 medicinal plants documented, 66 species are used in preparation of only one formulation. These species are therefore uniquely important for treating those particular types of disease. Seventeen species are used in preparation of 2 formulations and each formulation is used in treating two ailments.

Wild verses cultivated plants

The study revealed that 55% of the plant species used are cultivated and 45% are wild species. Of the cultivated species 80% grow in kitchen gardens and 20% in agricultural fields. The frequency of use of kitchen garden species is highest in preparing formulations. The relative frequency of use of such species is 87%, which goes up to 92% if agricultural species are also taken into account. The relative frequency of use of the medicinal plants growing in the wild is 55% in preparing herbal medical formulations.

There is a ban on collection of many plant species from the wild but many wild species are essential for making particular types of herbal formulations. The **Vaidyas** admit that they face tremendous difficulty in making those specific formulations. In spite of this difficulty, **Vaidyas** were determined to keep their traditions alive. Therefore, they have focused experiments on making herbal medicines from those plant species that are growing in the nearby areas including kitchen gardens.

Due to a ban on collection of many plant species from the wild, traditional healers seek ways to purchase the required plant materials from any prospective seller. In most of the cases the purchased material is not of good quality due to use of poor methods for harvesting and storage. The quality of material was noted by healers to have declined, particularly because earlier the medicinal plants were collected by trained herbal healers at a particular time and season after chanting religious verses.

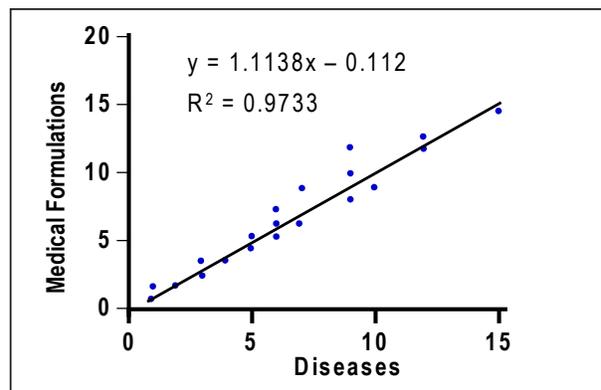


Figure 3. Correlation between medical formulations prepared by traditional **Vaidyas** and number of diseases treated.

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Conclusions

There may be many other causes of decline in traditional herbal therapies, however allopathic medicine has been blamed for superseding traditional systems of medicine (Banerjee 2002, Kala 2004). On some occasions a lack of availability of the required plant materials prevents the **Vaidyas** from using traditional formulations. These kinds of problems have ultimately reduced the efficacy of the herbal medical formulations and in the long run the tradition as a whole.

The knowledge of traditional **Vaidyas** has not so far been adequately utilized. The concepts of eradicating illness from its root and treatment of chronic problems are some of the main forces that may lead to the acceptance of tra-

ditional **Vaidyas** in spite of the heavy consumption of allopathic drugs. There are many traditional **Vaidyas** who claim to be able to treat chronic disorders such as chronic gastric problems, eczema and migraines that do not respond well to western medicines (Banerjee 2002). Therefore, attempts should be made to systematically document all of the formulations prepared by traditional **Vaidyas**. The high profile formulations may be developed if most of the reputed traditional **Vaidyas** are organized. Their past reputations and respect for the formulations they have developed are sufficient criteria for people to believe in the value of both the **Vaidyas** and their formulations. It will be a step forward if the claimed properties of medicinal plants mentioned by traditional **Vaidyas** are clinically evaluated in view of strengthening their validity and also for preparation of new formulations.

Table 1. Some important species of medicinal plants based on number of formulations in which they are included and number of ailments treated.

Vernacular name in Uttaranchal	Scientific name	Number of formulations in which it was included	Number of ailments treated
Tulsi	<i>Ocimum sanctum</i> L.	16	15
Kali-Mirch	<i>Piper nigrum</i> L.	14	12
Haldi	<i>Curcuma domestica</i> Valetton	13	12
Sarson	<i>Brassica campestris</i> L.	10	10
Muli	<i>Raphanus sativus</i> L.	13	9
Bel	<i>Aegle marmelos</i> (L.) Correa	11	9
Pyaz	<i>Allium cepa</i> L.	9	9
Pudina	<i>Mentha longifolia</i> (L.) Hudson	9	9
Awala	<i>Phyllanthus emblica</i> L.	9	9
Adrak	<i>Zingiber officinale</i> Roscoe	10	7
Neebu	<i>Citrus</i> sp.	7	7
Badam	<i>Terminalia catappa</i> L.	8	6
Neem	<i>Azadirachta indica</i> A.H.L. Juss.	7	6
Lahsun	<i>Allium sativum</i> L.	6	6
Aam	<i>Mangifera indica</i> L.	6	5
Saunf	<i>Foeniculum vulgare</i> Mill.	5	5
Haida	<i>Terminalia chebula</i> Retz.	5	5
Anar	<i>Punicum granatum</i> L.	5	5
Amrood	<i>Psidium guajava</i> L.	5	5
Ritha	<i>Sapindus mukorosii</i> Gaertner	4	4
Methi	<i>Trigonella foenum-graecum</i> L.	4	4
Kela	<i>Musa</i> sp.	4	4
Karela	<i>Momordica charantia</i> L.	4	4
Doob	<i>Cynodon dactylon</i> (L.) Pers.	4	4
Arandi	<i>Ricinus communis</i> L.	4	4

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Appendix 1. 156 medicinal plant species used by traditional Vaidyas in Uttaranchal State of India.

Species of Medicinal Plant	Vernacular Name	Source
<i>Abelmoschus esculentus</i>	Bhindi	Kitchen garden
<i>Abrus precatorius</i>	Ratti	Wild harvested
<i>Acacia catechu</i>	Kattha	Wild harvested
<i>Acacia nilotica</i>	Babool	Wild harvested
<i>Aconitum balfourii</i>	Mitha	Wild harvested
<i>Aconitum heterophyllum</i>	Atis	Wild harvested
<i>Acorus calamus</i>	Bach	Wild harvested
<i>Adhatoda vasica</i>	Basinga	Wild harvested
<i>Aegle marmelos</i>	Bel	Agricultural field
<i>Ageratum conyzoides</i>	-	Wild harvested
<i>Ajuga bracteosa</i>	Neel kanthi	Kitchen garden
<i>Ajuga parviflora</i>	Neel kanthi	Kitchen garden
<i>Allium carolinianum</i>	Ladu	Kitchen garden
<i>Allium cepa</i>	Pyaz	Kitchen garden
<i>Allium humile</i>	Faran	Wild harvested
<i>Allium sativum</i>	Lahsun	Kitchen garden
<i>Aloi vera</i>	Gwar patta	Kitchen garden
<i>Amaranthus cruentus</i>	Marsu	Kitchen garden
<i>Amaranthus spinosa</i>	Kateli chaulai	Kitchen garden
<i>Angelica glauca</i>	Choru	Wild harvested
<i>Annona squamosa</i>	Sita phal	Kitchen garden
<i>Argemone mexicana</i>	-	Wild harvested
<i>Artemisia maritima</i>	Kunju	Wild harvested
<i>Artemisia nilagirica</i>	Kunju	Wild harvested
<i>Artocarpus heterophyllus</i>	Kathal	Kitchen garden
<i>Asparagus racemosus</i>	Satawari	Wild harvested
<i>Azadirachta indica</i>	Neem	Kitchen garden
<i>Bauhinia purpurea</i>	Malu	Kitchen garden
<i>Bauhinia variegata</i>	Quiral	Kitchen garden
<i>Berberis aristata</i>	Kingod	Wild harvested
<i>Berberis asiatica</i>	Kingod	Wild harvested
<i>Bergenia ligulata</i>	Pasanbhed	Wild harvested
<i>Betula alnoides</i>	Kathbhoj	Wild harvested
<i>Bidens biternata</i>	Kumra	Wild harvested
<i>Bombax ceiva</i>	Semal	Wild harvested
<i>Brassica campestris</i>	Sarson	Kitchen garden
<i>Brassica oleracea</i>	Fulgobhi	Kitchen garden
<i>Brassica rapa</i>	Shaljam	Kitchen garden
<i>Brassica rugosa</i>	Rai	Kitchen garden
<i>Bunicum persicum</i>	Kala-jira	Agricultural field

Species of Medicinal Plant	Vernacular Name	Source
<i>Cajanus cajan</i>	Arhar	Kitchen garden
<i>Calotropis sp.</i>	Aak	Wild harvested
<i>Cannabis sativa</i>	Bhang	Kitchen garden
<i>Capsella bursa-pastoris</i>	Botlya	Kitchen garden
<i>Capsicum anum</i>	Mirch	Kitchen garden
<i>Cardmine impatiens</i>	Ban layya	Kitchen garden
<i>Carica papaya</i>	Papita	Kitchen garden
<i>Carissa carandus</i>	Karonda	Wild harvested
<i>Carissa opeca</i>	Karonda	Wild harvested
<i>Carum carvi</i>	Jangli dhaniya	Kitchen garden
<i>Cedrus deodara</i>	Devdar	Wild harvested
<i>Celtis australis</i>	Khadik	Wild harvested
<i>Centella asiatica</i>	Brahmi	Kitchen garden
<i>Chenopodium album</i>	Bathuwa	Kitchen garden
<i>Chlorophytum tuberosum</i>	Safed musli	Agricultural field
<i>Cicer arietinum</i>	Channa	Agricultural field
<i>Cinnamomum tamala</i>	Tejpat	Wild harvested
<i>Cinnamomum verum</i>	Dalchini	Wild harvested
<i>Citrullus lanatus</i>	Tarbuji	Kitchen garden
<i>Citrus grandis</i>	Chakotra	Kitchen garden
<i>Citrus lemon</i>	Neebu	Kitchen garden
<i>Citrus sp.</i>	Santra	Kitchen garden
<i>Cleome viscosa</i>	Jakhya	Wild harvested
<i>Colebrookia oppositifolia</i>	Bindu	Wild harvested
<i>Colocasia esculenta</i>	Pindalu	Kitchen garden
<i>Coriandrum sativum</i>	Dhaniya	Kitchen garden
<i>Cucumis melo</i>	Kheera	Kitchen garden
<i>Cucurbita maxima</i>	Kaddu	Kitchen garden
<i>Cuminum cyminum</i>	Jira	Kitchen garden
<i>Curcuma domestica</i>	Haldi	Kitchen garden
<i>Cynodon dactylon</i>	Doob	Wild harvested
<i>Dactylorhiza hatagirea</i>	Hathajari	Wild harvested
<i>Datisca cannabiana</i>	Bajar bhang	Wild harvested
<i>Datura stramonium</i>	Dhatura	Wild harvested
<i>Daucus carota</i>	Gajar	Kitchen garden
<i>Debregeasia longifolia</i>	Tusara	Wild harvested
<i>Delbergia sesoo</i>	Seesam	Wild harvested
<i>Dioscorea bulbifera</i>	Gainthi	Kitchen garden
<i>Dioscorea deltoidea</i>	Harbish	Wild harvested
<i>Drimia indica</i>	Ban pyaz	Wild harvested
<i>Elusine coracana</i>	Maduwa	Agricultural field

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Species of Medicinal Plant	Vernacular Name	Source
<i>Ephedra gerardiana</i>	Somlata	Wild harvested
<i>Euphorbia royleana</i>	Sullu	Wild harvested
<i>Fagopyrum tataricum</i>	Phaphar	Agricultural field
<i>Ferula narthex</i>	Heeng	Agricultural field
<i>Ficus auriculata</i>	Timla	Wild harvested
<i>Ficus benghalensis</i>	Bod	Agricultural field
<i>Ficus racemosa</i>	Gular	Wild harvested
<i>Ficus religiosa</i>	Pipal	Agricultural field
<i>Foeniculum vulgare</i>	Saunf	Kitchen garden
<i>Grevia optiva</i>	Bhimal	Agricultural field
<i>Helianthus annuus</i>	Surajmukhi	Kitchen garden
<i>Hordeum vulgare</i>	Jau	Agricultural field
<i>Juglans regia</i>	Akhrot	Kitchen garden
<i>Juniperus communis</i>	Bidaru	Wild harvested
<i>Lablab purpureus</i>	Sem	Kitchen garden
<i>Lageneria siceraria</i>	Launki	Kitchen garden
<i>Lawsonia inermis</i>	Mehandi	Kitchen garden
<i>Lens esculenta</i>	Masur	Agricultural field
<i>Lycopersicon esculentum</i>	Tamatar	Kitchen garden
<i>Macrotyloma uniflorum</i>	Gahath	Agricultural field
<i>Malus sp.</i>	Apple	Kitchen garden
<i>Mangifera indica</i>	Aam	Kitchen garden
<i>Martynia annua</i>	Bichu	Wild harvested
<i>Megacarpaea polyandra</i>	Badmula	Wild harvested
<i>Melia azedarach</i>	Daikan	Kitchen garden
<i>Mentha longifolia</i>	Pudina	Kitchen garden
<i>Momordica charantia</i>	Karela	Kitchen garden
<i>Morus alva</i>	Shahtoot	Kitchen garden
<i>Musa sp.</i>	Kela	Kitchen garden
<i>Myrica esculenta</i>	Kafal	Wild harvested
<i>Nardostachys grandiflora</i>	Jatamansi	Wild harvested
<i>Nerium indicum</i>	Kaner	Wild harvested
<i>Ocimum sanctum</i>	Tulsi	Kitchen garden
<i>Origanum vulgare</i>	Ban tulsi	Wild harvested
<i>Phyllanthus emblica</i>	Awala	Wild harvested
<i>Picrorhiza kurroa</i>	Katuki	Wild harvested
<i>Piper nigrum</i>	Kali-mirch	Kitchen garden
<i>Pinus wallichiana</i>	Kail	Wild harvested
<i>Plantago major</i>	Isabgol	Wild harvested
<i>Pleurospermum angelicoides</i>	Chippi	Wild harvested
<i>Principia utilis</i>	Bhainkal	Wild harvested

Species of Medicinal Plant	Vernacular Name	Source
<i>Prunus persica</i>	Aru	Kitchen garden
<i>Psidium guava</i>	Amrood	Kitchen garden
<i>Punica granatum</i>	Anar	Kitchen garden
<i>Raphanus sativus</i>	Muli	Kitchen garden
<i>Rauvolfia serpentina</i>	Sarpgandha	Wild harvested
<i>Rheum australe</i>	Dholu	Wild harvested
<i>Rheum moorcroftianum</i>	Archa	Wild harvested
<i>Rhododendron campanulatum</i>	Semru	Wild harvested
<i>Ricinus communis</i>	Arandi	Wild harvested
<i>Rosa sp.</i>	Gulab	Kitchen garden
<i>Saccharum officinarum</i>	Ganna	Agricultural field
<i>Sapindus mukorosii</i>	Ritha	Kitchen garden
<i>Saussurea costus</i>	Kut	Kitchen garden
<i>Saussurea obvallata</i>	Brahmakamal	Wild harvested
<i>Sesamum orientale</i>	Til	Agricultural field
<i>Solanum tuberosum</i>	Alu	Kitchen garden
<i>Spinacea oleracea</i>	Palak	Kitchen garden
<i>Swertia chiraiyta</i>	Chirayta	Wild harvested
<i>Syzygium cuminii</i>	Jamun	Wild harvested
<i>Taxus baccata</i>	Thuner	Wild harvested
<i>Terminalia arjuna</i>	Arjun	Wild harvested
<i>Terminalia bellirica</i>	Baheda	Wild harvested
<i>Terminalia catappa</i>	Badam	Purchased
<i>Terminalia chebula</i>	Haida	Wild harvested
<i>Terminalia indica</i>	Imli	Wild harvested
<i>Tinospora cordifolia</i>	Giloe	Kitchen garden
<i>Trachyspermum ammi</i>	Ajwain	Kitchen garden
<i>Trigonella foenum-graecum</i>	Methi	Kitchen garden
<i>Triticum aestivum</i>	Gehun	Agricultural field
<i>Vetiveria zizanioides</i>	Khas-Khas	Wild harvested
<i>Vinis venifera</i>	Angoor	Kitchen garden
<i>Vitex negundo</i>	Singoli	Wild harvested
<i>Withania somnifera</i>	Ashgand	Wild harvested
<i>Zingiber officinale</i>	Adrak	Kitchen garden

C.P. Kala - Current Status of Medicinal Plants used by Traditional Vaidyas in 277 Uttaranchal State of India

Appendix 2. 73 types of diseases treated by traditional Vaidyas in Uttaranchal State of India.

Serial Number	Vernacular Disease Name	Disease Description
1	Bukhar	Fever
2	Pet dard	Stomachache
3	Aankh darg	Eye pain
4	Pathree	Kidney stones
5	Uchha raktchap	High blood pressure
6	Kai, Ukai	Vomiting
7	Mirgee	Epilepsy/hysteria
8	Sardee jukam	Cough & cold
9	Dukhda	Boils
10	Jhaiyan	Black spots around eyes
11	Jhilsyan/ kathey dakar	Acidity
12	Twacha se kante or kanch ke tukde nikalna	In removing glass piece, spine & needle from flesh
13	Kan dard, kan se mawad aana	Earache and secretion from ears
14	Dant dard	Toothache
15	Bichhu dansh	Scorpion bite
16	Muh se bas	Bad smell in mouth
17	Behoshi	Unconscious
18	Vishakta bhojan	Food poisoning
19	Motapa ghatana	To reduce fat
20	Jodoun ka dard	Joint pains
21	Babaseer	Piles
22	Apach	Indigestion
23	Prajanan rog	Reproductive disorder
24	Pechis	Dysentery
25	Khoudu	Skin disease
26	Youn rog	Uro-genital disorders
27	Khoon kee kami	Anaemia
28	Aakh kee roshni badhana	Improving eyesight
29	Tapedik/ chhya rog	Tuberculosis
30	Nakseer	Nose bleeding
31	Gas	Gastritis
32	Jounku	Worms in stomach
33	Loo	Excess heat
34	Keel-muhasain	Pimples
35	Pilia	Jaundice
36	Madhumeh	Diabetes
37	Meer kee sadan	Pyria
38	Khoon saaf	Blood purification
39	Mundaru/ sar dard	Headache

Serial Number	Vernacular Disease Name	Disease Description
40	Dimag kee khurak	Brain tonic
41	Kamar dard	Backache, Bodyache
42	Lakwa	Paralysis
43	Pagalpan	Madness
44	Muh ke chhale	Blisters in mouth
45	Khujlee	Itching
46	Gum chot	Internal injuries
47	Baharee jakhma	Cut and wounds
48	Satkoo	Sciatica
49	Galwatam	Tonsils
50	Bachhoun kee pechis	Child dysentery
51	Haija	Cholera
52	Motiyabind	Cataract
53	Yujakop	Conjunctivitis
54	Jabdoun kee sujan	Jaws swelling
55	Bisarp	Eczema
56	Sarp dansh	Snake bite
57	Kutte ka katna	Dog bite
58	Sukhranu ghatna	Spermatorrhea
59	Swet pradar	Leucorrhoea
60	Bachhoun ke pet dard	Child stomachache
61	Adhkaplya dard	Migraine
62	Dil kee bimaree	Heart disease
63	Moch	Sprains
64	Malaria	Malaria
65	Antrajwar/ Aantoun kee sujan	Typhoid
66	Safed dag	Leucoderma
67	Asamanya mahwari	Irregular menstruation
68	Jalna	Burn
69	Garbhasya ka nashur	Cancer in uterus
70	Nimna Raktchap	Low blood pressure
71	Clomepad/ Nemonia	Pneumonia
72	Sandhibat	Rheumatism
73	Haddi tutna	Bone fracture