



Some Less Known Medicinal Plants of Haryana

Akshay Kumar Chaudhary* and Yumnam Devashree

Department of Botany, Lovely Professional University, Jalandhar, India;
akshaykr.chaudhary@gmail.com

Abstract

Plants of medicinal importance have been the life saviours of the human race before the discovery of modern medicines. The use of plants as a source of medicine has been recorded from a 60000-year old grave. With the establishment of AYUSH, the Indian government is working to elevate herbal medicine to mainstream medicine. The Indian government is currently working hard to increase the use of plants as medicines. Plants are an easily available resource for natives and the poor for treating various diseases. Therefore, the aim of the present review is to understand the knowledge of medicinal plants as a future source of herbal drugs, to find various plants useful as medicinal plants in Haryana, and to create a catalogue of all medicinal plants present in Haryana as found by various researchers. About 700 plants were described in the *Charaka Samhita* and *Sushruta Samhita* during the 1st millennium BC. Haryana is a state in northern India, neighbouring Delhi. The study was conducted to enlist the various plants of medicinal importance in Haryana. Various studies have been conducted in Haryana to enlighten the various medicinal plants found in Haryana, but these studies only cover medicinal plants in 10 out of 22 districts of Haryana, which is less than one-fourth. There is huge potential for finding numerous local medicinal species in Haryana which may treat numerous underlying diseases. Various medicinal plants have been enlisted which are found by local communities as having immense benefits as medicines that are being used by local communities numerous times. This knowledge is found through continuous hit and trial by generations of communities and has got immense knowledge about various medicinal plants, but this knowledge is getting lost due to incomparability in cataloguing the knowledge present in these communities, such as the Saper community.

Keywords: AYUSH, Drugs, Health Care, Herbal, Medicinal Plants

1. Introduction

As far as human existence can be found, humans have used herbal plants in numerous ways all over time. Primitive humans started differentiating normal plants from herbal ones while looking for food. This association grew, and the man started using plants as medicine. Our nation is bestowed with numerous herbal plants in India being called the Medicinal Garden. According to the government of India, 6000-7000 plants are known to have herbal use in AYUSH³⁶. Secondary metabolites like polyphenols, terpenes, and alkaloids have been reported to possess anti-mutagenic and anti-cancer properties in many studies. The World Health Organisation³⁹ surveyed that about 80% of the World population, especially in the tribal and rural areas, is dependent upon herbal

traditional medicines for their healthcare needs. Earlier generations possessed enriched knowledge of herbal plants and verbally passed it to future generations. But in recent times, people have lost interest in this amazing system of medicine and have started using artificial ones; leading to a disastrous loss of amazing information³⁰. The oldest known treatment for man is herbal plants, which were used by all the ancient societies of India³⁸. Plant products and their byproducts are constituents of 50% of all medicines in the world. Ethnobotany is the complete study of plants and their medicinal uses. Plants are rich in phytochemical substituents which are of immense medicinal importance, and they can be a raw material for the development of new ayurvedic medicines. Medicinal plants were helpful in the development of human

*Author for correspondence

societies from ancient times. There has recently been a surge in interest in rediscovering and promoting various ancient herbal plants²⁶. Plant products are mostly free from risk and side effects⁶. Women take care of numerous household jobs, including taking care of all in the family. They are a dictionary of numerous traditional medicines made from plants. But the knowledge amongst women is not yet properly evaluated. Knowledge gained from women can be put to use in manufacturing numerous medicines⁸. Traditional knowledge is always helpful in guiding new curing methods. All modern cures can be traced back to traditional medicinal sources in one or another way¹. The efficiency of medicinal plants is yet to be tested scientifically, but throughout earlier times, these medicinal plants were proved to be efficient in treating various ailments¹⁹. Plant parts used for medicines are generally bark, leaves, roots, fruits, and seeds. As Haryana is an agricultural state, its dependence on domestic animals is critical, so a huge number of the village population are dependent on medicinal plants for the treatment of their cattle and various domestic animals. Despite the presence of numerous veterinary hospitals, farmers in Haryana should try to treat their animals with medicinal plants because it is inexpensive, effective, and has few or no side effects³³. The system of medicine dependent upon medicinal plants is disappearing with time due to less income in this field and there is little or no cataloguing of knowledge possessed by various rural and urban people²⁷. But in recent years, dependency on plants as medicines is again gaining interest among various people as it possesses many fewer side effects than allopathic medicines and is also within the reach of the poor²¹. A continuously increasing human population is a concern for meeting the daily needs of food and medicine, so there is an increasing erosion of forests and forest products. So, there is an ever-increasing challenge to adequate use of natural resources. Although there is an increase in species used as medicines, their purity and identification are not kept up to date³³. Although local people of Haryana possess enormous information about various cures offered by various medicinal plants, this knowledge is at the verge of disappearance as that knowledge is neither properly appreciated nor efficiently recorded. Special attention to medicinal plants should be accorded so as to enrich their role in increasing their influence in curing various diseases. By investigating deeply to find more medicinal plants in Haryana, we can enrich our knowledge of plants curing various diseases⁷.

The knowledge of medicinal plants is mainly limited to the rural population of Haryana, but the information is scattered into small bits found at some levels here and there. Proper evaluation of information and medicinal plants will lead to the appropriate quantifying of knowledge. In ancient times, people were dependent upon medicinal plants for both long-term and short-term treatments, but this trend is shifting towards allopathy in these times, which has immense side effects and is costly also. Traditional knowledge is very endangered as young people are neither interested in acquiring or transferring information to others. In India, plants are already an important part of our medicinal system⁸. Indians are a storehouse of information about the medicinal use of plants. Due to the rich biodiversity of India, a lot of plants are available here which are or can be used as medicinal plants. There has been an increasing trend in the last two centuries of using synthetic medicines to treat various illnesses. Documentation of medicinal plants in India can be dated back to ancient literature because plants have always been considered important for human survival¹⁸. Traditional knowledge of medicinal plants is the property of our ancestors who accumulated this knowledge through ages of experiments and observations, which has played a critical role in treatment for thousands of years. Figure 1 depicts various treatment types and their percentage of use.

Various plant-based treatments and their percentage of use



■ Western ■ Ayurveda ■ Unani ■ Siddha ■ Homeopathy

Figure 1. A graph showing the types of plant-based treatments and their use¹⁴.

2. Materials and Methods

The study site is the state of Haryana, which was formed on November 1st 1966, by the bifurcation of Punjab State. It is comprised of 22 districts. Ved Vyas wrote the

Mahabharata on this soil. It was here 5000 years ago that Shri Krishna recited Bhagwat gita to Arjun. Haryana is comprised of 1.37% of the area of India. The area of Haryana is 44212 sq. km. Haryana is situated in the northern part of central India, bordering the country's capital, Delhi. The soils of Haryana are deep and fertile. Haryana has two types of soil: alluvial and loamy soil, bordering Rajasthan on its western southern side. The temperature is hot in the summer and crosses 43°C in May and June. Precipitation amounts to 450mm from July to September. The Yamuna and Ghaggar rivers are present in Haryana. Haryana consists of the Aravali hills. Haryana is known as the land of milk; the major occupation of people is agriculture. Haryana consists of diverse cultures and traditions; the people of Haryana have successfully preserved their culture^{7,33}. Various research papers imparting knowledge about studies conducted in various districts of Haryana were collected and reviewed. All findings relating to various plants with respective diseases were enumerated. Plants of medicinal importance enlisted in various papers were noted and plants from all papers leaving any scope for duplicity were noted along with preparation techniques for curing various diseases. A total of 110 plants species were found. Each species is having some medicinal use. Various diseases being cured by plants are enlisted along with plants curing it. Several plants have been used alone or sometimes two or more plants are used in preparations of medicines. Various medicinal plants along with their scientific names and preparations as medical purpose are in form of a table. Strong importance is given to cataloguing medicinal knowledge of various elderly people of various religious communities before it is lost with time.

2.1 Studies Conducted in Various Districts of Haryana

2.1.1 Ambala

Ethnobotanical studies conducted in Ambala during 2011 and 2012 revealed 70 species of medicinal use. There is a high use of medicinal plants by locals in treating various medicinal diseases. The local people depend upon medicinal plants for treating numerous diseases. These plants are important in the treatment of various diseases such as rheumatoid arthritis, piles, indigestion, skin diseases etc²².

2.1.2 Bhiwani

Local people have concrete knowledge about plants treating human and livestock diseases. They have been treating common illnesses such as diarrhea, fever, dengue, etc., using medicinal plants for a long time. But due to illegal poaching and deforestation, these species are losing their livelihoods from the area. Immediate steps are required for preserving species, such as planting them in home gardens or as city vegetation, as urban vegetation plays a critical role these days. Local knowledge of various species should be evaluated, and various treatment types should be looked into. As a large number of areas are losing their plant diversity, and with it, numerous medicinal plants are losing their presence from the area, as confirmed by the elders of Bhiwani. Governments and non-governmental organisations should work towards preserving these species, or they may lead to extinction from local areas. Currently, species in the wild are exploited, and these species must be planted in home gardens and local municipal forests. Priority for conservation should be given to medicinal plants having multiple medicinal benefits. In the study conducted in Bhiwani, 30 species of medicinal use were found. Those species were noted along with their mentioned medicinal treatment. The author stressed that indigenous people have information about plants for medicinal purposes, but the plants due to deforestation and many other eradication processes are becoming very sporadic. Immediate assistance is required or there are chances that they will be eradicated from local areas. People must be educated and motivated to grow those in their home gardens, which is an immediate requirement for the preservation of species, and also immediate steps for preserving the knowledge of the area should be taken. This way, medical knowledge of various species of an area can be used by people of other areas also and they can get a cure without the help of allopathic medicine^{11,33}.

2.1.3 Jhajjar

From the study conducted in Jhajjar, around 61 indigenous species with medicinal purposes were found. Those species were properly mentioned with the treatment offered by them along with the botanical names of various species. The author has concluded that native people have considerable knowledge of medicinal plants found in the area which is not properly catalogued in any way. This knowledge,

without being quantified, will be lost through passing generations. It is an urgent task to note down the various procedures of treatment offered by locals and make use of data in conducting various treatments for many ailments, as some of these treatments are very promising, as mentioned by elderly locals. These species once flourished in the area, but due to illegal trading and over-exploitation, which has resulted in the extinction of numerous species, most medicinal plants have become rare, and they will become extinct in the near future if these circumstances do not change. So, preservation of these species is an immediate and important task which can be easily achieved by creating awareness in the local community so that they may play a crucial role in the conservation of medicinal species by planting them in various possible spaces. By imparting special attention to medicinal species and educating locals about the various benefits of various medicinal plants, we can amplify the active role of various medicinal plants in treating various diseases^{7,12}.

2.1.4 Karnal

Karnal is rich in medicinal plants, where 71 medicinal species were found. There is immense knowledge about medicinal species among the locals of Karnal, but that knowledge is still unexploited as there are no proper records of how to make use of those species other than some research papers. There must be an immediate effort made to make a list of various benefits and properly note down the important knowledge local elders possess. In this time of increasing development and deforestation, which is a curse to native species, most of the species are on the verge of extinction in the area and without proper steps taken will be lost, so proper knowledge among local people must be imparted and adequate land use must be enforced, which will save the species from further degradation and extinction. Due to human activities such as industrialization, species of medicinal use are getting extinct at a threatening pace. There is an important need to create programmes to check grazing and promote sustained growth of medicinal plants in Karnal. With a check on human activities such as cutting of forests and urbanization, local governing authorities should create programmes to educate locals about the use and benefits of various medicinal species²².

2.1.5 Yamunanagar

In studies conducted, it was found that 46 species of flowering plants were useful as medicinal plants, which native people used in treating various ailments.

Locals tend to use medicinal plants for treating common disorders, which are more prevalent in rural areas. Native people tend to be protective about the sacred groves as they are a major part of their day-to-day activities. These people possess important treatment methods for various ailments which they take as sacrosanct and choose not to share. That knowledge is very critical and unevaluated, and it may be used in treating various disorders. People protecting sacred groves must be politely asked to share their knowledge for a bigger cause. That knowledge can be helpful in finding numerous species with benefits. Numerous rural people use plants found in these sacred groves as medicine. They have been doing it for a long time as these sources are easily available and possess easy access for the poor also. Stress has been given to various challenges faced by medicinal plants such as cultivation, strengthening, demand, policy, and support³³. Yamunanagar's medicinal plants have received little attention, with 46 species of medicinal value discovered to treat a variety of diseases such as male and female heart disease, among others. There is major potential in them for treating various other diseases also, which is yet to be evaluated. Citations of various medicinal plants found in Yamunanagar can help in finding raw materials for discovering various medicines, which will be useful in getting medicines with fewer side effects and at a price that is within the reach of the poor. Authorities must devise a variety of strategies for utilising existing knowledge and applying it to the development of new and improved treatment options²⁰.

2.1.6 Mewat

Mewat is the Meo district of Haryana, 48 species of plants were used by the local population as medicines, which were properly mentioned with botanical names and their potential use as medicines. Various plants used in the making of various medicines were also evaluated. Many local medicines were prepared with the use of these plants as used by the locals. Local Hakims, or doctors of local Meo areas, use medicinal plants to cure various disorders. This knowledge is very useful and must be evaluated by making use of it in producing various treatment options. As the number of Hakims declines, knowledge will be lost in the future, which will be a great loss for medical science. Proper evaluation and cataloguing of various treatments provided by numerous plants is critical. In treating various ailments, sometimes only a single plant or sometimes a mixture of two or more plants is

used. The treatment option is chosen for curing various ailments as per the disease being curable. Generally, local communities do not disclose their expertise easily due to religious superstitions, and for this reason, the knowledge may vanish before passing to mainstream medicinal knowledge. So, we must ask them to share their knowledge so that we can make use of it and do a common good by making more treatment options easily accessible to all. The information then must be scientifically evaluated for proper exploration of various species and make use of them in manufacturing various medicines, which is very important as allopathic treatment options are costly and are generally not within the reach of the poor²⁸.

2.1.7 Khetawas, Jhajjar

In Khetawas village of District Jhajjar, plants were traditionally used by various communities from ancient times to treat numerous ailments, which were very important for those communities and always considered sacred. A study into the Sapera community of Khetwas village found 57 plants used by this community as medicines. The Sapera community depends on only these plants for treating various ailments they face in day-to-day life and easily survives with the use of these plant species only. Out of 57 species found in the Khetawas area, 17 of them are used for treating snakebites, which is cheap and readily accessible as compared to allopathic treatment options, which are neither cheap nor in direct reach of the poor. This community hosts enormous knowledge of various medicinal plants, which has disappeared during recent time as it is neither properly evaluated and nor recorded. As in modern times, various communities are disappearing at an alarming pace, which will also be a cause of the disappearance of the knowledge possessed by the Sapera community. This knowledge must be explored before it disappears and properly recorded with all evaluated treatment options. The treatment possessed by the Sapera community for treating snake bites must be made use of and must be made available to all those who face snake bites every now and then. Local authorities should come forward in making use of these treatment options worthwhilely and within the reach of everyone¹¹.

2.1.8 Kurukshetra

There has been no recent study into medicinal plants of Kurukshetra. Earlier studies done by Lal and Yadav in 1983 are the only source of information about medicinal plants of Kurukshetra. 69 species were found in 1983,

which cured various ailments. It was discovered that 95% of people relied on various medicinal species. Recent studies should be done into evaluating the medicinal plants of Kurukshetra. Such a study will reveal numerous scientifically proven drug-providing plants in the area. Folk medicine in Haryana is practised by people over the age of 50 due to their long experience in healing diseases such as jaundice, diabetes, asthma, baldness, etc. Young people of the area see medicinal plants' treatment as ineffective because there is no way of imparting their knowledge to younger generations. The government must take steps to keep knowledge flowing; otherwise, it will be lost to future generations. Medicinal plants of Kurukshetra must be evaluated, which will guide us about making use of various medicinal plants of Kurukshetra and the various treatments they offer. Local researchers must come forward to evaluate and enlist various medicinal species of Kurukshetra and guide the younger generations about the use of various medicinal plants and how to treat various ailments with present day plants, which are readily accessible to the poor also¹¹.

2.1.9 Mahendergarh

In the research conducted in Mahendergarh, 56 medicinal plants were recorded treating 60 ailments, but density of each species is very low. As confirmed by village elders, all the medicinal plants in the area are getting very rare. If the present deforestation continues, soon there will be local extinctions of various medicinal plants. Due to habitat change, a lot of species are disappearing from the area. Awareness must be created to preserve species that are scarce in the area. By diverting attention to medicinal species present in the area, we can create awareness to allow those species in healthcare facilities. Local people possess knowledge about plants which possess properties to cure animal and livestock ailments, this precious knowledge is neither evaluated nor appreciated, this knowledge can be very valuable in additional treatment options. Knowledge possessed by the elderly is achieved by the heat and trial of numerous decades. Though the knowledge is held by the older generation, it will be lost in the future if not preserved. There must be proper documentation of various ways of preserving knowledge about producing medicines from plants to save the science from getting lost. Awareness must be created at a level so that the community can take an active role in the conservation of species, as people at their personal level have a higher capability of saving plants. Though

in situ and ex situ conservation is possible, currently they are harvested from uninhabited areas only. Local authorities should create awareness about the benefits of these medicinal plants and how they can be preserved by planting them in various home gardens, farms etc⁴².

2.1.10 Hisar

A study conducted in the Hansi region of Hisar district in 2015-16 revealed 51 species of medicinal importance in the area. These are used in the treatment of various diseases such as rheumatoid arthritis, cough, piles etc²⁰.

2.2 Medicinal Plants Enumerated

- **Aak**

Scientific name: *Calotropis procera* (Aiton)

Family: Apocynaceae

- Latex of the plant is used for treating skin ailments; various preparations from latex help in curing skin problems³³. **Aam**

Scientific name: *Magnifera indica*

Family: Anacardiaceae

A preparation made from aam is used for treating skin diseases⁴⁰.

- **Aksin**

Scientific name: *Withania somnifera*

Family: Solanaceae

Preparations from aksin are used to treat coughs; which is an effective treatment⁷.

- **Amla**

Scientific name: *Embilica officinalis*

Family: Phyllanthaceae

Dried fruit powder is drunk with milk to improve immunity and treat ailments such as asthma, coughs, etc. Amla is also helpful in treating eye sight disorders and for hair treatment³³.

- **Amaltas**

Scientific name: *Cassia fistula*

Family: Fabaceae

Essence extracted from the bark of amaltas is used for treating leucodema and skin ailments³³.

- **Amrud**

Scientific name: *Psidium gujava*

Family: Myrtaceae

An essence extracted from leaves of amrud is used in treating bleeding gums, which is an effective treatment⁷.

- **Amarbael**

Scientific name: *Cuscuta reflexa*

Family: Convolvulaceae

Parts from the whole plant can be used to treat rheumatoid arthritis, joint pain, weakness of the body, digestion problems etc⁷.

- **Anar**

Scientific name: *Punica granatum*

Family: Lythraceae

The rind of fruit is used in treating diabetes while plant is used for treating female sex disorders⁷.

- **Antamul**

Scientific name: *Tylophora indica*

Family: Apocynaceae

Preparations from plants of antamul are used to treat female sex disorders⁷.

- **Arra kanta**

Scientific name: *Asparagus racemosus*

Family: Asparagaceae

Preparations from arra kanta are used in treating fever³³.

- **Arand**

Scientific name: *Ricinus communis*

Family: Euphorbiaceae

Oil extracted from the seeds of arand is used in treating skin disorders³³.

- **Ashwagandha**

Scientific name: *Withania somnifera*

Family: Solanaceae

Extraction from the leaves of ashwagandha is applied to joints to get relief from swelling. Paste made from roots is used in treating rheumatoid arthritis and other inflammatory disorders. It is also used in treating skin problems like scabies. The roots of ashwagandha are used in treating fever and cough⁷.

- **Babchi**

Scientific name: *Psoralea corylifolia*

Family: Fabaceae

Paste made from the whole plant can be used to treat leprosy and leukoderma⁷.

- **Bakain**
Scientific name: *Melia azadirachta*
Family: Meliaceae
Extraction from leaves and extraction from fruits are taken as blood purifiers and for curing acne. Tree gum is used for enlarged spleens⁷.
- **Bathua**
Scientific name: *Chenopodium album*
Family: Amaranthaceae
Various parts of the bathua tree are used in the treatment of piles and dysentery⁷.
- **Babool**
Scientific name: *Acacia arabica (Lamk.) Willd.*
Family: Fabaceae
Juice made up of leaves is used to treat leukoderma³³.
- **Badd**
Scientific name: *Ficus benghalensis*
Family: Moraceae
Different parts of the badd tree are used to treat diabetes, wounds and sterility³³.
- **Bael Patra**
Scientific name: *Aegle marmelos*
Family: Rutaceae
Juice from leaves is used for the treatment of dysentery, and gastric problems. Fruit juice is used in treating diarrhea⁷.
- **Beri**
Scientific name: *Zizyphus jujuba Lam.*
Family: Rhamnaceae
A paste made up of leaves is used to treat ringworm³³.
- **Behaya**
Scientific name: *Ipomoea carnea Jacq.*
Family: Convolvulaceae
Paste made up of leaves is used to treat ringworm, itchy skin, and many more skin problems³³.
- **Bhui amala**
Scientific name: *Phyllanthus amarus*
Family: Phyllanthaceae
The juice made from the leaves of bhui amla is used to treat pimples³³.
- **Bhang**
Scientific name: *Cannabis sativa*
Family: Cannabaceae
Dried flower tops of female flowers are used as sedatives and as narcotics for treating mental disorders. There is also the presence of essential oil. Drugs such as bhang and charas are made from various plant parts⁷.
- **Bhangra**
Scientific name: *Eclipta alba*
Family: Asteraceae
Juice made from this plant is used in treating skin problems, falling hair and infections of the urinary tract. A powder made up of leaves is used in a mix with coconut oil for black hair. It is also useful in delivery pain and is helpful in the prevention of miscarriage⁷.
- **Biliki roti**
Scientific name: *Oxalis corniculata L*
Family: Oxalidaceae
The plant is used for the treatment of diarrhoea and dysentery, and for scorpion stings and sprains. Extract from leaves is used in the treatment of fever³³.
- **Brahmi**
Scientific name: *Centella asiatica L.*
Family: Apiaceae
Plant extract is used in the treatment of leprosy³³.
- **Chanderjote**
Scientific name: *Jatropha curcas L*
Family: Euphorbiaceae
Latex from plants and oil from seeds are used in the treatment of boils and pimples⁴⁰.
- **Chui mui**
Scientific name: *Mimosa pudica*
Family: Fabaceae
Plant of chui-mui is used in the treatment of diabetes³³.
- **Channa**
Scientific name: *Cicer arietinum Linn.*
Family: Fabaceae
Paste made from seeds is used in the treatment of leprosy⁴⁰.
- **Choulaii**
Scientific name: *Amaranthus spinosus L.*

Family: Amaranthaceae

Juice made from roots is used for the treatment of itching⁴⁰.

- **Chootitaan**

Scientific name: *Cissampelos Pareira*

Family: Menispermaceae

Roots are used for abortion and also for the treatment of anaemia and hemorrhage, menstrual disorders, unbalanced hormones, and snakebites¹⁸.

- **Dhatura**

Scientific name: *Datura metel*

Family: Solanaceae

The plant is used in the treatment of cough, in male sterility, and for respiratory disorders. Fruit after boiling in oil is used as a pain reliever⁷.

- **Dhak**

Scientific name: *Butea monosperma*

Family: Fabaceae

Paste made up of leaves is used to relive rheumatoid arthritis pain. Leaves are also used for making fodder for animals. A dye is made from flowers for dyeing clothes known as 'kesu'⁷.

- **Dhania**

Scientific name: *Coriandrum sativum*

Family: Apiaceae

Various plant parts are used in treating gastric problems⁷.

- **Doob grass**

Scientific name: *Cynodon dactylon*

Family: Poaceae

The whole plant is used in the treatment of dysentery, skin diseases, and is also used in purifying blood⁷.

- **Dudhi**

Scientific name: *Euphorbia hirta*

Family: Euphorbiaceae

Plant latex is used in the treatment of skin diseases, and juice made from leaves is used in the treatment of fever, fungal infections and syphilis²².

- **Gajar ghas**

Scientific name: *Parthenium Hysterophorus*

Family: Asteraceae

Juice from roots is used in the treatment of dysentery⁷.

- **Gadumba**

Scientific name: *Citrullus colocynthis*

Family: Curcubitaceae

Preparation from plants is used for the treatment of snakebite⁷.

- **Ghumchi**

Scientific name: *Abrus precatorius*

Family: Fabaceae

Paste made from seeds is used for the treatment of various diseases.

- **Gaurka patta**

Scientific name: *Aloe vera(L.)Burm.*

Family: Asphodelaceae

The Gaurka patta plant is used in the treatment of various stomach disorders and piles also⁷.

- **Giloy**

Scientific name: *Tinospora cordifolia*

Family: Menispermaceae

The plant is used in the treatment of jaundice and fever⁷.

- **Gular**

Scientific name: *Ficus racemose*

Family: Moraceae

The bark powder is used to treat small pox, diabetes, and leucorrhoea, and the fruits of gular are used to maintain hormone balance³³.

- **Haldi**

Scientific name: *Curcuma longa*

Family: Zingiberaceae

Haldi is a very useful plant. It is known for its antibiotic properties. It is helpful in treating eye disorders, promoting early wound healing, and treating skin diseases³³.

- **Hansraj**

Scientific name: *Adiantum capillus-veneris Frond*

Family: Pteridaceae

Parts of the hansraj plant are used to treat skin allergies³³.

- **Imli**

Scientific name: *Tamarindus indica L*

Family: Fabaceae

Powdered bark and leaves are used to treat various disorders³³.

- **Jaldhaniya**
Scientific name: *Ranunculus sceleratus*
Family: Ranunculaceae
Juice made from various plant parts is used to treat rheumatoid arthritis, pneumonia and asthma. Seeds of plant parts are used as tonics for stomach acid, and they are also useful for kidney problems²².
- **Jalajamani**
Scientific name: *Cocculus Hirsutus*
Family: Menispermaceae
Juice made from jalajamani is used in the treatment of irritation of skin, muscular pain and body pain²².
- **Jamun**
Scientific name: *Eugenia jambolana Lam*
Family: Myrtaceae
Curd and powder made from seeds of jamun are used in the treatment of diabetes and their fruits are used for digestion problems. Extraction from bark is used in the treatment of diarrhea and pain in the stomach and also in the treatment of vitiligo⁷.
- **Jangli dhania**
Scientific name: *Fumaria indica*
Family- Papaveraceae
Whole plant is used in treatment of various diseases³³.
- **Jangli gobhi**
Scientific name: *Launaea nudicaulis*
Family: Asteraceae
Jangli gobhi is used in the treatment of constipation⁷.
- **Jangli pudina**
Scientific name: *Ageratum conyzoides*
Family: Asteraceae
Leave decoction is effective in the treatment of snake bite and used as an anti-dote. It is also used in the treatment of hair fall. Leave extract and blood infusion of decoction are used in the treatment of rheumatoid arthritis and in fever⁷.
- **Jangli palak**
Scientific name: *Rumex Dentatus L. franuncuku*
Family: Polygonaceae
The decoction of leaves is helpful in treating ulcers of the mouth, bites of insects, helps in healing of wounds and is also helpful in post-delivery regaining. The plant is also used as food for animals³³.
- **Kachnaar**
Scientific name: *Bauhinia variegata Eight and Arn*
Family: Fabaceae
The juice of the leaves is used to treat skin infections³³.
- **Kanghi**
Scientific name: *Abutilon indicum*
Family: Malvaceae
Leaf decoction is used in curing stones in the kidney and plant roots are useful in treating tooth issues²².
- **Kateli**
Scientific name: *Argemone mexicana*
Family: Papaveraceae
Various parts of the plant are used in the treatment of female sex problems, in the treatment of skin problems, and eye problems⁷.
- **Kateli Chaulai**
Scientific name: *Amaranthus spino*
Family: Amaranthaceae
The plant of Kateli Chaulai is used in the treatment of various disorders such as leucorrhoea, constipation, fever and diarrhea³³.
- **Kaanu**
Scientific name: *Capsella bursa-pastoris*
Family: Brassicaceae
All plant parts can be used for treating ear infections, diarrhea and asthma. It is also used for treating menstrual disorders, leucorrhoea, for treating ear disorders and for treating hormonal balance³³.
- **Kasaundhi**
Scientific name: *Cassia occidentalis Linn*
Family: Solanales
Paste made from leaves of plants is used in treating ringworms and skin blisters⁷.
- **Kala Dhatura**
Scientific name: *Datura stramonium*
Family: Solanaceae
Leaf juice is used for treating acidity; it is also used for increasing sperm count. It is also used to treat fistula and neurological disorders⁷.
- **Kher**
Scientific name: *Acacia catechu*
The plant of Kher is used in the treatment of mouth ulcers⁷.

- **Kali sarson**
Scientific name: *Brassica campestris*
The plant of Kali sarson is used in the treatment of allergies and also used in the treatment of stomach disorders⁷.
 - **Kela**
Scientific name: *Musa pardisica*
The root of the plant of Kela is used in the treatment of skin diseases³³.
 - **Khareti**
Scientific name: *Sida acuta*
The plant of Khareti is used in the treatment of skin itching³³.
 - **Khattibuti**
Scientific name: *Oxalis majus*
The plant of Khattibuti is used in treating fever and also in treating stomach disorders⁷.
 - **Khajur**
Scientific name: *Phoenix sylvestris*
Fruit boiled in milk is used in the treatment of menstrual disorders, asthma, for treatment of constipation, cough, chest and cardiovascular problems⁷.
 - **Khubkalan**
Scientific name: *Sisymbrium irio*
Family: Brassicaceae
Juice made from the whole plant is used in treating skin disorders, for treatment of dandruff and for fungal infections³³.
 - **Kalabansa**
Scientific name: *Barleria cristata*
Family: Acanthaceae
The plant of Kalabansa is useful in the treatment of cough⁷.
 - **Lasun**
Scientific name: *Allium sativum*
Family: Amaryllidaceae
Paste made up from lasun is used in the treatment of ringworm³³.
 - **Lapetua**
Scientific name: *Urena lobate*
Family: Malvaceae
- The juice made from the leaves is used to treat heartburn and cardiovascular diseases, and the powder made from the roots is useful in removing kidney stones and as a diuretic⁷.
- **Lesua**
Scientific name: *Cordia dichotoma*
Family: Boraginaceae
The plant of Lesua is used in the treatment of skin ulcers⁷.
 - **Laxman**
Scientific name: *Solanum ferox*
Family: Solanaceae
The plant of Laxman is used in treating female sex disorders⁷.
 - **Menthi**
Scientific name: *Trigonella foenum*
Family: Fabaceae
The plant of Menthi is useful in the treatment of diabetes and rheumatoid arthritis⁷.
 - **MothScientific name: Cyperus rotundus**
Family: *Cyperaceae*
Roots of this plant are helpful in the treatment of food poisoning, ingestion, nausea, bronchitis and female disorders such as menstrual disorders and in the treatment of insect bites⁷.
 - **Marua**
Scientific name: *Ocimum basilicum*
Family: Lamiaceae
Plants of Marua are helpful in the treatment of fever⁷.
 - **Mahendi**
Scientific name: *Lawsonia inermis*
Family: Lythraceae
Paste made up of leaves is used as hair dye and is used in head cooling. It is also used to treat leprosy and sprain⁷.
 - **Mahua**
Scientific name: *Madhuca longifolia* (J. Koenig ex L.) J.F.Macbr
Family: Sapotaceae
Seed oil is used in massage over rheumatoid arthritis joints, and seed oil is also used by the local milkman to remove milk foam⁷.

- **Makoi**
Scientific name: *Solanum nigrum*
Family: Solanaceae
The plant of Makoi is used in the treatment of skin diseases, liver problems and leprosy⁷.
- **Muli**
Scientific name: *Raphanus sativa*
Family: Brassicaceae
The plant of Muli is useful in the treatment of piles⁷.
- **Jangali karela**
Scientific name: *Momordica balsamia*
Family: Cucurbitaceae
The plant of Jangali karela is helpful in the treatment of piles⁷.
- **Banj karela**
Scientific name: *Momordica dioica*
Family: Cucurbitaceae
The plant of Banj karela is helpful in the treatment of female sex disorders and sterility in males⁷.
- **Neem**
Scientific name: *Azadirachta indica*
Family: Meliaceae
A paste made from leaves is applied over the body to treat small pox. For treating skin diseases and in the treatment of rheumatoid arthritis³³.
- **Nimbu**
Scientific name: *Citrus lemon L.*
Family: Rutaceae
Fruit is used in the treatment of various diseases. It is taken in the morning with hot water for weight loss³³.
- **Nirgundi**
Scientific name: *Vitex negundo*
Family: Lamiaceae
*Extraction from young shoots and flowers is used to treat pneumonia, bronchitis, asthma and pain in the body*³².
- **Nagphani**
Scientific name: *Opuntia dillenii*
Family: Cactaceae
Fruits which are baked are used in treating whooping cough; syrup made of Nagphani increases the flow of bile juice; it also controls spasmodic cough⁷.
- **Papita**
Scientific name: *Carica papaya*
Family: Caricaceae
Latex from papita is used in the treatment of ringworm³³.
- **Panpatta**
Scientific name: *Peperomia pellucid*
Family: Piperaceae
Plant of Panpatta is useful in the treatment of fistula⁷.
- **Pawad**
Scientific name: *Cassia tora*
Family: Fabaceae
Plant parts of Pawad are used in the treatment of skin illness⁷.
- **Pili Kateli**
Scientific name: *Argemone mexicana*
Family: Papaveraceae
Juice made from Pili Kateli is used in the treatment of pili kateli⁷.
- **Pili kaner**
Scientific name: *Nerium indicum*
Family: Apocynaceae
Pili kaner is helpful in curing leprosy and skin diseases, roots of Pili kaner are helpful in the treatment of fever and snakebites⁷.
- **Pipal**
Scientific name: *Ficus religiosa*
Family: Moraceae
Leaves of pipal are chewed for treating heart problems, scabies, and the bark of pipal is useful in the treatment of asthma and diabetes³².
- **Pudina**
Scientific name: *Mentha arvensis*
Family: Lamiaceae
Paste made up of leaves is used in the treatment of pimples. Its extraction is used as an appetizer, for treatment of coughs and for treating digestion problems³².
- **Punarnava**
Scientific name: *Boerhaavia diffusa*
Family: Nyctaginaceae

The root of the punarnava plant is used as a diuretic and laxative; it is also used in the treatment of asthma and in healing wounds. Paste made from roots is used for curing boils and fistula²².

- **Piyaj**

Scientific name: *Allium cepa*

Family: Amaryllidaceae

It is used in the treatment of fever and of snakebites⁷.

- **Pattharchat**

Scientific name: *Bryophyllum calycinum*

Family: Crassulaceae

The plant of Pattharchat is helpful in the healing of wounds⁷.

- **Rasbhari**

Scientific name: *Physalis minima*

Family: Solanaceae

Rasbhari fruit is used by various villagers for treating urinary tract infections, inflamed joints and purifying blood, for treating skin problems and pimples²².

- **Ronjhsafed kikar**

Scientific name: *Acacia leucophloea*

Family: Fabaceae

Extraction from bark is useful in treating diarrhea, bronchitis, treating gastric problems, for the treatment of dysentery and treating immune disorders⁷.

- **Ratti**

Scientific name: *Abrus precatorius*

Family: Fabaceae

Decoction from roots is used in removing worms from the intestine. Ratti seeds are used in treating nervous problems and also used as a paste to loosen stiff shoulders and in the treatment of paralysis³².

- **Santhi**

Scientific name: *Trianthema portulacastrum*

Family: Aizoaceae

Juice made from plants is used to treat snake bites. It is used in treating hyper acidity problems. Root extract is used in the treatment of constipation and asthma. It is also used as a medicine for alcohol poisoning⁷.

- **Safeda**

Scientific name: *Eucalyptus globulus*

Family: Myrtaceae

After boiling, the vapours of the leaves are inhaled to treat throat cramping, red gums, and diarrhea; it is also used as an antibiotic and in the healing of wounds³².

- **Saphed aak**

Scientific name: *Calotropis gigantea*

Family: Apocynaceae

Latex derived from roots is used in treating skin disorders³².

- **Sarpagandha**

Scientific name: *Rauwolfia Serpentina Benth. ex Kurz.*

Family: Apocynaceae

Root of Sarpagandha is used in abortions; it is used as a medicine for snakebite, for treating cardio vascular disorders and also for vitiligo³³.

- **Shankpushpi**

Scientific name: *Evolvulus alsinoides*

Family: Convolvulaceae

Shankpushpi is used for increasing memory; it is also used to treat scabies³³.

- **Shehtoot**

Scientific name: *Morus alba*

Family: Moraceae

The Shehtoot plant is used to treat dysentery and diabetes⁷.

- **Sisham**

Scientific name: *Dalbergia sisso*

Family: Fabaceae

It is helpful in treating diabetes⁷.

- **Sirus**

Scientific name: *Albezzia lebeck*

Family: Fabaceae

Sirus is helpful in treating eye diseases and treating fertility problems in males⁷.

- **Saijna**

Scientific name: *Moringa oleifera*

Family: Moringaceae

The Saijna plant is used to treat liver and spleen problems, as well as constipation and rheumatoid arthritis pain⁷.

- **Tara Mira**

Scientific name: *Eruca sativa*

Family: Brassicaceae

Tara mira seeds are used to remove pungent odours from pickles, and the plant is also used as cattle feed and salad⁷.

- **Til**

Scientific name: *Sesamum indicum*

Family: Pedaliaceae

Seeds are used in the extraction of oil from til seeds; that oil is used in cooking food and making soaps; it is massaged over joints for relieving rheumatic pain. Oil is also used in curing eye pain, treating ulcers and removing affections of the kidney bladder³².

- **Tulsi**

Scientific name: *Ocimum sanctum*

Family: Lamiaceae

Leaf extract is used in treating skin problems and in treating male fertility problems; it is also used in treating stomach pain and root extract is useful in treating malarial fever⁷.

- **Ulta Kanta**

Scientific name: *Achyranthes aspera*

Family: Amaranthaceae

Juice extracted from roots is used in the treatment of ring worms and other skin diseases⁷.

- **Vasa**

Scientific name: *Adhatoda vasica*

Family: Acanthaceae

Vasa plant decoction can be used to treat skin disorders, scabies, and ringworms³³.

3. Various use of Medicinal Plants

3.1 Pediatric use

Plant based child care medicines have been used by our ancestors for thousands of years. States such as Haryana are not properly documented with respect to the capability of native plants in child disease medicine production. Medicinal plants can be an extremely capable alternate medicine source for children's ailments as they possess fewer side effects and are easily reachable by the poor. On the other hand, unprotected deforestation has led to extreme loss of medicinal plants; immediate preservation steps must be carried out to save the disappearing plants. Documentation is the need of the hour as custodians of

knowledge about the uses of medicinal plants are old aged people, in lieu of these circumstances the knowledge can be lost with the loss of these people, so immediate documentation is the need of the hour. Thirty-six species helpful in curing child diseases are enlisted by the author. It is stressed that old knowledge about herbal medicines is accumulated through numerous observations done by our ancestors throughout the ages which is very critical in curing child diseases. That knowledge must be accurately evaluated and applied as additional medicine; local authorities must take accurate steps to boost the use of medicinal plants as a pediatric medicine source³³.

3.2 Dermatological use

Local people have used crude medicines made from medicinal plants for various dermatological disorders for numerous decades. They were dependent on these sources only for treating skin disorders. These days, there is a shift towards the use of medicinal plants for every ailment as there are less or no side effects of medicinal plants while allopathic medicines are costly and are not in easy reach of the poor. Several plants curing several skin diseases were enlisted by the authors. About 35 species curing skin diseases are enlisted as they have various capabilities for treatment of various ailments such as ringworms, scabies etc. There is a concern among local people about the degradation of plants in the wild as there is an uncontrolled level of deforestation and numerous species are losing their habitat; along with the loss of species, local areas are also losing easily accessible medicinal plants. Chemical analysis of several plants still needs to be done so that new plants curing skin diseases can be found and numerous ways of treating several more skin diseases could be found. Numerous plants possess dermatological properties³³.

3.3 Gynecological use

For a long time village women preferred plants as a source of medicine instead of modern medicine to treat various gynaecological problems as they possess fewer side effects and are very easily accessible. Several plants with gynaecological properties have been described with proper disorders cured by them. Abortion, delivery, gonorrhoea, lactation, leucorrhoea, menstruation and miscarriage are some of the ailments which can be easily treated by the use of medicinal plants. Village elders

with medicinal knowledge of plants are known as Vaidji. The knowledge possessed by these people is getting lost in the absence of modern treatment methods. Their knowledge must be properly evaluated and various plants curing various women's disorders should be catalogued, otherwise this knowledge will be lost. Young girls must be made aware of the benefits of treatment by medicinal plants and how they are easily accessible and possess fewer side effects. Dried parts of various plants are used singly or in combination with other plant sources for treating various diseases. Various methods, such as taking with oil, fermenting, roasting in oil, or taking with cow urine, are numerous ways of having plants as medicines. For properly understanding the therapeutic latent of these plants, clinical research is a must, which will reveal various elements helpful in curing various ailments³³.

3.4 Ethnoveterinary

Livestock is the backbone of Haryana and the main source of income for the rural population. The rural population depends hugely upon livelihood as a source of income and milk products. Cattle's rearing is a sacred task as well, as the cow is considered the mother in Hinduism. People who rear cattle heavily depend upon plant products for treating various ailments of cattle, as they are easily accessible and within the reach of the poor as well. The author found 54 species of ethnoveterinary use in the Tosham block of Bhiwani. All species are mentioned along with their botanical names and medicinal properties. Eighty percent of people got their knowledge from their parents and grandparents. The younger generation has some or zero knowledge about ethnoveterinary useful plants; this knowledge is getting lost with the passage of time and will be lost to eternity if not documented in time. For sustainable preservation, awareness must be created. Safe use of medicinal plants can be a safe and side effects-free source of medicine. There is an urgent need to look into the use of plants as medicines for animals, which the world currently lacks. Fresh plants are most helpful. Native people are confident that these plants have no side effects, though investigation into this cause is important, which will lead to the addition of these plants as a source of veterinary medicine⁴².

3.5 Oral Cancer

While getting treated for oral cancer, the patient's immune system gets suppressed and to save the patient from numerous other infections, they to use more

antibiotics, so while getting treatment, the patient gets neutropenic and is susceptible to various infections. The study concluded that ten medicinal plants can help cure those infections, saving the patient from having to take antibiotics and from using the plant as a potential source¹⁸.

3.6 Medicinal Plants and Cancer

Plant based products have been used as medicine for a long time. Derivatives from natural plant-based products are contained in 14 of the 35 drugs for cancer, as shown by worldwide sales in 2000². Paclitaxel and camptothecin, which are derived from plants, were estimated to constitute almost 1/3rd of the anti-cancer medicine market in 2002¹⁷. Of all the 270,000 higher plants on this planet, only a small portion are used phytochemically. If all plants are searched for bioactive compounds, it is possible to find new compounds for curing cancer disease²⁹. Cancer has become one of the most dangerous and life-threatening diseases as cancer is an irregular growth in any cell. Although numerous treatments are available, it is still the 2nd most life-claiming disease. Chemotherapy and various allopathic medicines have numerous ill effects. Cancer accounts for 2-3 % of annual deaths. Although treatment of cancer is somewhat possible with chemo, it still leads to toxicity at various levels. In Ayurveda, cancer is described as granthi by two great Indians, Charaka and Susruta. Numerous secondary metabolites are found in various medicinal plants that cure cancer^{16,25}.

3.7 Medicinal Plants and Diabetes

There is currently scope for incorporating medicinal plants as a candidate potential drug source for diabetes. The author enumerated about 330 species with potential metabolites for diabetes cure. Proper medicinal exploitation regarding diabetes is the need of the hour. Numerous drugs with few side effects can be formulated with the use of these species. We must include these in our diet so that there can be an improvement in our blood glucose levels. Higher plants are an unexploited source of medicine for diabetes. These days, various natural products are prescribed for diabetes. The potency of medicinal plants is significant for diabetes and they have fewer or negligible side effects than main stream medicines. Patients nowadays frequently ask for natural products as a source of medicine. Plants are a promising source of medicine for diabetes and must be evaluated properly¹⁰.

3.8 Digestive Disorders and Medicinal Plants

Household use of medicinal plants as a source of digestive disorders is very common, and if this knowledge is documented and validated, future generations can benefit a lot. Rural women use locally available plants for digestive disorders such as *Glycyrrhiza glabra*. These are a permanent and effective source of medicine for digestive disorders. Use of medicinal plants for digestive disorders should be encouraged, which will facilitate the proper passage of information to future generations. Medicinal plants cure digestive problems such as diarrhea and dysentery, constipation, stomach pain and vomiting and food poisoning³⁰.

3.9 Rheumatoid Arthritis and Medicinal Plants

R.A. is a chronic disease which affects almost every age group but mostly the elderly. It effects 1% of the world's population, affecting women 2-3 times more than men. Medicinal plants have been used to cure R.A. from earlier times. 80% of the world's population depends on plants for cure because of little or no side effects. Haryana state is a rich source of medicinal plants²³.

3.10 Nutritional Composition

Plants possess numerous nutrients in them. They are a major diet for most herbivorous animals; they contain enough nutrients for proper growth of animals and humans. The nutritional composition of hypoglycemic and hypolipidemic plants was evaluated by the authors and moisture, fat, ash, energy, carbohydrate and various other constituents were found. All these plants can be used for treating diabetes and dyslipidemia. Plants can be used for treating various ailments due to the efficiency of nutrients such as vitamins and minerals⁴.

3.11 Secondary Metabolites

These are organic compounds produced by plants which are not involved in direct plant growth, development, or reproduction. For example, polyphenols, terpenes and alkaloids possess anti-mutagenic and anti-cancer properties³¹. Secondary metabolites are the reason for the medicinal properties of plants, which are useful in treating various ailments. Medicinal plants are rich in secondary metabolites and have been used traditionally for treating various diseases. They possess properties

such as anti-inflammatory, anti-cancerous, anti-diuretic, etc. There is a need for further investigation for further exploration of the medicinal properties of plants. Various plants have various secondary metabolites which can cure numerous ailments. There is an immediate need to look into the properties of different plants and find novel techniques for the treatment of various diseases. Further investigation will lead to further discovery of active ingredients and the ability to cure more diseases with a side effect-free and natural source of medicine. Due to the presence of these secondary metabolites, ayurvedic medicines are able to treat various diseases as these secondary metabolites are extracted for manufacturing various allopathic medicines²⁴ (Figure 2).



Figure 2. Method of obtaining various secondary metabolites from plants⁵.

3.12 Sacred Groves

Sacred groves act as collections of many medically important plants. Degrading sacred groves leads to a loss of species diversity in the area. Many religious communities consider various forest areas as sacred due to some religious beliefs. Those protected areas are considered home to numerous plant species which are protected due to the protection provided by communities to these areas. There is a need for a protection program to stop the further degradation of sacred groves. These are the areas of plant diversity protected due to belief concerns. Various native tribes, according to their religious beliefs, started considering some sites as holy, which came to be known as sacred groves. The author surveyed 20 sacred groves and found 50 threatened species, which are of medicinal value⁴³.

3.13 Fungal Diversity in Medicinal Plants

A study conducted shows the connotation of AM fungus with medicinal plants 21 species of fungus were found³.

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