



A SURVEY, ANALYSIS AND SOCIO-ECONOMIC POTENTIAL OF AYURVEDIC MEDICINAL HERBS USED BY TRADITIONAL HEALERS OF SHIVALIK HILLS OF WESTERN HIMALAYAS, INDIA

Naveen Gautam¹, Gulshan Kumar², Kartar Singh Verma³

¹ Lecturer, Department of Higher Education, Himachal Pradesh.

² Assistant Professor (Botany), Career Point University – Hamirpur, H.P.

³ Former Vice Chancellor, CPU- Hamirpur, Former Dean and Director of Research, Dr. Yashwant Singh Parmar, University of Horticulture and Forestry, Solan.

Corresponding Author: navgautam@gmail.com

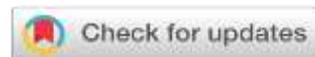
<https://doi.org/10.46607/iamj3711042023>

(Published Online: April 2023)

Open Access

© International Ayurvedic Medical Journal, India 2023

Article Received: 07/03/2023 - Peer Reviewed: 22/03/2023 - Accepted for Publication: 09/04/2023.



ABSTRACT

India's Ayurvedic herbal medicine system is becoming popular worldwide because it is based on natural herbal materials and has no side effects on health; rather, it improves and strengthens the body's immunity. Traditional herbal knowledge has been passed down from generation to generation, with thousands of years of clinical research behind it. So, it is thoroughly tested and proven. Regardless of the tremendous advancement of current science, innovation, and agribusiness, farmers' financial status has remained very similar. Ayurvedic herbal knowledge has immense potential to solve the most burning global problem of the 21st century, i.e., unemployment and poverty, by generating additional forms of revenue with existing agricultural practices. A study was conducted in 42 villages of six development blocks of Hamirpur district of Himachal Pradesh, and 229 people having Ayurvedic herbal knowledge were interviewed on the basis of a scientifically designed questionnaire. The results were compared with current practices, and the present study's findings suggest that our traditional Ayurvedic herbal medicine system has immense potential to turn farmers, local people, and young unemployed youth into entrepreneurs. Such commercial practices also help in the conservation of valuable herbs and biodiversity.

Keywords: *Ayurveda, Biodiversity, Crop production, Farmer, Herbal Medicines, Traditional knowledge.*

INTRODUCTION

This traditional knowledge is being inherited from generation to generation over hundreds of years. Local people are curing various diseases with the help of this traditional knowledge. There are many such diseases to which allopathy has no solution till today. But these people are doing successful treatment with the help of local herbs. Allopathic medicines have several side effects, but the treatment by local people by using herbs has no side effects on health. Regardless of the tremendous advancement of current science, innovation, and agribusiness, the financial status of farmers has remained very similar. Traditional herbal knowledge has immense potential to transform every individual into a doctor and every farmer and unemployed youth into an entrepreneur. It has immense potential to practically solve the most burning global problems of the 21st century, i.e., unemployment and poverty, by generating an additional source of revenue along with existing agricultural practices and conserving valuable herbs and biodiversity.

The archaeological analysis has shown that the use of herbal medicines dates as far as 60,000 years ago in Iraq and 8000 years ago in China and Sumerians. The documented records of the use of traditional medicinal herbs date back to 5000 years by Pan *et al.*, (2014)⁴. In India, the traditional herbal knowledge and use are considered to be originated in the 2nd Century BC as per records in Vedas.

The importance of the Ayurvedic herbal medicinal system in indigenous healthcare practices provides a new field of research and biodiversity protection.

(Uniyal *et al.*, 2006)¹⁰. The relationship between local communities and plant abundance is emphatically uncovered by well-developed traditional herbal practices (Singh, 1999)⁸. Herbal medicine plays an important role in rural areas, and various locally produced drugs are still being used as household remedies for different ailments (Qureshi & Ghufraan 2005)⁶.

Around 70-80% of the people worldwide depend upon the nearby restorative plants for their fundamental clinical care system (WHO, 2002)¹². Conventional prescriptions assume an effective part in the arrangement of homegrown drugs to improve individuals (Negi, 2002)³. Timberlands address a significant asset for nearby occupants who accumulate and sell restorative plants as a feature of their occupation (Seth 2003)⁷. Himachal Pradesh is enriched with a wide variety of plants, which incorporates 3500 higher plants, and of these, 1500 plants are related to therapeutic and have medicinal properties (Chauhan, 2003)¹. The correct formulation and use of herbal medicinal plays an essential role in stimulating the flow of milk (Singh and Shankar, 1996)⁹. Restorative and ethnobotanical uses of various herbal plant species are recorded by different researchers from various areas of Himachal Pradesh. (Verma, 2012)¹¹.

MATERIAL AND METHODS

Study Area

An extensive survey was conducted in randomly selected 42 villages of the six development blocks in the district Hamirpur of Himachal Pradesh, as shown in Fig.1.

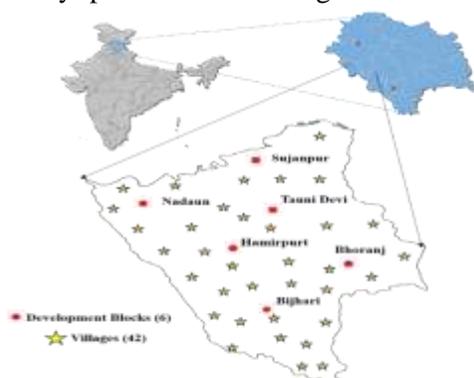


Fig.1 Map of the study area. (Source: Google Maps).

Methods of Collection of Data

Method of data collection during the survey of traditional knowledge about herbs among the people was based upon a well-designed questionnaire and comprehensive methodology (Parabia and Reddy, 2002)⁵.



Fig. 2: Identification and Collection of Medicinal Herb by Local Healer.

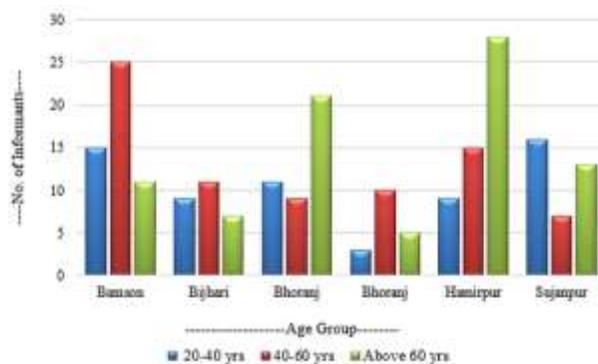


Fig. 3: Drying and Packaging of Crude Herbal Products by Local People.

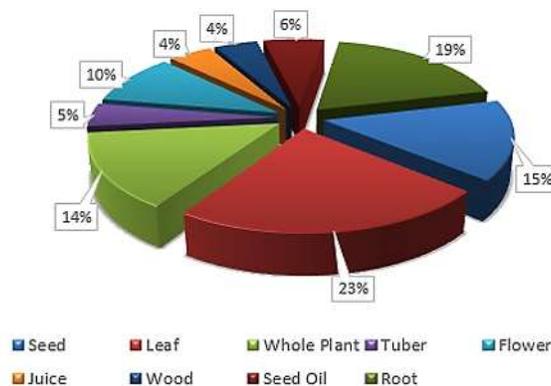
Medico - Ethno Botanical (MEB) Survey:

Information and data regarding traditional herbal medicines (Fig. 1 and 2) were collected from the traditional healers and local people based upon the scientifically designed questionnaire and were kept in an organized and scientific way in the record. The data shared by them Audio-video recordings of the informants were also done along with suitable photographs wherever necessary.

For this, three age groups of people (20-40 yrs., 40-60 yrs., and above 60 yrs.) were formed, and a total of 229 people (both males and females) were interviewed. About 53 people from the age group 20-40 yrs., 82 people from the age group 40-60 yrs., and 94 people above 60 yrs. the age was selected and interviewed (Graph-1). The frequency percentage of different plant parts which people use in their herbal medicine (Graph-2).



Graph 1. Various age group participants were Interviewed.



Graph 2. Percentage of the various parts of the plants used in herbal medicines.

Collection and Preservation of Plants Specimens:

Plants and their parts (such as seeds, roots, bark, tubers, leaves, fruits, and flowers) used by local people in herbal medicine were identified by them in their natural habitat. Plants specimens collected during the MEB survey were preserved scientifically in Career Point University laboratory.

Identification of Plants Specimens:

The collected plant specimens were scientifically identified with the help of a herbarium repository at Career Point University - Hamirpur and later processed and preserved according to the methodology suggested by Jain and Rao (1978)². Later it was submitted and deposited in the herbarium of the Department of Bio-Sciences, Career Point University - Hamirpur).

RESULTS

The plants used by the local people in their various indigenous herbal medicines in the study area were documented, and their detail is given hereunder:

- *Acacia catechu* (L.) Wild.

Common Name: Khair, Khadir, Black Catechu.

Family: Fabaceae.

Flowering Month: May-December.

Longitude: 76°39'40" E; **Latitude:** 31°39'59" N.;

Elevation: 894m.

Parts Used in Traditional Medicine: Bark, Heartwood, Katha, flower, Extract (Katha)

Current Market Price: Rs. 300-400/Kg (Katha).

- *Acorus calamus* L.

Common Name: Barya, Baryan. Bach.

Family: Araceae.

Flowering Month: April-August.

Longitude: 76°35'21"E; **Latitude:** 31°37'47"N.; **Elevation:** 845m.

Part Used in Tradition Medicine: Rhizome, roots.

Current Market Price: Rs. 45-50/Kg (leaves).

- *Aegle marmelos* (L.) Correa.

Common Name: Bil-Patri, Bil, Bilva tree.

Family: Rutaceae.

Flowering Month: May - June.

Longitude: 76°36'13"N; **Latitude:** 31°39'31"E; **Elevation:** 877m.

Part Used in Tradition Medicine: Fruit

Current Market Price: Rs. 35-40/Kg (Fruits).

• *Andrographis paniculata* Nees

Common Name: Kalmegh, King of Bitters.

Family: Acanthaceae.

Flowering Month: September-December.

Longitude: 76°11'35"E; **Latitude:** 31°23'14"N; **Elevation:** 512m.

Part Used in Tradition Medicine: Leaves, roots, whole plant.

Current Market Price: Rs. 45/Kg (leaves).

• *Argemone mexicana* L.

Common Name: Satayanasi, Bharband, Kataila.

Family: Papaveraceae.

Flowering Month: December-February.

Longitude: 76°36'01"E; **Latitude:** 31°37'43"N; **Elevation:** 866m.

Part Used in Tradition Medicine: Roots, leaves, seeds, and juice.

Current Market Price: Rs. 200-250/Kg (seeds).

• *Asparagus adscendens* Roxb.

Common Name: Sattavar, Sanspai, Shatawari.

Family: Aspergaceae.

Flowering Month: August-November.

Longitude: 76°38'22"E; **Latitude:** 31°42'06"N; **Elevation:** 1052m.

Part Used in Tradition Medicine: Tuberous roots.

Current Market Price: Rs. 250-300/Kg (Roots).

• *Azadirachta indica* A. Juss.

Common Name: Neem, Margosa

Family: Meliaceae.

Flowering Month: March-April.

Longitude: 76°09'08"E; **Latitude:** 31°42'00"N; **Elevation:** 592m.

Part Used in Tradition Medicine: Stem Bark, root bark, Leaves, Flowers, Fruit, seeds.

Current Market Price: Rs. 35 - 40/Kg (leaves).

• *Bambusa vulgaris* L.

Common Name: Bans, Bainj, Bamboo.

Family: Poaceae.

Flowering Month: Once every 50-60 years.

Longitude: 76°37'42"E; **Latitude:** 31°41'03"N; **Elevation:** 1017m

Part Used in Tradition Medicine: Leaves, Roots, Vanshlochan

Current Market Price: Rs. 300/Kg.

• *Berberis aristata* DC.

Common Name: Kashmalu, Kashmal, Kushmol, Daruhaldi, Darhald, Rasaont.

Family: Berberidaceae.

Flowering Month: May-August.

Longitude: 76°50'31"E; **Latitude:** 31°34'35"N; **Elevation:** 1202m.

Part Used in Tradition Medicine: Fruit, Root bark locally known as Rasaont, wood.

Current Market Price: Rs40/Kg (wood), Rs. - 80/Kg (root bark)

• *Boerhavia diffusa* L.

Common Name: Punerva, Punamava, Samdelma.

Family: Nyctaginaceae.

Flowering Month: July-September.

Longitude: 76°44'57"E; **Latitude:** 31°23'57"N; **Elevation:** 563m.

Part Used in Tradition Medicine: Leaf, root.

Current Market Price: Rs. 270/Kg (Root Powder).

• *Brassica juncea* (L.) Czern. & Coss.

Common Name: Rai, Indian mustard.

Family: Brassicaceae.

Flowering Month: June-August/August-September.

Longitude: 76°04'46" E; **Latitude:** 31°37'47"N; **Elevation:** 495m

Part Used in Tradition Medicine: flowers, fruits, seeds

Current Market Price: Rs. 70/Kg (Seeds).

• *Broussonetia papyrifera* (L.) Vent.

Common Name: Paper Mulberry, Jungle Toot, Japani Toot.

Family: Moraceae

Flowering Month: May-June.

Longitude: 76°37'20"E; **Latitude:** 31°37'04"N; **Elevation:** 990m.

Part Used in Tradition Medicine: Leaves, roots, fruits, seeds

Current Market Price: 4000-5000/Kg (Seeds).

- ***Butea monosperms (Lam.) Taub.***

Common Name: Dhak, Flame of the forest, Palash, Palah, Tesu.

Family: Fabaceae.

Flowering Month: April-May.

Longitude: 76°36'01"E; **Latitude:** 31°38'11"N; **Elevation:** 904m.

Part Used in Tradition Medicine: Gum, leaves, flowers, bark, and seeds.

Current Market Price: Rs. 45/Kg (Flowers).

- ***Calotropis gigantea (Linn.) Ait.f.***

Common Name: Aak, Akanda, Arka, Calotropis, Madar

Family: Asclepiadaceae.

Flowering Month: Mainly November-January, generally throughout the year.

Longitude: 76°16'32"E; **Latitude:** 31°25'56"N; **Elevation:** 411m

Part Used in Tradition Medicine: Leaves, Latex, Flower, Leaves, Latex, and Roots

Current Market Price: Rs. 700-900/Kg (Aak Extract).

- ***Cannabis sativa L.***

Common Name: Bhang, Hemp.

Family: Cannabaceae.

Flowering Month: June-October.

Longitude: 76°31'26"E; **Latitude:** 31°31'03"N; **Elevation:** 812m.

Part Used in Tradition Medicine: Leaves, Seeds.

Current Market Price: Rs. 350/Kg (Seeds).

- ***Celastrus paniculatus Willd.***

Common Name: Malkangni, Jyotishmati, Black-Oil tree.

Family: Celastraceae.

Flowering Month: February - May.

Longitude: 76°30'29"E; **Latitude:** 31°19'49"N; **Elevation:** 658m.

Part Used in Tradition Medicine: Root, Leaves, Seeds.

Current Market Price: Rs. 110/Kg.

- ***Centipeda minima (L.) A. Braun & Asch.***

Common Name: Nak Chhikni, Sneezeweed.

Family: Asteraceae.

Flowering Month: December - January.

Longitude: 76°24'49" E; **Latitude:** 31°44'22"N; **Elevation:** 560m

Part Used in Tradition Medicine: Herb, Seed.

Current Market Price: Rs. 1200-1500/Kg.

- ***Cinnamomum camphora L.***

Common Name: Kapoor, Karpura, Camphor Tree, Muski Kapoor.

Family: Lauraceae.

Flowering Month: April - May.

Longitude: 76°24'49" E; **Latitude:** 31°44'22" N; **Elevation:** 560m.

Part Used in Tradition Medicine: Leaves, Fruits, Inflorescence.

Current Market Price: Rs. 600-700/Kg (leaf powder).

- ***Cymbopogon citralus (DC) Stapf.***

Common Name: Lemon Grass.

Family: Poaceae.

Flowering Month: March - April.

Longitude: 76°37'58" E; **Latitude:** 31°25'08" N; **Elevation:** 657m.

Part Used in Tradition Medicine: Leaves, oil

Current Market Price: Leaves: Rs. 120/Kg (leaves).

- ***Datura stramonium L.***

Common Name: Dhatura, Safed Dhatura.

Family: Solanaceae.

Flowering Month: March-September.

Longitude: 76°07'23" E; **Latitude:** 32°07'04" N; **Elevation:** 573m.

Part Used in Tradition Medicine: All parts of the plant

Current Market Price: Rs. 300 – 350/Kg (Seeds).

- ***Ecliptica prostrata Roxb.***

Common Name: Bhringraj, False daisy, Kesaraj, Bhangra.

Family: Asteraceae.

Flowering Month: August-November.

Longitude: 76°21'45"E; **Latitude:** 31°40'07"N; **Elevation:** 600m

Part Used in Tradition Medicine: Roots, Seeds, Leaf, Whole plant.

Current Market Price: Rs. 55-60/Kg (leaves).

- ***Elaeocarpus ganitrus Roxb.***

Common Name: Rudraksha, Rudraki, Stone Fruit.
Family: Elaeocarpaceae.
Flowering Month: April-June.
Longitude: 76°32'08"E; **Latitude:** 31°31'25"N; **Elevation:** 898m.
Part Used in Tradition Medicine: Bark, leaves, fruit, seed
Current Market Price: Rs. 500-600/Kg.

- ***Elettaria cardamum L.***

Common Name: Chotti Elaichi.
Family: Zingiberaceae.
Flowering Month: April-June.
Longitude: 76°32'50"E; **Latitude:** 31°30'27"N; **Elevation:** 898m.
Part Used in Tradition Medicine: Fruit, seeds fruit, seed.
Current Market Price: 1250-1400/Kg.

- ***Euphorbia heterophylla L.***

Common Name: Badi Dudhali, Milkweed.
Family: Euphorbiaceae.
Flowering Month: September-March.
Longitude: 76°44'13"E; **Latitude:** 31°25' 04" N; **Elevation:** 616m.
Part Used in Tradition Medicine: Leaves, roots, stem
Current Market Price: Rs. 500/Kg (leaf extract).

- ***Euphorbia hirta L.***

Common Name: Asthma Herb, Dudhi.
Family: Euphorbiaceae.
Flowering Month: Throughout the year.
Longitude: 76°40'05"E; **Latitude:** 33°22'59"N; **Elevation:** 603m.
Part Used in Tradition Medicine: All parts.
Market Value: Extract: Rs. 1500-1800/Kg.

- ***Ferula asafoetida L.***

Common Name: Hing Plant, Hingu, Asafetida, Ingo.
Family: Apiaceae.
Flowering Month: March-April.
Longitude: 76°12'44"E; **Latitude:** 31°52'59"N; **Elevation:** 527m.
Part Used in Tradition Medicine: Stem, leaves and flowers, and resins.
Current Market Price: Rs. 3000/kg.

- ***Ficus benghalensis L.***

Common Name: Banyan tree, Bargad tree.
Family: Moraceae.
Flowering Month: April-July.
Longitude: 76°35'38" E; **Latitude:** 31°38'56"N; **Elevation:** 891m.
Part Used in Tradition Medicine: Bark, Leaves, latex.
Current Market Price: Rs. 600/Kg (Aerial root powder), Rs. 1100 - 1200/Kg (Fruit powder).

- ***Foeniculum vulgare Mill.***

Common Name: Meethi-Saunf.
Family: Apiaceae.
Flowering Month: May-June.
Longitude: 76°36'36"E.
Latitude: 31°39'33"N; **Elevation:** 912m.
Part Used in Tradition Medicine: Leaves, seeds, fruits.
Current Market Price: Rs. 250/Kg, Extract: Rs. 650/Kg.

DISCUSSION

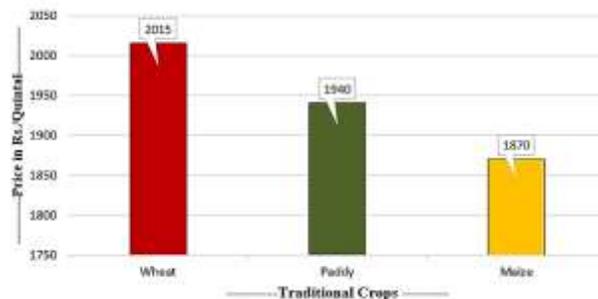
These herb plants grow very easily and naturally on barren and wastelands under harsh environmental conditions where conventional crop plants fail to grow. Compared to cultivated crops, these plants require little or very little care to grow compared to cultivated crops.

The present study compares the economic value and financial potential of routine crops compared to the wild herbal plants growing in the study area. Graph - 3 shows the income index (Rs. /quintal) of the farmers from the routine crops which they are farming on their agricultural land. Graph - 4 shows the economic potential and market value of herbal medicinal plants in the marketplace. These herbal plants are multipurpose, and one or the other or every part is used in the treatment of one or the other disease. This is the reason that the value of medicinal herbs multiplies. Graph 5 shows the findings of the present study, which is a comparative analysis of the economic potential of the crops being grown by the farmers and the wild medicinal plants available in the study area. The market price (in Rs. /Kg) of these herbal plants is very high compared to

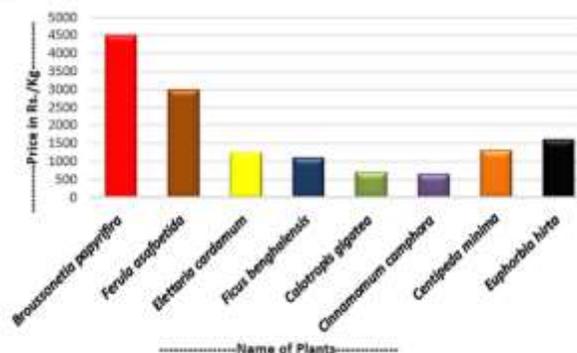
the routinely cultivated crops in the national and international markets. The present study and analysis suggest that these medicinal herbs can increase farmers' income by 200-250 times as compared to regular crops and have immense earning and employment possibilities. Today the irony is that farmers and local healers are unaware of its economic potential and are exploiting these plants in an unscientific manner. This poses a great threat to our biodiversity and the availability of these medicinal herbs by making them endangered or extinct.

Even today, in the 21st century, considering this traditional herbal knowledge as an invaluable gift of God, these people treat various diseases free of cost by connecting them with charity and service to God. They are unaware of the economic potential of these herbs at the market level. Today, it is necessary that these people should be sensitized, aware, and motivated to understand its economic potential so that their standard of living and socio-economic status can be improved by

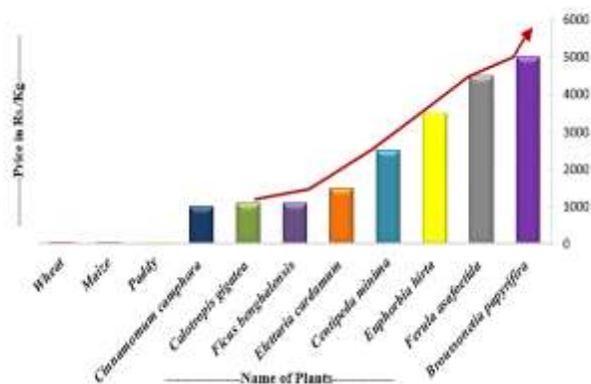
adopting it as an additional source of income and as a career. So, the mentality of these people must be cultured and converted into entrepreneurship. The present study gives more emphasis to aware the local farmers and young youth use these herbs sustainably. The study also advocates that these people should do cultivation these herbs at a commercial scale as an additional source of income. The demand for these herbal medicines is increasing day by day. Because people are becoming more and more aware of the health and side effects of allopathy, with each passing day, people's inclination and faith in herbal medicine are increasing. Therefore, there is a need for awareness, cultivation, promotion, and commercialization of such wild plants. Its vast potential can boost the economy of any state and nation. To develop this traditional herbal medicine system into a multi-billion-dollar industry



Graph 3. Income Index of crops. Minimum Support Prices (MSP), 2021-2022 (Rs./Quintal); (Source: Farmers Portal, Govt. of India).



Graph 4. Selling Price of Medicinal Herbs (Rs./Kg); Source: Google and Govt. of India Database).



Graph 5. Economic Potential of Crop along with Medicinal Plants in the Study Area.

CONCLUSION

The findings and suggestions of the present study show that it can help in curbing the fast-growing global problems, i.e., poverty and unemployment. Indian traditional herbal knowledge can play an important role in rooting out these problems. It has tremendous potential and opportunities to boost the socio-economic status of the local people and the growth engine of any country at the grass root level. Therefore, there is a need to convert this traditional knowledge into a well-planned medicinal plant sector and industry on a commercial scale. This will also help in the sustainable use of these medicinal plants to meet the present and future demands of our generations. There is a need to review the existing policies, research, and strategies at various levels related to traditional herbal medicines.

ACKNOWLEDGMENTS

The authors are highly thankful to the local healers, people who provide information, and Career Point University - Hamirpur, Himachal Pradesh, for facilities and encouragement. Local inhabitants are acknowledged for providing necessary information on the use of herbal plants for medicinal purposes.

REFERENCES

1. Chauhan, N.S. Important medicinal and aromatic plants of Himachal Pradesh. *Indian For.* 2003, 129, 979–998.
2. Jain, S. K., & Rao, R.R. (1978). *A Handbook of Field and Herbarium Methods*. Today and Tomorrow Printers and Publishers, New Delhi, India, 157.
3. Negi, P.S.; Subramani, S.P. Ethnobotanical study in the village Chhitkul of Sangla valley, district Kinnaur, Himachal Pradesh. *J. Non-Timber For. Prod.* 2002, 9, 113–120.
4. Pan, S. Y., Litscher, G., Gao, S. H., Zhou, S. F., Yu, Z. L., Chen, H. Q., Zhang, S. F., Tang, M. K., Sun, J. N., & Ko, K. M. (2014). Historical Perspective of Traditional Indigenous Medical Practices: The Current Renaissance and Conservation of Herbal Resources. *Evidence-Based Complementary and Alternative Medicine*, 2014, 1–20.
5. Parabia, M. and Reddy, M.N. (2002). *Protocol for Ethno medicinal studies in forestry Ethnobotany*. Avishkar publishers, Distributors 807, Vyas Building, Chaura Rasta Jaipur, India. 383-393.
6. Qureshi RA, Ghufuran MA. 2005. Medicinal value of some important roses and allied species of northern areas of Pakistan. In: Hashmi M, editor. *Pakistan Rose Annual*. Aabpara: Pictorial Printers (Pvt.) Ltd.; 24 - 29.
7. Seth, M. K. 2003. Trees and their economic importance. *Bot Rev.* 69:321–376.
8. Singh, G. S. 1999. Utility of non-timber forest products in a small watershed in the Indian Himalayas: the threat of its degradation. (“Utility of non-timber forest products in a small watershed in the ...”) *Natural Resources Forum*, 23:65-77.
9. Singh, J.P. and Shankar, V. (1996). Traditional forage resources of India: exploitation potential Ethno-biology in Human welfare (Ed. S.K. Jain): 307-309.
10. Uniyal, S. K., Singh, K.N., Jamwal, P. and Lal, B. 2006. Traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya. *J. Ethnobiol Ethnomed.* 2: 14.

11. Verma, R., Parkash, and V. Kumar, D. Ethno-medicinal use of some plants of Kanag hill in Shimla, Himachal Pradesh, India. *Int. J. Res. Ayurveda Pharm.* 2012, 3, 319–322.
 12. World Health Organization (WHO) 2002. Traditional Medicine Strategy 2002-2005. Website: <https://www.who.int/publications/i/item/WHO-EDM-TRM-2002.1>.
-

Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Naveen Gautam et al: A Survey, Analysis and Socio - Economic Potential of Ayurvedic Medicinal Herbs used by Traditional Healers of Shivalik Hills of Western Himalayas, India.. *International Ayurvedic Medical Journal* {online} 2023 {cited April 2023} Available from: http://www.iamj.in/posts/images/upload/977_986.pdf