

# Understanding the Role of Ecosystem Services Through Traditional Medicinal Knowledge: An Ethnobotanical Perspective

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## Abstract

Man has been traditionally using wide range of plants to treat a large number of common ailments even long ago before the existence of modern system of medicine. Specifically, medicinal plant based system of treating the people in the mountainous region particularly to the lower income group from rural background is still in practice and is most accepted choice because of high cost of allopathic drugs.

Chamba is blessed with such rich heritage of medicinal plants and valuable herbs. The inhabitants of Chamba have been using these plants to cure common human ailments for thousands of years. The indigenous traditional knowledge of medicinal plants of inhabitants of Chamba has been transmitted orally for centuries and presently disappearing due to modern allopathic system.

The paper aims to document the use of medicinal plants by traditional healers to treat poor people in the anterior areas of Chamba development block in the state of Himachal Pradesh in India where the modern allopathic/ayurvedic medical facilities is still to facilitate the people. For this study, an ethnobotanical survey of medicinal plants was carried out in various rural pockets of study area initially in 2007 and then after the researcher is in continuous touch with the practitioners. The information regarding the plants used to cure common ailments was collected through interviews from the traditional practitioners (vaid), family heads, housewives, old experienced farmers, eminent elderly persons of the community etc. In this paper, total of 20 plants are being listed which are being used by the traditional healers along with their botanical names, vernacular names, family, plant part used and mode of administration. The study concluded with a suggestion that it is high time to make sincere efforts to conserve the traditional knowledge by the policy makers as well as traditional healers as well as every man.

**Keywords:** *Ethnobotanical Survey, Chamba, Traditional knowledge, Medicinal Plants, Common ailments.*

## Introduction

Ethnobotany, an interdisciplinary science, encompasses the entire realm of useful relationship between plants and tribals (Ford, 1978; Jain, 1986; Schultes, 1962). This study of the plants in relation to people includes both wild and domesticated plants (Heiser, 1995). The use of indigenous plants in human medicine is well documented. More than 80% of the world population relies chiefly on traditional medicines for primary health care needs (Farnsworth et al. 1985).

Ecosystem services are positive benefits provided by wildlife or ecosystems to the people. These benefits may be direct or indirect, small or large. Various ecosystems such as agroecosystems, forest ecosystems, grassland ecosystems and aquatic ecosystems offer benefits like natural pollination of crops, clean air, fresh water and human mental and physical well-being. Medicinal plants were listed as a provisioning ecosystem service in the United Nations Millennium Ecosystem Assessment of 2005. Natural ecosystems provide a large number of plants that are used in traditional medicinal system.

India is endowed with a rich biological heritage. It has more than 45,000 spp (including 15,000 endemic spp), where the people worship the various elements of Mother Nature to express their indebtedness for sustaining them. About 1500-1800 plant spp are being used in the Indian system of medicine, i.e. Ayurveda.

Chamba is a rich repository of medicinal plants and valuable herbs, diverse cultures and traditions. Inhabitants of Chamba have been using medicinal plants and herbs to cure common ailments for thousands of years. The continuation of traditional knowledge is endangering as the transmission between the older and younger generation no longer exists (Kargioglu et al., 2008). It has been estimated that an average of 1 in 10 spp of vascular plants on this earth are endangered due to unplanned human activities (Lucas & Synge, 1978). Therefore, documentation of traditional knowledge is important for the conservation and utilization of biological resources (Muthu et al., 2006). This attempt has been made to explore the traditional knowledge of the local inhabitants of Chamba subdivision. Moreover, due to increasing urbanization and development, lure of modern civilization and growing pressure of population, their rich traditions developed over years of observation by trial and error are on the verge of extinction. Therefore, an attempt is made to document the traditional knowledge of medicinal plants and their use among the traditional healers and community members of Chamba Block.

Chamba is situated in the Dhauladhar ranges of outer Himalaya, which nestles between North latitude  $32^{\circ} 11' 30''$  and  $33^{\circ} 13' 6''$  and East longitude  $75^{\circ} 49'$  and  $77^{\circ} 3' 30''$  and is surrounded all sides by lofty hill ranges. The territory is wholly mountainous with altitude ranging from 6,00 to 65,00 m. Because of this large altitudinal range, the climatic variation is also considerable, ranging from semitropical to semi arctic. The rainy season is well marked with an average of 1484.3 mm of annual rainfall.



Fig1 : Showing study area.

## Methodology of Study

Ethnobotanical field surveys were undertaken to various rural pockets of Chamba block District Chamba (H.P.) in 2007. First hand information on medicinal plants used to cure common ailments was collected through interviews from traditional practitioners (vaid), family heads, housewives, old experienced farmers, eminent elderly persons of the community, etc., as suggested by Jain (1987a). Botanical identification of the selected species was first done with the help of regional floras (Chauhan, 1999; Chowdhery and Wadhwa, 1984; Collett, 1902; Hooker, 1872-1897; Polunin & Stainton, 1984; Stainton, 1988).

Systematic enumeration of the plants is in alphabetical order of their botanical names, synonym of the species followed by their respective families in the parentheses. Besides this, there is information on English and Regional Names, parts used and folk uses. The data gathered were screened with help of available literature (Kirtikar & Basu, 1935; Chopra et al., 1956; Anon., 1948-1976; Ambasta, 1986; Jain, 1991) besides many other books and articles published in different journals.

## Results

### 1. *Acorus calamus* L.



Photo credit: Sumit Singh

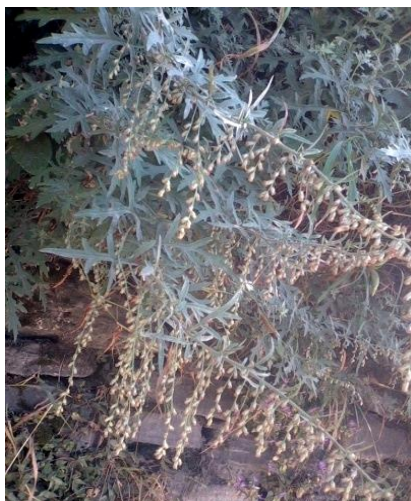
**Family:** Araceae  
**Vernacular:** Baryan  
**English:** Sweet Flag  
**Part used:** Rhizome  
**Folk Uses:** Crushed rhizome is applied on the area affected by **rheumatism**. The decoction (1 teaspoon of dried rhizome in 1 cup of water) of rhizome is given for **asthma**. The dried rhizome is tied to the chest of infants to protect them from **cough** and **cold**.

### 2. *Agave americana* Linn. Syn.: *A.cantula* Roxb.



**Family:** Amryllidaceae  
**Vernacular:** Ramban  
**English:** Century Plant  
**Part used:** Leaves  
**Folk Uses:** Dry leaf powder is given in **kidney** and **liver** diseases.

### 3. *Artimisia vulgaris* Linn. Syn.: *A.indica*



**Family:** Asteraceae  
**Vernacular:** Charmar  
**English:** Absinth  
**Part used:** Leaves  
**Folk Uses:** Infusion of leaves given for dispersing yellow bile of **jaundice** from the skin. Plant considered as **anthelmintic** and is used against **round worms**.



4. *Berberis aristata* DC.



**Family:** Berberidaceae  
**Vernacular:** Kasmal  
**English:** Indian Barbary  
**Part used:** Whole Plant  
**Folk Uses:** Plant decoction is used to wash **sores** and **ulcers**.

5. *Cannabis sativa* Linn



**Family:** Canabaceae  
**Vernacular:** Bhang  
**English:** Indian Hemp  
**Part used:** Leaves  
**Folk Uses:** Leaf juice is poured in ear to relieve **earache** and **headache**. Dried leaf powder is given in spasmodic cough asthma.

6. *Catharanthus roseus* G. Bom.  
Syn: *Vinca rosea* L.



**Family:** Apocyanaceae  
**Vernacular:** Sadabahar  
**English:** Periwinkle  
**Part used:** Leaves, flowers.  
**Folk Uses:** Leaves infusion is given in **diarrhea** and **diabetes**.

7. *Eubhorbia hirta* Linn.



**Family:** Euphorbiaceae  
**Vernacular:** Dhudhli  
**English:** Snake weed  
**Part used:** Whole Plant.  
**Folk Uses:** Plant decoction is used as gargle for treating **mouth and throat infection**. Crushed leaves are applied over cuts to **stop bleeding**.

8. *Justicia adhatoda* L.  
*Syn: Adhatoda vasica* Nees.



**Family:** Acanthaceae  
**Vernacular:** Basuti  
**English:** Malabar Nut  
**Part used:** Leaves and Root  
**Folk Uses:** Decoction of leaves and the roots of this plant along with ginger is given for all sorts of **coughs**. Juice extracted from leaves in a tablespoon of water is given every three hours for **diarrhea and dysentery**, leaves are eaten to cure **piles**.

9. *Melia azedarach* Linn.



**Family:** Meliaceae  
**Vernacular:** Darek  
**English:** Persian Liliac  
**Part used:** Leaves, fruits and seeds.  
**Folk Uses:** Berries are used to treat **leprosy** and **tuberculosis**. Poultice of leaves is used in **skin diseases** and to **kill lice**.

10. *Nerium indicum* Mill.

Syn: *N. odoratum* Lamk., *Nerium odorum* Solander



**Family:** Apocyanaceae  
**Vernacular:** Kaner  
**English:** Oleander  
**Part used:** Leaves, Flowers and bark.  
**Folk Uses:** Decoction of flowers is applied on head to kill lice. Powder of leaves and bark is used as **antidote** for snakebite.

11. *Ocimum sanctum* Linn.



**Family:** Lamiaceae  
**Vernacular:** Tulsi  
**English:** Holy Basil  
**Part used:** Roots, Leaves, Seeds.  
**Folk Uses:** Leaf juice mixed with honey is used to treat bad **cough**. Infusion of leaves is used in **gastric disorders** in children.

12. *Opuntia dillenii* Haw.

Syn.: *Cactus indicus* Roxb.



**Family:** Cactaceae  
**Vernacular:** Nagphani  
**English:** Prickly Pear  
**Parts Used:** Leaves, Fruit  
**Folk Uses:** Fresh juice of stem applied over **ulcers**, itchy skin, warts and **boils**.



13. *Punica granatum* Linn.  
Syn.: *P. nana* L.



**Family:** Punicaeae  
**Vernacular:** Daroo  
**English:** Pomegranate  
**Part used:** Whole Plant.  
**Folk Uses:** Juice of fresh leaves and young fruits is given in **dysentery** and **diarrhea**. Decoction of bark is used as a **gargle** for **sore throat**. Chutney of seeds is given in **vomiting**.

14. *Ricinus communis* Linn.  
Syn.: *R. inermis* Jacq., *R. lividus* Jacq., *R. speciosus* Burm.



**Family:** Euphorbiaceae  
**Vernacular:** Aerand  
**English:** Castor  
**Part used:** Leaves and Seeds  
**Folk Uses:** Poultice of leaves applied locally in **rheumatism** and **sprain**. Seed oil is used as **laxative**.

15. *Rubus ellipticus* Smith.  
Syn.: *R. rotundifolius* Wall., *R. owraephul* Roxb.



**Family:** Rosaceae  
**Vernacular:** Akhre  
**English:** Raspberry  
**Part used:** Leaves and Fruits  
**Folk Uses:** Fruits are given in **diarrhea**. Leaf juice with honey is given in **fevers**.

16. *Solanum nigrum* Linn.  
Syn.: *S. rubrum* Mill., *S. triangular* Lamk.,



**Family:** Solanaceae  
**Vernacular:** Budhi Ke Cheer, Kayan  
**English:** Deadly Nightshade  
**Part used:** Leaves  
**Folk Uses:** Poultice of hot leaves applied locally over **wounds, sores and ulcers**.

17. *Urtica dioca* Linn.



**Family:** Urticaceae  
**Vernacular:** Ein  
**English:** Stinging nettle  
**Part used:** Whole Plant  
**Folk Uses:** Boiled leaves are given to promote **flow of urine**. Decoction of leaves is used to cure **skin diseases**. Leaves are applied to **knee pains**.

18. *Vitex negundo* Linn.  
Syn.: *V. bicolor* Willd., *V. arborea* Desf.



**Family:** Verbenaceae  
**Vernacular:** Banah  
**English:** Indian Privet  
**Part used:** Whole Plant  
**Folk Uses:** Fomentation of leaf leaves applied on the **swollen joints** and for **rheumatism**. Leaves are boiled in water and that water is used to give first bath to the ladies after child birth.



19. *Viola Canescens* Wall.

Syn.: *V.serpens* Wall.



**Family:** Violaceae

**Vernacular:** Banafsha

**English:** Violet

**Parts Used:** Leaves, Flowers

**Folk Uses:** Decoction of leaves and flowers given in coughs, malarial fever and pulmonary troubles.

**Folk Uses:** Decoction of leaves and flowers given in coughs, mal

20. *Withania somnifera* Dunal.



**Family:** Solanaceae

**Vernacular:** Asgandh

**English :** Cherry

**Part used:** Roots and Leaves

**Folk Uses:** A spoonful of powdered root given with milk twice a day for all types of weakness.

## DISCUSSION AND CONCLUSION

It is evident from the study that the rural inhabitants of Chamba Block are using wild as well as cultivated plants for their sustenance and healthcare needs. These plants are used for the treatment to cure the stomach diseases, kidney problems, eye infection, pulmonary troubles, fever, arthritis, skin diseases, general weakness, wounds, sores, ulcers, dysentery and diarrhea.

**Table I**  
**Medicinal Plants of Chamba Block**

<b>Name of Disease</b>	<b>Plant Species</b>
Anthelmintic	<i>Artemisia vulgaris</i>
Asthma	<i>Acorus calamus</i> , <i>Justicia adhatoda</i> , <i>Cannabis sativa</i>
Blood purifier	<i>Melia azadirachta</i> ,
Boils	<i>Opuntia dillenii</i>
Chest infections	<i>Viola canescens</i>
Cough and cold	<i>Justicia adhatoda</i> , <i>Cannabis sativa</i> , <i>Ocimum sanctum</i> , <i>Viola canescens</i>
Diabetes	<i>Catharanthus roseus</i>
Diarrhoea	<i>Justicia adhatoda</i> , <i>Catharanthus roseus</i> , <i>Punica granatum</i> , <i>Rubus ellipticus</i>
Diuretic	<i>Urtica dioica</i>
Dysentery	<i>Justicia adhatoda</i> , <i>Punica granatum</i> ,
Earache	<i>Cannabis sativa</i>
Fever	<i>Rubus ellipticus</i> , <i>Viola canescens</i>
Flow of urine	<i>Urtica dioica</i>
Gastro-intestinal disorders	<i>Ocimum sanctum</i>
General Weakness	<i>Withania somnifera</i>
Headache	<i>Cannabis sativa</i>
Joint diseases (Rheumatism, arthritis)	<i>Acorus calamus</i> , <i>Ricinus communis</i> , <i>Vitex negundo</i>
Kidney disorders	<i>Agave americana</i>
Killing lice	<i>Melia azedarach</i> , <i>Nerium indicum</i>
Knee pain	<i>Urtica dioica</i>
Laxative	<i>Ricinus communis</i>
Leprosy	<i>Melia azedarach</i>
Liver ailments	<i>Agave Americana</i>
Mouth diseases (pyorrhea, sores)	<i>Euphorbia hirta</i> , <i>Punica granatum</i>
Piles	<i>Justicia adhatoda</i>
Skin diseases, inflammation	<i>Melia azedarach</i> , <i>Urtica dioica</i>
Snake Bite	<i>Nerium indicum</i>
Sprains	<i>Melia azedarach</i>
Tuberculosis	<i>Melia azedarach</i>
Ulcers	<i>Berberis aristata</i> , <i>Solanum nigrum</i>

The drugs are prepared in the form of paste, powder, extract, decoction, and even as tea or used directly in fresh. People use these plants as cure because their elders told them and because these are readily available and cheap too.

Even the 'World Health Organization' is advocating for use of traditional medicines in primary health-care needs to achieve the goal of 'health for all' (WHO, 1993). Therefore, all possible efforts should be made to popularize and preserve this age-old knowledge of traditional medicine before it is lost forever. Moreover promoting the use of traditional medicine can help in the

upliftment of traditional healers. This will also help the people living in remote areas can be benefitted who are still deprived of modern medicinal facilities. In fact, this data has to be screened on scientific lines for the welfare of humanity.

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