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

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## Abstract

The current status of medicinal plants used by traditional **Vaidyas** was studied in Uttaranchal 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: **Siddha** (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). Uttaranchal 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 Uttaranchal 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 Uttaranchal (Samal *et al*. 2004). Therefore, the inhabitants of Uttaranchal 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 $28^0$ 43' to $31^0$ 8' N and $77^0$ 35' to $81^0$ 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 $km^2$ 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.

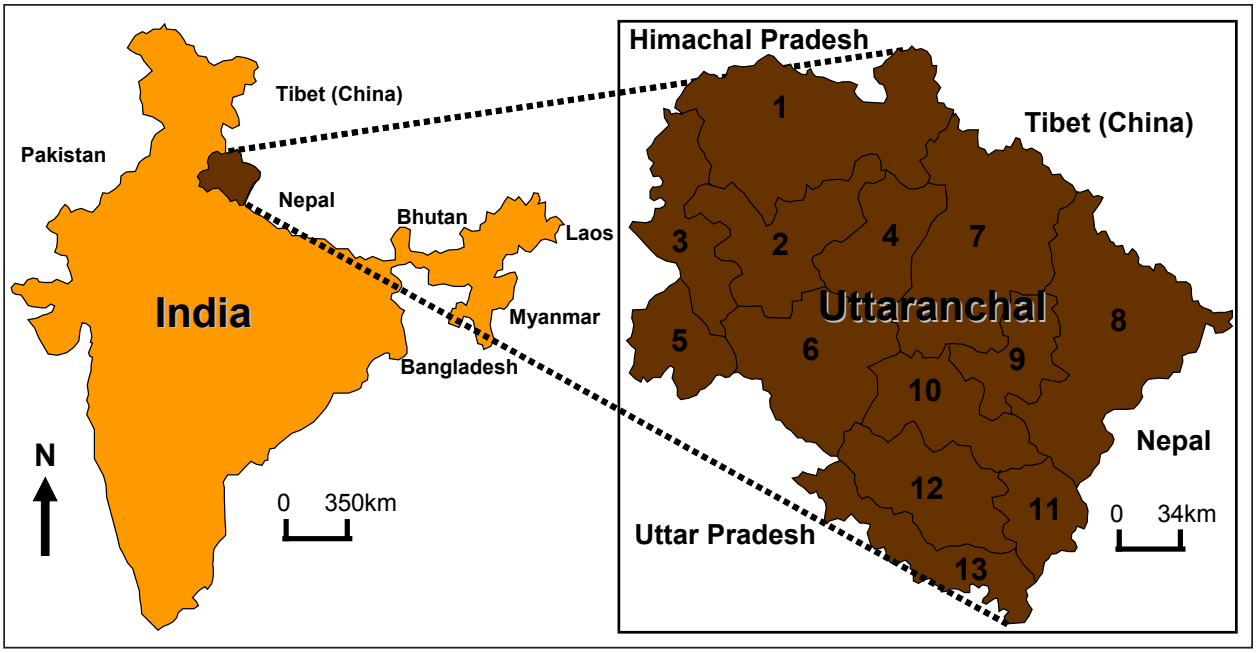


**Figure 1**. Location of study area (Indian state of Uttaranchal). The numerical values indicate the districts in the state: 1- Uttarkashi, 2- Tehri, 3- Dehradun, 4- Rudraprayag, 5- Haridwar, 6- Pauri, 7- Chamoli, 8- Pithoragarh, 9- Bageshwar, 10- Almora, 11- Champawat, 12- Nainital, and 13- Udham Singh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

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).

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.

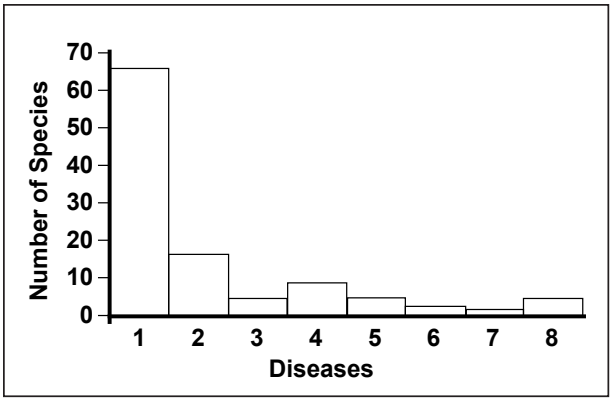


**Figure 2**. Frequency of use of plant species across with the amplitude of diseases (number of diseases to be treated).

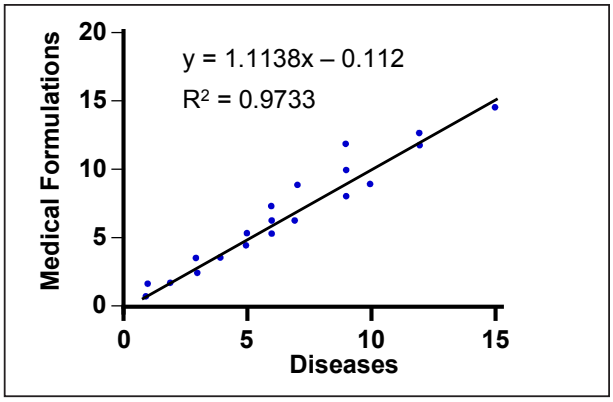


**Figure 3**. Correlation between medical formulations prepared by traditional **Vaidyas** and number of diseases treated.

## 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 traditional **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** | *Ocimum sanctum* L. | 16 | 15 |
| **Kali-Mirch** | *Piper nigrum* L. | 14 | 12 |
| **Haldi** | *Curcuma domestica* Valeton | 13 | 12 |
| **Sarson** | *Brassica campestris* L. | 10 | 10 |
| **Muli** | *Raphanus sativus* L. | 13 | 9 |
| **Bel** | *Aegle marmelos* (L.) Correa | 11 | 9 |
| **Pyaz** | *Allium cepa* L. | 9 | 9 |
| **Pudina** | *Mentha longifolia* (L.) Hudson | 9 | 9 |
| **Awala** | *Phyllanthus emblica* L. | 9 | 9 |
| **Adrak** | *Zingiber officinale* Roscoe | 10 | 7 |
| **Neebu** | *Citrus* sp. | 7 | 7 |
| **Badam** | *Terminalia catappa* L. | 8 | 6 |
| **Neem** | *Azadirachta indica* A.H.L. Juss. | 7 | 6 |
| **Lahsun** | *Allium sativum* L. | 6 | 6 |
| **Aam** | *Mangifera indica* L. | 6 | 5 |
| **Saunf** | *Foeniculum vulgare* Mill. | 5 | 5 |
| **Haida** | *Terminalia chebula* Retz. | 5 | 5 |
| **Anar** | *Punicum granatum* L. | 5 | 5 |
| **Amrood** | *Psidium guajava* L. | 5 | 5 |
| **Ritha** | *Sapindus mukorosii* Gaertner | 4 | 4 |
| **Methi** | *Trigonella foenum-graecum* L. | 4 | 4 |
| **Kela** | *Musa* sp. | 4 | 4 |
| **Karela** | *Momordica charantia* L. | 4 | 4 |
| **Doob** | *Cynodon dactylon* (L.) Pers. | 4 | 4 |
| **Arandi** | *Ricinus communis* 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 |
|---|---|---|
| *Abelmoschus esculentus* | **Bhindi** | Kitchen garden |
| *Abrus precatorius* | **Ratti** | Wild harvested |
| *Acacia catechu* | **Kattha** | Wild harvested |
| *Acacia nilotica* | **Babool** | Wild harvested |
| *Aconitum balfourii* | **Mitha** | Wild harvested |
| *Aconitum heterophyllum* | **Atis** | Wild harvested |
| *Acorus calamus* | **Bach** | Wild harvested |
| *Adhatoda vasica* | **Basinga** | Wild harvested |
| *Aegle marmelos* | **Bel** | Agricultural field |
| *Ageratum conyzoides* | **-** | Wild harvested |
| *Ajuga bracteosa* | **Neel kanthi** | Kitchen garden |
| *Ajuga parviflora* | **Neel kanthi** | Kitchen garden |
| *Allium carolinianum* | **Ladu** | Kitchen garden |
| *Allium cepa* | **Pyaz** | Kitchen garden |
| *Allium humile* | **Faran** | Wild harvested |
| *Allium sativum* | **Lahsun** | Kitchen garden |
| *Aloi vera* | **Gwar patta** | Kitchen garden |
| *Amaranthus cruentus* | **Marsu** | Kitchen garden |
| *Amaranthus spinosa* | **Kateli chaulai** | Kitchen garden |
| *Angelica glauca* | **Choru** | Wild harvested |
| *Annona squamosa* | **Sita phal** | Kitchen garden |
| *Argemone mexicana* | **-** | Wild harvested |
| *Artemisia maritima* | **Kunju** | Wild harvested |
| *Artemisia nilagirica* | **Kunju** | Wild harvested |
| *Artocarpus heterophyllus* | **Kathal** | Kitchen garden |
| *Asparagus racemosus* | **Satawari** | Wild harvested |
| *Azadirachta indica* | **Neem** | Kitchen garden |
| *Bauhinia purpurea* | **Malu** | Kitchen garden |
| *Bauhinia variegata* | **Quiral** | Kitchen garden |
| *Berberis aristata* | **Kingod** | Wild harvested |
| *Berberis asiatica* | **Kingod** | Wild harvested |
| *Bergenia ligulata* | **Pasanbhed** | Wild harvested |
| *Betula alnoides* | **Kathbhoj** | Wild harvested |
| *Bidens biternata* | **Kumra** | Wild harvested |
| *Bombax ceiva* | **Semal** | Wild harvested |
| *Brassica campestris* | **Sarson** | Kitchen garden |
| *Brassica olerecia* | **Fulgobhi** | Kitchen garden |
| *Brassica rapa* | **Shaljam** | Kitchen garden |
| *Brassica rugosa* | **Rai** | Kitchen garden |
| *Bunicum persicum* | **Kala-jira** | Agricultural field |

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

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

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

**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 nikal-na** | 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 |