IAMJ

INTERNATIONAL
AYURVEDIC
MEDICAL JOURNAL

Research Article | ISSN: 2320-5091 | Impact Factor: 6.719

PRELIMINARY STUDY ON SOME MEDICINAL HERBS AND SHRUBS OF DISTRICT SOLAN (HP)

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https://doi.org/10.46607/iamj08p5062021

(Published online: September 2021)

Open Access

Article Received: 01/09/2021 - **Peer Reviewed:** 12/09/2021 - **Accepted for Publication:** 15/09/2021

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ABSTRACT

Herbal medicines are in practice since time immortal. India has probably the oldest, richest and most diverse cultural traditions within the use of medicinal plants. Indians 3500 BC, Chinese 3000 BC and Egyptians 2500 BC knew the properties of medicinal plants. Medicinal plants' use is still a living tradition. This is supported by the fact that there exists around a million traditional, village-based carriers of herbal medicine traditions in the form of traditional birth attendants, visha voids, bonesetters, herbal healers and wandering monks. Tribal people who live in harmony with nature and the environment share an intimate relationship with the plants. Beneficial medicinal properties of plants have been used in some forms or the other by these tribal people and cures were effective without any harmful side effects. The medicinal plants come from categories of shrubs, herbs and trees. Various parts of these plants which are used include fruits, roots, leaves, flowers, seeds, extract etc. and are of immense use to mankind; they are a part of our daily lives, making us wealthy with the world's greatest treasure- Health. Medicinal plants have served humankind, for hundreds of years and still, these plants are used traditionally to cure various diseases. Some of the selected plants of district Solan were analyzed for their medicinal use with the help of information gathered from local people.

Keywords: Medicinal plants, Herbal medicines, shrubs, Solan

INTRODUCTION

In the struggle for existence, men had learned about their ultimate fellows- the plants. Plants and animals share harmonious biological relationships since the past and have evolved along the parallel line, cooperating and depending upon one another for existence. During the struggle for existence, men must have encountered pains and sickness. These sufferings lead men to experimentation through trial-and-error methods and discovery of healing properties of plants. On realizing the importance of those "Wonder Herbs" he began communicating about them and passed this knowledge to its successors (Sinha & Sinha, 2001).

People moved to synthetic drugs instead of using natural medicines. Synthetic drugs though showed quick cures but gave some side effects in long term. Although most synthetic drugs are derived from plants e.g. Morphine from *Papaver somniferum,* Digitoxin from *Digitalis purpurea* etc. and many more have been used by people for ages, but these are not as beneficial as herbal medicine. Realizing the long-lasting effects of herbal medicines in past few years (Prakash and Aggarwal, 2010). People have again started preferring herbal products (Pathania *et al*, 2021). So, it's a great time for all the botanists to catch the chance to supply and make aware the whole world with various plants and their products of herbal value. India is a biodiversity-rich country with about 45,000 plants species in its repositories. According to the Anthropological Survey of India (1994), medicinal plants are widely employed by all sections of the population, and it's been estimated that in total over 7500 species of plants are employed by several ethnic communities. About 54% of the country's land is under cultivation for food, ornamental and medicinal plant crops. Presently, medicinal plants play an important role in India's economy. NTFPs (Non-timber forest products) account for 70% of India's forest product exports and therefore the demand for their phytochemical constituents is predicted to increase in future.

Table 1: Medicinal plants: species diversity and representative species of different biogeographic zones of India

Biogeographic region	**Estimated no. of medicinal plants**	**Examples of some typical medicinal species**
Trans Himalayas	700	*Ephedra Guadiana, Hippophae rhamnoides, Arnebia euchroma*
Himalayan	2500	*Aconitum heterophyllum, Nardostachys grandiflora, Taxus wallichiana, Rhododendron anthopogon* and *Panax pseudoginseng*.
Desert	500	*Convolvulus microphyllus, Tecomella*
		undulata, Citrulus colocynthis.
Semi-Arid	1000	*Commiphora wightii, Caesalpinia bonduc, Balanites aegyptiaca, and Tribulus rajasthanensis.*
Western Ghats	2000	*Myristica malabarica, Garcinia indica, Utleria salicifolia and Vateria indica.*
Deccan Peninsula	3000	*Pterocarpus santalinus, Decalepis hamiltonii, Terminalia pallida and Shorea tumbuggaia.*
Gangetic Plain	1000	*Holarrhenaq pubescens, Mallotus philippensis, Pluchea lanceolata and Peganum harmala.*
North-East India	2000	*Aquilaria malaccensis, Smilax glabra, Ambroma augusts and Hydnocarpus hurzii.*
Islands	1000	*Claophyllum inophyllum, Adnanthera pavonina, Barringtonia asiatica, and Aisandra butyracea.*
Coasts	500	*Rhizophora mucronata, Acanthus ilicifolius, Avicennia marina and Sonneratia caseolaris .*

Solan District of Himachal Pradesh is located at 30.90°N, 77.09°E lie the South-Western ranges of the Himalayas, average elevation of 1502 m; have an immense number of medicinal plants and other useful plants (Gupta 1971; Dobriyal *et al*,1977; Pant *et al* 2007). Most of these plants find their use in traditional medicine, folk uses and also in modern industry. Solan has a rich repository of medicinal plants. Some of the important plants recorded were *Aloe barbadensis, Centella asiatica, Dioscorea deltoidea, Tinospora cordifolia, Viola serpens, Asparagus officinalis, Berberis aristata, Zingiber offinale, Datura stramonium* etc., (Dhaliwal and Sharma,1999). The present study was carried out by keeping the following objectives in mind to collect and identify various medicinal plants species of the area, to provide a brief description about the plants and their uses and to prepare herbarium of the collected medicinal plants.

METHODOLOGY

Study Area

The present study was conducted to document or explore the medicinal herbs and shrubs in the Solan town of Himachal Pradesh. Periodic field surveys were organized from February to March 2018 in different localities of Solan town i.e. Chambaghat, Khanog, Jaunaji, Mohan Park, Jawahar Park, Forest area of Solan etc. The information regarding the utility, partly used and other uses of the various medicinal herbs and shrubs were collected through the field survey in different localities. To collect the primary data following approaches have been followed:

a) Discussion method

Discussions were held with different people of the localities. All aspects of the medicinal herbs and shrubs that are used for medicinal purposes were discussed. Data were collected by questionnaire, interviews and discussion.

b) Field survey method

Extensive field surveys were conducted for the collection of data. The knowledgeable person was engaged with us to locate the sites where these plants were present. During the investigation, the villagers and the people of different communities of the area were interviewed (Table 2). The information was collected about the particular season for collecting plants and plant parts used for medicinal purposes. Plant specimens were photographed, and a sample of some plants was collected from the field. Local names were obtained from the informant and the species were further identified by using secondary sources.

The secondary data was collected from libraries or research organizations, journals, magazines and the internet such as Wikipedia, eBooks, Flora Similensis (1902), A handbook of Et Mudgal (1999), Ethnomedicinal plants of Mandi district (Gaur and Singh,1995) etc.

Table 2: Profile of informants of District Solan of Himachal Pradesh

Sr.No.	Name	Sex	Age	Profession	District
1.	Padma Devi	Female	68	Housewife	Solan
2.	Sumit Sharma	Male	35	Farmer	Solan
3.	Chanderkant	Male	48	Farmer	Solan
4.	Rajesh Sharma	Male	52	Employee	Solan
5.	Kalpna Devi	Female	30	Housewife	Solan
6.	Meera Sharma	Female	50	Employee	Solan
7.	Narain Singh	Male	45	Employee	Solan
8.	Lachiram	Male	75	Farmer	Solan
9.	Mastram	Male	79	Farmer	Solan
10.	Dharmender Kumar	Male	47	Farmer	Solan

Results: The present study provides details of 12 plants species of 10 families which have various medicinal uses which are used by the communities of the studied area. The plant species of the present study are arranged alphabetically with their botanical name, local name, family and part used as shown in the table given below (Table 3).

Table 3: List of medicinal herbs and shrubs

Sr. No.	Botanical Names	Common Names	Family	Part Used
1.	*Acorus calamus* L.	Sweet Flag	Acoraceae	Roots and rhizomes
2.	*Adhatoda vasica* L.	Basuthi	Acanthaceae	Whole plant
3.	*Ajuga bracteosa* L.	Neelkanthi	Lamiaceae	Leaves, bark, stem and roots
4.	*Allium sativum* L.	Lahsun	Amaryllidaceae	Bulb, inflorescence
5.	*Asparagus officinalis* L.	Satavari	Liliaceae	Roots, shoots, rhizome and stem
6.	*Avena sativa* L.	Jawi	Poaceae	The whole plant, seeds and oat straw
7.	*Cissampelos pareira* L.	Patha	Menispemaceae	Root and leaves
8.	*Cannabis sativa* L.	Bhang	Cannabinaceae	Leaves, seeds, Resin (charas) and flower (ganja)
9.	*Calotropis Procera* W.T. Aiton	Aak	Asclepiadaceae	Leaves, latex, root and flowers.
10.	*Dicliptera sp. Roxb.*	Dicliptera	Acanthaceae	Flowers and whole Plant
11.	*Nicotiana tabacum L.*	Tambakhu	Solanaceae	Dried leaves
12.	*Ocimum sanctum L.*	Tulsi	Lamiaceae	leaves

Description: -

1. Acorus calamus

Family –Acoraceae Common name -sweet flag

Sweet flag is a herbaceous perennial, 30–100 cm tall. The leaves are erect yellowish-green, radical, with pink sheathing at their bases. The leaves have smooth edges, which can be wavy or crimped. The flowers are sweetly fragrant. **(Fig.1)** Uses: It helps to improve digestion. It is very beneficial in schizophrenia, neuralgia and paralysis.

2. Adathoda vasica

Family – Acanthaceae Common name – Basunthi

Basunthi is an evergreen perennial shrub with lens-shaped leaves 10 to 15 cm, which are somewhat leathery. The bark is yellowish. Flowers are usually white and are dense and large. Fruits are pubescent and are with a club-shaped capsule. **(Fig.2)** Uses: It is mainly used to relieve respiratory disorders and cough.

3. Ajuga bracteosa

Family- Lamiaceae Common name - Neelkanthi

A perennial pubescent herb grows in sandy and clay soil. It is a small prostrate, pubescent herb up to 3-4 in. tall. Stem short, reduced herbaceous, hairy. Leaves are simple, dark green above and reddish-green under surface. Flowers are small, pale white corolla with pinkish streaks, in clusters. **(Fig.3)** Uses: It is used to cure blood diseases, mouth sores, earache, eye diseases, pimples, skin lesions, throat pain, and body inflammations.

4. Allium sativum

Family - Liliaceae Common name – Lahsun

Lahsun is a bulbous plant. It grows up to 1.2 m (4 ft) in height. It is easy to grow and can be grown year-round in mild climates. These are usually hardy and not affected by many pests or diseases. (Fig.4) Uses: Garlic has been used for hardening of the arteries (atherosclerosis) and high blood pressure(hypertension). Garlic has also been used to prevent tick bites.

5. *Asparagus officinalis*

Family – Liliaceae Common name – Satavari

Asparagus is an erect, unarmed, branched herbaceous perennial herb, growing up to 1 meter in height. Leaves (scales) are very minute. Flowers are straw-yellow or greenish-yellow. Fruits are globose, fleshy red when ripe. **(Fig.5)** Uses: It is used to treat urinary tract infections and other conditions of the urinary bladder which causes pain and swelling. Other uses include treatment of joint pain (rheumatism), hormone imbalance in women, dryness in lungs and throat, constipation, nerve pain (neuritis), AIDS and diseases caused by parasites.

6. *Avena sativa*

Family - Poaceae Common name – Jawi

The oat straw plant is an annual grass. It stands erect

with a flat, rough, but elongated leaf. It has a golden seed shaped much like a spindle. It is in flower during June and July. **(Fig.6)** Uses: *Avena sativa* is most suited for the nervous system. It acts as a nerve restorative. It eases the symptoms of insomnia and nervousness.

7. *Cissampelos pareira*

Family - Menispermaceae Common name - Patha

The plant of Cissampelos is a woody creeper having long leaves of about 30 cm and flowers that are bisexual white and yellow. The fruit is inedible berries that usually appear like grape ¾ in. long and bears a highly aromatic odour. **(Fig.7)** Uses: Pasha is a very effective antidote and wound healer. It is very effective in kushtha roga. It is also used in fever and burning sensations. It is used as a female contraceptive in rural areas but its long use can cause infertility.

8. *Cannabis sativa*

Family - Cannabinaceae Common name - Bhang

The plant is an annual, the erect stems growing from 3 to 10 ft. or more high, very slightly branched, have greyish-green hairs. The leave has five to seven leaflets. The fruit is small, smooth, light brownish-grey in colour, and filled by the seed. **(Fig.8)** Uses: It is useful in easing pain and inducing sleep, and for a soothing influence in nervous disorders. It is used as a remedy for malaria, blackwater fever and blood poisoning.

9. *Calotropis Procera*

Family- Asclepiadaceae Common name - Aak

Calotropis is a spreading shrub or medium-sized tree reaching 2.5 to 6 m in height. The grey-green leaves are 15-30 cm long and have a succulent and waxy appearance. The flowers are cream or greenish-white at the base and purple violet at the extremity of the lobes. The fruit is fleshy and inflated. **(Fig.9)** Uses: It is used for the fast healing of wounds. Its milk is used as a purgative and emetic agent both. This plant is very useful for liver disorders and digestive troubles such as constipation, indigestion and intestinal worms.

10. *Dicliptera sp.*

Family- Acanthaceae Common name - Dicliptera

It is a herb and is 30-80 cm tall, annual or biennial. Stems are ridged, basally diffuse, erect above, hairless except for pubescence on young branches and nodes. Leaf-stalks are up to 0.5-3 cm long, hairy. Leaves are ovate-elliptic**. (Fig.10)** Uses: its leaves are used in the treatment of cough, gastroenteritis, fever, skin disease and checks bleeding from wounds. The freshly crushed leaves are used in eczema.

11. *Nicotiana tabacum*

Family – Solanaceae Common name - Tambakhu

Tambakhu is an annually grown herbaceous plant. It is a robust annual little branched herb up to 2.5 m high with large green leaves and long trumpet-shaped white-pinkish flowers. **(Fig.11)** Uses: It is taken orally to induce vomiting and narcosis to treat dysmenorrhoea. It is used as a poultice over boils and infected wounds. Leaves are placed in the vagina to stimulate labour.

12. *Ocimum sanctum*

Family– Lamiaceae Common name – Tulsi

Tulsi is an erect, many-branched subshrub, 30–60 cm (12–24 in) tall with hairy stems. Leaves are green or purple; up to 5 cm long. The purplish flowers are placed in close whorls. Fruits are very small, and seeds are reddish yellow**. (Fig.12)** Uses: Tulsi has, anti-stress, anti-microbial properties. Headache can also be cured by tulsi. It also soothes the eyes, reduces inflammation, boils etc.

Fig 1 *Acorus calamus*

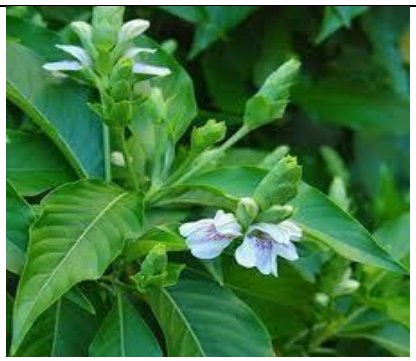

Fig 2 *Adhatoda vasica*

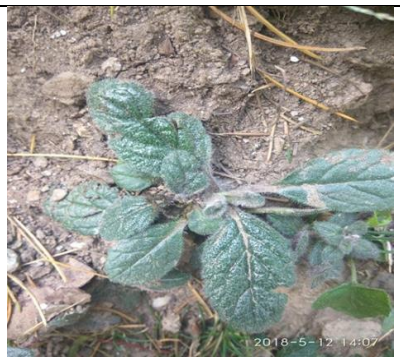

Fig 3 *Ajuga bracteosa*

Fig 4 *Allium sativum*

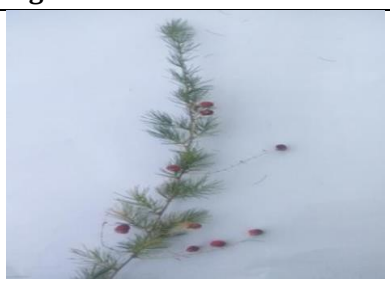

Fig 5 *Asparagus officinalis*

Fig 6 *Avena sativa*

Fig 7 *Cissampelos pareira*

Fig 8 *Cannabis sativa*

Fig 9 *Calotropis procera*

Fig 10 *Dicliptera sp.*

Fig 11 *Nicotiana tabacum*

Fig 12 *Ocimum sanctum*

DISCUSSION

Having discussed the large area of importance the plants have; we realize the immense potential plants hold. Plants have been an inseparable part of human lives since time immemorial. No matter how advance we get, the medicinal importance of plants can never be overlooked. The world's best chemist is probably mother nature, medicinal compounds are not limited to a certain family of plants. They have provided mankind with a large variety of medicines to alleviate the suffering caused by various diseases and numerous ailments. Despite the great advancement in biotechnology, the traditional drugs of plant origin have retained their importance. The medicinal plants can

be herbs, shrubs, blubs, tubers, rhizomes, trees etc. out of which the main contributors remain to be herbs and shrubs. Shrubs are one of the most versatile elements in the landscape, they lack a central stem or main branch, unlike trees. They make up the ground cover in forests, are mostly shade bearers and form essential components of our ecosystem. About 25% of drugs are obtained from the plant product directly. In this paper, we could cover only the tip of the iceberg, we discussed 12 plants genera in this paper and got to know their great importance in our day to day lives, which we may overlook. In this survey, an attempt has been made to explore some of the useful information on medicinal plants growing in wild and their medicaments in local household remedies by villagers. The present study also involves recording new or lesser-known medicinal uses of plants by the local people. Nevertheless, with each discovery human makes, mother nature would continue to surprise us in the decades that follow. Therefore, it not only becomes a part of our moral values but also our duty to protect our mother nature at any cost. The formulation used by various vaidyas, herbal healers etc. were based totally on the local flora present in their vicinity but due to many circumstances, few of the records survive today of these medicinal plants were based. At present, about 95% of all medicinal plants used by the traditional medicines industry is obtained by collection from the wild. There has been depletion of medicinal plant resources that is taking place at an alarming rate at various steps are afoot to ensure that our plant resources are utilised properly. Some medicinal plants growing in wild are becoming extinct on account of destructive collection technology, particularly when the whole plant is uprooted. Sources in the industry mention large scale use of adulterants and other substitutes which reduce the potency and efficiency of the formulation. Himachal Pradesh has a fabulous wealth of medicinal and aromatic plants, although people of the villages of the lower hills of Himachal Pradesh know little about modern medicinal practices, they are utilising medicinal wealth to the fullest and some general medicines are popular in the form of households remedies. As modern-day society is also shifting rapidly towards a natural alternative to synthetic drugs, our demands for the medicinally important plants are increasing with each breath we take. Our awareness about herbal therapies is also increasing rapidly, thus sustainable use of these plants becomes important than ever. Sustainable use of these plant resources in-situ and ex-situ becomes imperative. Thus, the advantages of medicinal plants are enormous, and this fact is something that has to be treasured not only for today but for future generations as well.

CONCLUSION

The study of medicinal herbs and shrubs of Solan town of Himachal Pradesh makes us understand how various plants are important. The present study reveals that 12 medicinal sp. (shrubs and herbs) were used by the local people of Solan town. A total of 12 genera, 10 families were identified. Various plant parts were used of various species of plants. This is followed by fruits (1 species), stem (4 species), roots/rhizome (6 species), flowers/inflorescence (4 species), bark (1 species), leaves (6 species), bulb (1 species), seeds (2 species); whole plant (3) were used in medicinal preparation in case of 12 genera (Table 3).

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Source of Support: Nil
Conflict of Interest: None Declared

How to cite this URL: Pathania Singh Mamta et al: Preliminary Study On Some Medicinal Herbs And Shrubs Of District Solan (Hp). International Ayurvedic Medical Journal {online} 2021 {cited September 2021} Available from: http://www.iamj.in/posts/images/upload/3101_3108.pdf