

## The Documentation of medicinal plants (Fabaceae family) in Hamirpur district (H.P) as pharmaceutical/herbal drugs

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**ABSTRACT:** The Fabaceae, commonly known as the legume, pea, or bean family, are a large and economically important family of flowering plants. The family is widely distributed, and is the third-largest land plant family in terms of number of species, behind only the Orchidaceae and Asteraceae, with about 751 genera and some 19,000 known species. The members are distributed in the temperate regions of both northern and southern hemisphere. In India, the family is found both on hills and plains. The medicinal plants have been very important to mankind. The importance of medicinal plants becomes more patent at the present time in the developing countries. Although the use of bioactive natural products as herbal drug preparations dates back hundreds, even thousands, of years ago, their application as isolated and characterized compounds to modern drug discovery and development started only in the 19<sup>th</sup> century. It has been well documented that natural products played critical roles in modern drug development. This work presents a study of the importance of natural products, especially those derived from Fabaceae family in Hamirpur district (H.P.), in terms of drug development. It describes the main strategies for obtaining drugs from natural sources, fields of knowledge involved, difficulties and perspectives and therapeutic resources.

**Keywords:** Medicinal plants; fabaceae; bioactive compounds; drug development.

**INTRODUCTION:** Plants play a vital role for the existence of life on the earth. India is globally known for its medicinal wealth. People play important role in using local medicinal plants in traditional herbal therapies and folk remedies. Their indigenous beliefs, knowledge, skills, and cultural practices which are concerned with human health. The history of medicinal plant is connected with history of botany. Due to record of early civilization it is revealed that considerable amount of number of drugs used in the modern world were used even in ancient time. Plants medicines are most widely used medicine in the world. Today 85% of world population employs the local herbs as primary medicine. Some herbs in Rig-Veda seems to be the earliest in record for use of plants in medicine. The identity of several medicinal plants referred to suktas of Rig-Veda. But references of medicinal plant in Rigveda are very brief. Detailed account about medicinal plants is available in Atharveda. The plant as a medicine is used in different system of medicine such as Ayurveda, Allopathy, Unani and Homeopathy and even in other system (Kumar *et al.*, 2015).

Himachal Pradesh is a beautiful state with diverse culture, traditions, and having different floristic diver-

sity. With the change in the attitudes the pattern of plant vegetation also changes. Due to favorable climatic conditions Himachal Pradesh act as repository of various kinds of plants which have ethno medicinal and ethno botanical importance. The Hamirpur district is the smallest district of Himachal Pradesh. It lies in the lower Himalayas and falls in the Shivalik range and is surrounded by large number of dense forest and small hills. The rural people of this district use the plants and products to meet their daily or basic needs such as food, clothes, fuel, shelter, fiber and mainly medicines for treating or curing primary health problems. Traditional medicine medicinal system remains an integral part of health system in their region. The local people or rural people of this region have good faith in the traditional knowledge about the herbal potential of local plants for alleviating different types of health problems that are prevailing in this region. The traditional healers, local vaid and old villagers of this region has a good command of knowledge about the medicinal uses of local plants. This paper mainly empathizes the traditional use of some medicinal of Fabaceae family from the Hamirpur district.

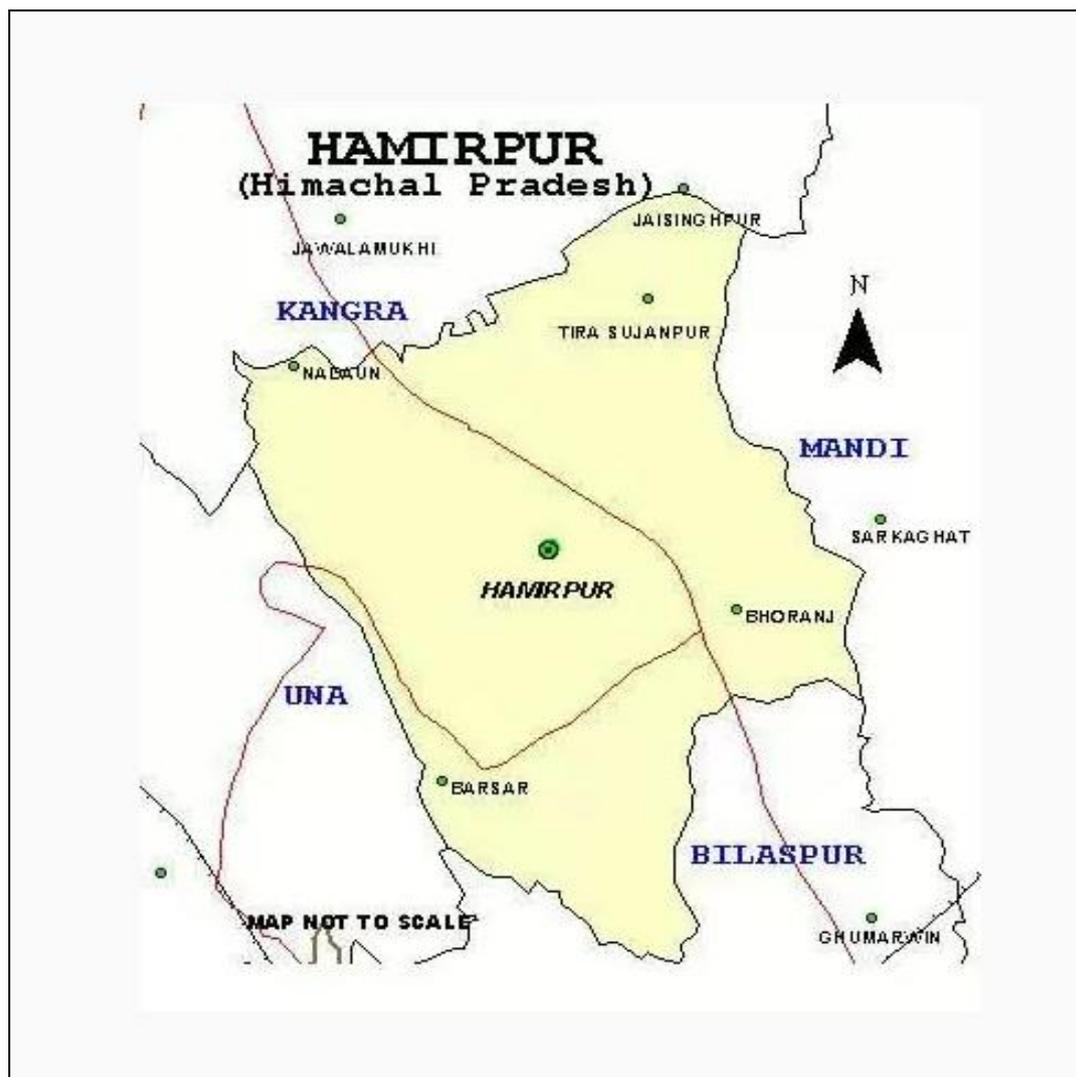


Figure 1: Map of Hamirpur district (H.P)

**REVIEW OF LITERATURE:** Ethnobotany is the study of the interaction between plants and people, with a particular emphasis on traditional tribal cultures. About 80% of the total population of Ethiopia is depending on traditional medicine to treat different types of human ailments. World Health Organization (WHO) about 65-80% of the world's population in developing countries depends essentially on plants for their primary healthcare due to poverty and lack of access to modern medicine (Awoyemi *et al.*, 2012). Uniyal and Chauhan (1982) studied commercially important medicinal plant of Kullu forest division in H.P. Jain (1986) gave an overview of the subject ethnobotany, an indication of the significant research during last thirty years in this field and also showed how ethnobotany is an interdisciplinary science. Schutles (1986) tried to bring the attention of scientists to ethnobotanical conservation. For many years, he has been engaged on studies in pristine forest of Amazon and

other regions of tropical South America. Arora (1987) described ethnobotany and its role in the domestication and conservation of native plant genetic resources. He gave the detailed account of this important area where ethnobotany has still great to do. Brij Lal *et al.*, 1996 described the plants used as ethnomedicine and to supplement food by Gaddis of Himachal Pradesh, India. Kapur, 1996 highlighted the traditionally important medicinal plants of Bhaderwah hills. Chauhan (1999) described the medicinal and the aromatic plants of Himachal Pradesh. Singh (1999) worked on the ethno-botanical study of the useful plants of the Kullu district in Himachal Pradesh. Thakur (2001) described the ethnobotany of Rawalsar (Mandi District), Himachal Pradesh. Thakur *et al.* (2004) described the characterization of some traditional fermented food and beverages of Himachal Pradesh. Warman (2004) studied the medicinal, commercial, religious and ornamental properties of vari-

ous trees of India. Kala (2005) described the ethno-medicinal botany of Atapani in the Eastern Region of India. Brij Lal and Singh (2008) find out the indigenous herbal remedies to cure skin disorders by natives of Lahaul Spiti, Himachal Pradesh. Kaur et al. (2011) studied the uses of plants in controlling the different diseases in Mandi district (H.P). Kumar and Choyal (2012) reported the traditional uses of some plants of Hamirpur district of Himachal Pradesh for the treatment of Jaundice, Hepatitis and other liver disorder. Kumar and Choyal (2012) investigated traditional phytotherapy for snake bites used by local rural people of Hamirpur district in Himachal Pradesh, India. Kumar and Choyal (2012) gave an ethnobotanical note on some plants used for the treatment of leucorrhoea and other gynecological problems in Hamirpur district of Himachal Pradesh. Kumar and Choyal (2013) threw light on the traditional health care practices used for respiratory disorder by the rural people of Hamirpur district of Himachal Pradesh. Kumar et al. (2013) worked on the ethno botanical survey of medicinal plants used for the treatment of different disease in Bikaner district of Rajasthan, India. Kumar and Choyal (2013) recorded the ethno-medicinal uses of some plants of lower foot-hills of Himachal Pradesh for the treatment of oral health problems and other mouth disorder. Kumar et al. (2015) described about the ethno-medicinal uses of some plant in the treatment of constipation, diarrhea, dysentery and other stomach and digestive disorders from district Hamirpur (H.P), India.

**STUDY AREA:** Hamirpur district is situated between 76° 18' -76° 44' east longitudes and 31° 52' 33" north latitude. The area is hilly, covered by Shivalik range and the elevation varies from 450-1000 m. The region possesses unique floral diversity and rich herbal or medicinal wealth which needs exploration. This paper explores about the 23 medicinal plant species of study area which are used traditionally by the rural people for primary health care and for alleviating various kind of health disorders.

**METHODOLOGY:** During the field survey, ethno-medicinal plants were collected from the remote areas and forest of Hamirpur district. The plants were collected in the fruiting and flowering stage. The areas/regions which were selected for the sample collection were: Bhoranj, Awah Devi, Bhareri, Chakmoh, Jhiralari, Ladrou, Neri and Saloni. Collected plant specimens were preserved in the form of herbarium specimen in the botany department of Gautam Group of Colleges, Hamirpur (H.P). The knowledge about the medicinal uses of herbal plants was collected by personal contact with the old peoples of remote areas

and through personal interviews of the local vaid and traditional healers.

## RESULTS AND DISCUSSION:

### (1) *Abrus precatorius* Linn.



**Family:** Fabaceae

**Local name:** Ratti

**Parts used:** Roots, Leaves and Seeds

**Folk uses:** The paste of leaves with root paste of *Plumbago zeylanica* Linn is used for the treatment of skin diseases. Half spoon of powdered roots is given with honey one times a daily for five days to cure whooping cough. The fresh seeds taken orally, early in the morning for 45 days to treat nervous disorders. Ground seeds powder mixed with water is taken orally twice a day for 3 days to treat scorpion bite. Seeds are used as a measure of weight by gold smith. Decoction of the roots is used for treating abortion.

### (2) *Acacia catechu* (L.F.) Willd



**Family:** Fabaceae

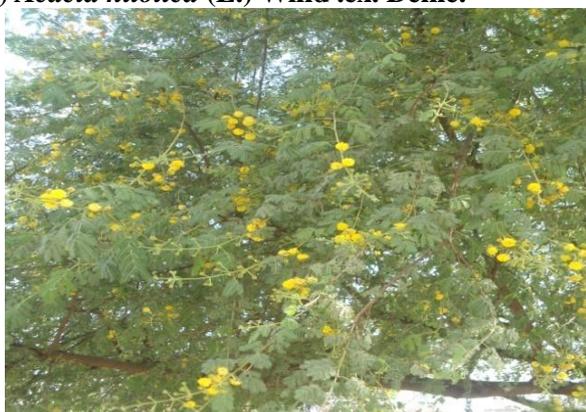
**Local name:** Khair

**Parts used:** Root, Heart-wood extract (Katha), Flowers and Twigs

**Folk uses:** Mixture of flower tops is given in case of gonorrhoea. "Katha" obtained from its heartwood is used for curing ulcerated and spongy gums, tonsils, ulceration of mouth and throat disease. Paste of fresh roots is applied on the joint once in a day for seven

days to treat rheumatism.. Twigs are used as tooth brushes. Cutch obtained from its heartwood along with oil is considered good emollients against leprosy and also used as masticatory.

**(3) *Acacia nilotica* (L.) Willd .ex. Delile.**



**Family: Fabaceae**

**Local name: Kikar, Babul**

**Parts used: Bark, Gum, Leaves, Pod, Flowers, Twigs and Wood**

**Folk uses:** Bark powder is useful in the treatment of skin diseases and bleeding piles. Brushed leaves are applied to sore of eyes in children, eaten in throat infection and poultice is used in sore eyes. Fresh leaves chewed twice in a day for five days to cure mouth sores. Twigs are used for scouring teeth. Gum along with latex of *Calotropis procera* Atit. Which is given to cure diabetes and also given to stop bleeding, urinary and vaginal discharges. The pod is favorite food for cattle, sheep and goats and which is also used in case of impotency and effective in urogenital disorders.

**(4) *Albizia lebbbeck* Benth.**

**Folk uses:** Powdered seeds are used in the treatment of piles. Seed powder is used in the treatment of piles and as astringent in diarrhea. Leaves are useful in case of ophthalmia. Paste of flowers is useful to cure boils, eruption, swelling and act as antidote to poison.



**Family: Fabaceae/Mimosaceae**

**Local name: Sirins, Sirinh**

**Parts used: Seeds, Leaves, Flowers**

**(5) *Bauhinia variegata* Linn.**



**Family: Fabaceae**

**Local name: Kachnar, Kariala**

**Parts used: Bud, Flowers, Roots and Bark**

**Folk uses:** Decoction of flowers is used for hemorrhagic conditions, piles and cough. The powdered roots are used for abdominal disorders. One teaspoon of powdered dried buds is taken thrice in a day to check diarrhea and dysentery. Bark of this plant is used as external wash for skin diseases and ulcers. Paste of bark is used in case of inflammatory disorder. Root paste is used as antidote to snake poisoning. Bark is dried and powdered and decoction is used for gargling to relieve throat diseases.

**(6) *Bauhinia vahlii* Wright and Arnott.**



**Family: Fabaceae**

**Local name: Tor, Tourya**

**Parts used: Leaves**

**Folk uses:** 2-3 grams of dried powdered leaves are taken with water to check dysentery.

**(7) *Butea monosperma* (Lam.) Taub.**

**Folk uses:** Bark powder is useful in case of the bleeding piles. Resins are used in case of treatment of snake bite. Leaves and flower extract is used in cough, cold, fever and menstrual disorder. Decoction of flowers three times in a day for the treatment of jaundice. Amulet of flowers is tied on the stomach for relief

from pain.

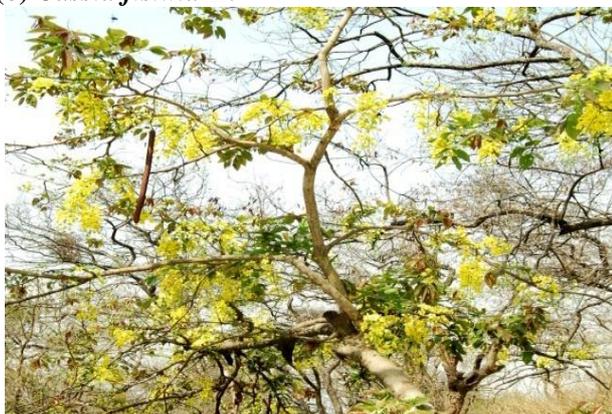


**Family: Fabaceae**

**Local name: Palah or Plash**

**Parts used: Leaves, Flowers, Resin, Bark and Twigs**

**(8) *Cassia fistula* L.**



**Family: Fabaceae/Cesalpiniaceae**

**Local name: Aliah, Amaltas**

**Parts used: Leaves, Pod, Seed, Flowers, Fruit, Root and Bark**

**Folk uses:** Leaves are laxative and anti-periodic. Bark powder is useful in case diabetes and cardiac problem. Flowers are useful in vitiated condition of pita and skin disease.

Pod and seed extract is administered to cure stomach problem, fever, ring worm and thoracic obstructions. Decoction of fruit pulp taken twice daily for a week to relieving gastric disorders and constipation in both in man and livestock. Seeds are prescribed as laxative in animals. Poultices of tender twig are applied for toe infection. Root paste is useful in skin diseases and syphilis.

**(9) *Cassia occidentalis* Linn.**

**Folk uses:** Young twigs are used as tooth brush. Its seed with methi (*Trigonella foenum-graecum* Linn.), Ajwain (*Trachy spermum ammi* Linn.) and Gur (Jaggery) as poultices which are used to check swelling. Seed powder is used in case of diabetic problem.



**Family: Fabaceae**

**Local name: Aliluna, Bada rellu**

**Parts used: Seed, Twig**

**(10) *Cassia tora* Linn.**



**Family: Fabaceae/Caesalpiniaceae**

**Local name: Chokar, Reli, Elwan**

**Parts used: Seeds**

**Folk uses:** Seed with turmeric (*Curcuma longa* Linn.) and mustard oil is made in to paste and applied in case of eczema and skin diseases.

**(11) *Dalbergia sisoo* Roxb.**



**Family: Fabaceae**

**Local name: Tahli, Shisham**

**Parts used: Leaves**

**Folk uses:** Decoction of the leaves are served as a stimulant. It is also used as a blood purifier and to

cure urinary-tract disease. Leaves with sugar (misri) taken early morning to check leucorrhoea and menorrhoea.

(12) *Desmodium gangeticum* (L.) DC.



**Family: Fabaceae**  
**Local name: Shalparni**

**Parts used: Whole plant and Roots**

**Folk uses:** Root decoction is useful in case of heart diseases, blood disorder, and loss of appetite, digestive problem, hemorrhoid pain, and diarrhea and vomiting. 50-100 ml decoction of whole plant material especially roots is used for the treatment of diabetes. Milk boiled with the roots of Shalparni is useful in case of foetus nourishment and to improve the quality of semen.

(13) *Erythrina suberosa* Roxb.



**Family: Fabaceae**  
**Local name: Prair, Paryara**

**Parts used: Bark and Flowers**

**Folk uses:** Decoction of flowers is useful in case of urinary tract. Powder of bark and leaves is useful in case of gonorrhoeal diseases.

(14) *Indigofera gerardiana* Wall.

**Folk uses:** Half tea spoon of powdered roots with cow milk is taken two times in a day for one week to heal internal injuries.



**Family: Fabaceae**  
**Local name: Kathura**  
**Parts used: Root**

(15) *Lathyrus aphaca* Linn.



**Family: Fabaceae**  
**Local name: Matar phali, Sudu**  
**Parts used: Seed**

**Folk uses:** Half tea spoon of powdered seeds is taken once in a day for 5 days to cure cough and diarrhea.

(16) *Medicago polymorpha* L.



**Family: Fabaceae**  
**Local name: Khokhani**  
**Parts used: seed**

**Folk uses:** Sprout of seeds is useful in case of diabetes.

**(17) *Mimosa pudica* Linn.**



**Family:** Fabaceae/ Mimosaceae

**Local name:** Lajalu, chui-mui, Lajwanti

**Parts used:** Leaves

**Folk use:** Paste of leaves is applied to heal the fresh cuts and wounds.

**(18) *Mucuna pruriens* (L.) DC.**



**Family:** Fabaceae/Papilionaceae

**Local name:** Dryagul, Gazal-bel

**Parts used:** Seeds

**Folk uses:** Powdered seed with 'Gur' and ghee is taken with milk every morning to provide strength to the body. Seeds are taken in halva for vigor after delivery. 20-30 ml decoction of seeds is prescribed three times daily till cure for impotency.

**(19) *Pongamia pinnata* (Linn.) Pierre.**

**Folk uses:** The whole plant material extract is useful in case of abdominal enlargements, diabetes, diarrhea, dyspepsia, epilepsy, flatulence, leprosy, skin diseases, bleeding pile (mainly fresh bark is used) and whooping cough. Bark powder is used in case of diabetes. Poultice of the leaves is used in case of worm infested ulcers. Seed oil is antiseptic and useful in case of skin diseases. Seeds and roots are also used as fish poison.



**Family:** Fabaceae/Leguminosae

**Local name:** Karanja, Puti-karanj

**Parts used:** Whole plant, Bark, Seed and Leaves  
**(20) *Saraca indica* Linn.**



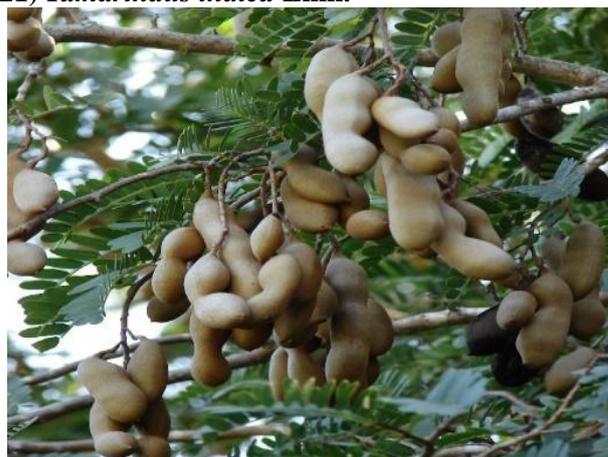
**Family:** Fabaceae

**Local name:** Sita Ashok

**Parts used:** Bark

**Folk uses:** Bark is used in case of uterine infections and in case of menorrhagia, leucorrhoea and chest pain.

**(21) *Tamarindus indica* Linn.**



**Family:** Fabaceae

**Local name:** Imli

**Parts used:** Root, Fruit, Leaves

**Folk uses:** Roots and fruits of *Tamarindus indica* and fruits of *Prunus domestica* Linn. are soaked in water overnight. One cup of this extract is given to the pa-

tients for 2-3 weeks in case of jaundice and other liver disorders Leaves juice is useful gingivitis.

**(22) *Trigonella foenum-graecum* Linn.**



**Family: Fabaceae**

**Local name: Methi**

**Parts used: Leaves and seeds**

**Folk uses:** Powdered seeds are taken with hot water which is used to cure gastric problems. Seed powder is taken with warm water for abdominal pain during menstrual flow. Mixture of powdered leaves and seeds is good for flatulence and body pains. 5-10 gram of powdered seeds are taken daily with cold water as an easy remedy for diabetes.

**(23) *Vigna vexillata* (Linn) A. Rich.**



**Family: Fabaceae**

**Local name: Baker bel, Gunji root**

**Parts used: Whole plant and Root**

**Folk uses:** Decoction of roots along with raw turmeric and roots of 'Bankakadi' is taken twice in a day for 3-5 days in case of stomach pain and to cure ulcer and cholera.

The use of plants traditional purposes is an old practice. The primitive people of all ages had knowledge of medicinal plants which they acquired as a result of trial and error. It is clear that folk phytotherapy today

is greatly reduced and largely abundant, swept away by pharmaceutical technology. What remains of this centuries old knowledge relates mainly to minor disease and ailments. This knowledge is still alive and several hundred species were used in herbal remedies, where the whole plant part or its extraction was used. However as modern medicines and drug research advanced, chemically synthesized drugs replaced plants as the source of most medicinal agents in industrialized countries. Although research in plant sources continued and plants were still used as the raw material for some drug development, many of the today's drugs have been derived from plant sources. Since 1990 there has been a growing shift and interest once more in plants remedies. Industries are now interested in exploring parts of the world where plant medicines remain the predominant method of dealing with illness. Medicinal plants are widely used in household remedies and by practitioners of traditional system of medicines, particularly in the developing world, where public health care services were limited. From the above observations this study clears that the special geographical environment results in the rich biodiversity of medicinal plants in the study area. The local people have learnt to use local medicinal plants for treatment and prevention of several ailments. The number of reported medicinal plants and their uses by the people indicated the depth of indigenous knowledge on the medicinal plants and their implications in their lives.

**CONCLUSIONS:** The Fabaceae family is dominant family in Hamirpur district. The present ethnobotanical observations revealed that the local people of Hamirpur district of Himachal Pradesh particularly those living in remote and high altitude areas are largely depends upon the local plant resources to meet their daily requirements. Some of the plants discussed in the study have been used for centuries as traditional medicine and knowledge accumulated in their utilization over generations will assist in identification and isolation of active principles in medicinal preparations. Efforts must be geared towards measures that will enhance the effectiveness, efficacy and rational use of medicinal plants, especially through the integration into national, regional and local health policies and programmes.

**ACKNOWLEDGEMENT:** Authors are thankful to the local people of study area for their valuable guidance and help at each stage of his work.

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