J. Mountain Res. P-ISSN: 0974-3030, E-ISSN: 2582-5011
Vol. 16(1), (2021), 215-224 DOI: https://doi.org/10.51220/jmr.v16i1.22

An Ethnobotanical Study of Medicinal Plants of Billawar Region, Jammu and Kashmir, India

Rakesh Kumar[1] • Vikas Sharma[1] • Sudesh Kumar[2*] • Vikrant Jaryan[1]

[1]Department of Botany, SBBS University Jalandhar, Punjab – 144030, India
[2]Department of Zoology Central University of Jammu (J&K) - 181143, India

*Corresponding Author Email id: ksudesh75@gmail.com

Received: 11.4.2021; Revised: 14.5.2021; Accepted: 24.5.2021

Abstract: The present study was carried out in some interior regions of Billawar in Jammu and Kashmir Union Territory to collect the information of traditionally used and ethno-botanically important medicinal plants by the local communities. Proper identification of the plant species and their importance to the local people can provide useful information and play a pivotal role in efficient utilization of natural wealth. So, it is important to scientifically identify and document this natural wealth before they are lost forever. The field survey was conducted at different sites namely, Dewal, Billawar, Bhaddu, Sukrala, KotiMarhoon and Kishanpur of Kathua district from December 2019 to June 2020. During this study, a total of 64species of medicinal plants (including trees, shrubs herbs, and grasses) belonging to 40 families and 43 genera were identified and were commonly used by the local people to cure different diseases. Each recorded plant was identified for their economic importance and medicinal values for the treatment of diseases like headache, toothache, epilepsy, gastric problem,skin disorders earache, pneumonia,jaundice, etc. Therefore, the present work was an attempt to document and compute which includes the collection and compilation of different plant species of the region.

Keywords: Ethnobotany • Medicinal plants • Traditional knowledge • Billawar • Marhoon • J&K

Introduction

Plant wealth of the Indian Himalayan region is known for its unique, natural and socio-economic values. The Himalayan region is inhabited by a large number of ethnic communities and many of them with distinct tradition, culture and life style. Within the recent past there has been a deep concern and awareness about the conservation of the fragile Himalayan ecosystem. Billawar region of Jammu and Kashmir Union Territory lies between 32.613° N, 75.604° E and the altitudinal elevation of 844m.a.s.l.People of the Billawar region have a vast knowledge of medicinal plants, where most of the inhabitants of region are living in the villages who are mostly dependent on Plant resources for medicine, fuel, food, fodder, fiber, timber and various other purposes. Due to lack of modern medical facilities, they use plants to get rid of different ailments. Earlier there was no such evidence or sufficient information either concerning the reasons for illness or concerning the plants and how they can be used as a cure. But, now in these days, the medicinal plants are used extensively for providing herbal medicine to cure several ailments (Dangwal, *et.al*. 2010, Kumar et.al.,2015, Rao et.al., 2015).The traditional use of plants as medicines is well known among the native communities of the area.

The ethno-botanical account of the Himalaya reveals that many plants have been imported tothe market which in turn has resulted in the gradual loss of plants (Kumari, *et.al.*2012).The relationship between plants and human cultures is not limited to the use of plants for food, clothing and shelter but also includes their use for religious ceremonies ornamentation and health care (Devi, et.al. 2016). The villagers have their own remedies for medicinal treatment by using various plants or plant products present in their vicinity. Therefore, in the recent years, one can notice a global trend in the traditional system of medicines and ethno-botanical studies have become increasingly valuable in the development of healthcare system in different parts of the world. During the ancient time it was believed that the people were healthier than that of the today which is only due to their living life style and harmony with the nature(Bhatia, *et.al.* 2014). Documentation of such knowledge will lead to its conservation and facilitate future research on medicinal plant safety and efficacy to validate traditional use as well as prevent the destructive changes in the knowledge of medicinal plants during transmission between generations (Bunalema, *et.al*. 2014). The present investigation was carried out to study and document the traditional knowledge of some important medicinal plants based on the survey and discussion with local people.

Materials and Methods

Study Area

The Billawar region of district Kathua in Jammu and Kashmir Union Territory is located at 32.613° N, 75.604° E and an elevation of 844masl (2,769 ft). Due to varied topography, the flora ranges from sub tropical to alpine meadows on the higher peaks.

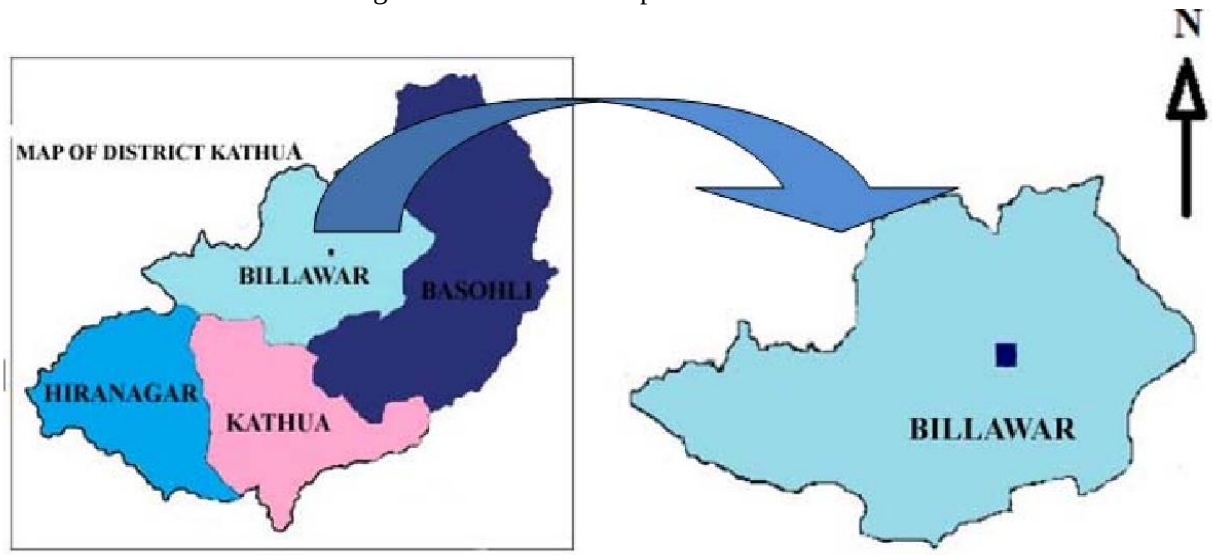

Fig 1: Map showing the location of Billawar Tehsil in Kathua District and enlarged view of Tehsil Billawar. (**Source: Semanticscholar.org**)

Methodology

The field study wasconducted to obtain the traditional knowledge of medicinal plants in the areas of Dewal, Billawar, Sukrala, Bhaddu, Koti, Marhoon and Kishanpur district Kathua (J&K) several times during the months of December 2019 to June 2020. Many elderly people were consulted from these areas. They gave us important knowledge regarding the medicinal plants and we noted their information in a

notebook.The plants listed were searched with the help of volunteers and then the photographs of the plants were taken in their natural habitat with a digital Camera and documentation was maintained. Questionnaire and personal interviews were made with old persons to collect the information on medicinal plants of the region for different diseases and purposes.

Results and Discussion

A total of 64 species of medicinal plants belonging to 43 genera and 40 families were identified from the region. Out of the total, 30 species were identified as trees followed by herbs 19, shrubs 11 and 4 species were identified as grasses (Table 1 and Plate 1). The family Moraceae and Poaceae were dominant among all the other families and 4 species (10% of the total species composition) were recorded for each family (Fig. 2). The highest percentage of contribution of different ethno-medicinal plants was recorded for trees (47%) and lowest was recorded for grasses (6%) (Fig. 3).

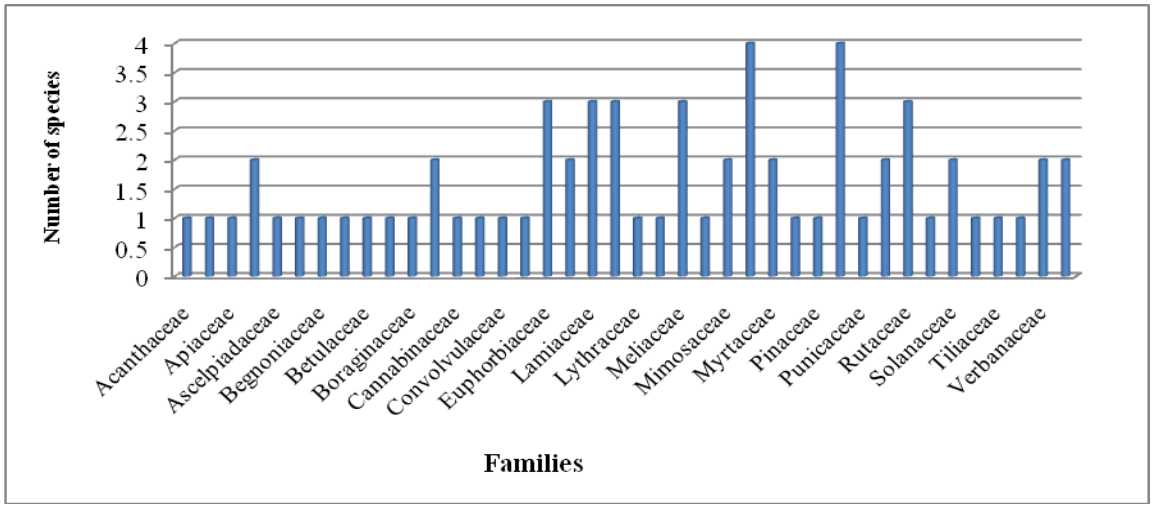

Fig. 2: Contribution of ethno-medicinal plant belonging to different families

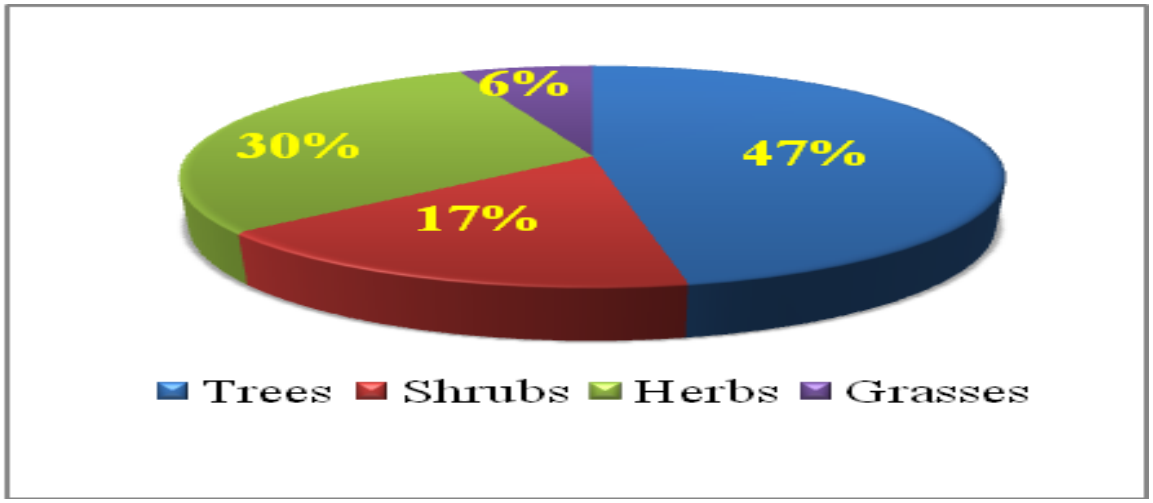

Fig. 3. Percent contribution of different ethno-medicinal plants

The results of the study also show that different parts of the plants were used by the local communities for different traditional practices in the area. Leaves were dominated among the different parts of the medicinal plants used for various purposes by local people because more than 37% of the leave part was used for the traditional purposes (Fig. 4).

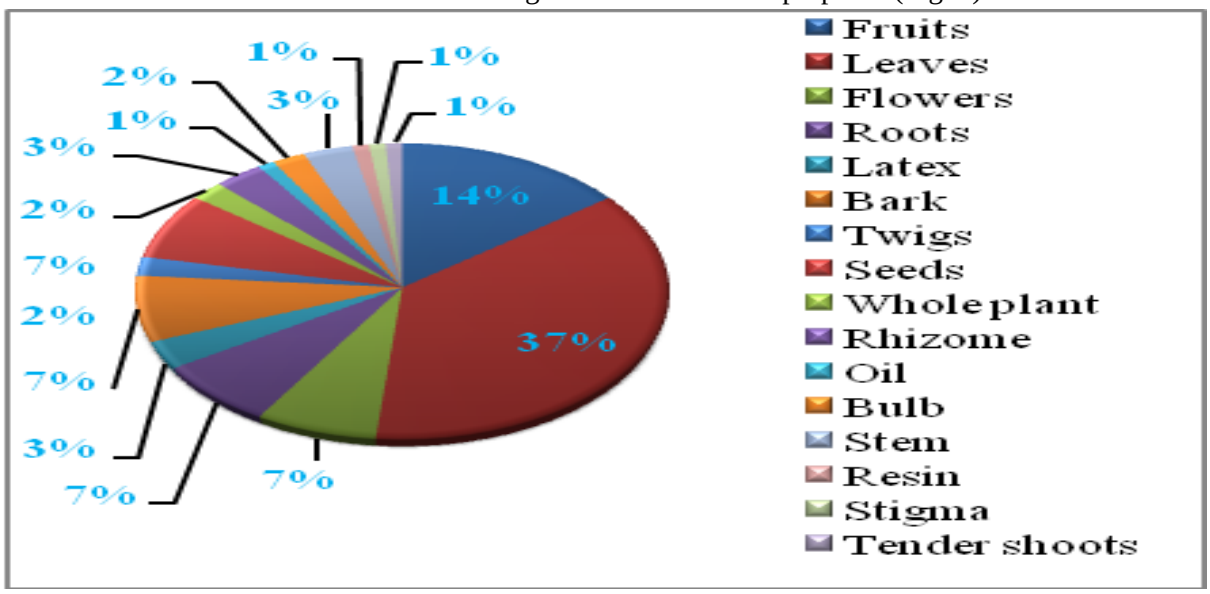

Fig. 4. Percentage of plant parts used for medicinal purposes

The medicinal plants were collected along with the documentation of significant information and records were maintained on their common names, scientific names, families and different parts of the plants used for diseases and different ailments like headache, arthritis, rheumatism, cough, cold, asthma, diarrhea, dysentery, toothache, piles, kidney stones, diabetes, jaundice, skin disorders etc. The tribal peoples i.e. Muslim, Gujar, Bakarwal, Gaddi, and Dogra Community of Billawar were consulted regarding the importance and traditional knowledge of medicinal plants because they have a great knowledge of most valuable medicinal plants in the present-day context of biological diversity conservation and its sustainable utilization(Shah, *et.al.*2015). It is of great value that the floral resource of Billawar region should be scientifically identified, inventorized and documented so that the local communities can gain sufficient knowledge as well as it also provides sufficient and effective information to academicians,research scholars, industrialists etc. The present study is rich in medicinal plant resources which are mostly herb species and play a vital role in treating different types of diseases. It was also investigated and observed that some species of medicinal plant are used to treat many kinds of disease; likewise, more than one plant species is used to treat a particular disease (Ganie, *et.al*. 2013). Ethno-botanical knowledge is very important as it reflects the practices and problems solved by the indigenous communities by their long experience. This knowledge could prove beneficial in phyto-pharmacological research for the discovery of new therapeutic drugs (Cordell, 2000 and Dhar, *et.al.*2000).). However there is continuous erosion in the traditional knowledge of many valuable plants being used for the ethno-medicines (Shah, *et.al*. 2009; Singh and Tyagi, 2006).). So, that the coming generations may come to know about indigenous plant species of the area. But in these

days, anthropogenic activities such as industrialization, deforestation, habitat destruction, urbanization, illegal hunting, forest fire, invasive weeds, road construction etc. are serious threat to the species diversity of the region. Therefore, it is very necessary to document the useful ethnobotanical flora and conserve it for future generations. Hence, the steps towards the conservation of the species with appropriate measures involving the participation of the local people has been adopted in the present work. The details of ethnomedicinal plants used by the local people for different purposes are given in the (Table1).

Conclusion

The present study reveals that Billawar region is still rich in wealth of traditionally available ethnomedicinal plants. The study suggests that, the need for the integration of indigenous knowledge for sustainable development and conservation of natural resources receive more recognition and for proper scientific transformation of traditional knowledge proper ethno-botanical investigations are required. However, the study also concluded that traditional practices have dimensioned over time. Therefore, if paid attention, it may go a long way towards fostering the sustainable use of natural resources and knowledge available within the local communities.

J. Mountain Res. P-ISSN: 0974-3030, E-ISSN: 2582-5011
Vol. 16(1), (2021), 215-224 DOI: https://doi.org/10.51220/jmr.v16i1.22

Table 1: List of ethnobotanically used medicinal plants of Billawar, Jammu and Kashmir

S.N	Botanical Name	Local Name	Families	Plant Parts Used	Medicinal uses
1.	*Adhatoda vasica*	Brenkar	Acanthaceae	Flower and leaves	Ash of flower and honey is used to cure whooping cough and the burning leaves for asthma and cough.
2.	*Mangifera indica Linn.*	Aam	Anacardiaceae	Leaves and fruits	Dried leaves are used for diabetes.Fruits make the nervous system strong.
3.	*Centella asiatica L.*	Bramhi	Apiaceae	Leaves	Dried leaves powder mix with milk are used to improve mental weakness and memory.
4.	*Catharanthus roseus Linn.*	Sadabahar	Apocynaceae	Leaves and flowers	Leaves and flower are good for diabetic patient.Leave is used for wasp sting.
5.	*Carissa opaca*	Garna	Apocynaceae	Leaves, latex	Extracts of leaves along with the leaves of Dilbergia sissoo is prescribed for curing pneumonia. Plant latex is applied as dressing for abscess; leaf decoction is taken orally against cough.
6.	*Calotropis procera*	Desi Ak	Ascelpiadaceae	Root, leaves	The leaves are used to cure asthma and cough. The root with mustard oil is applied for the skin problems.
7.	*Xanthium indicum*	Jojra	Asteraceae	Leaves	Leaf paste is applied for alopecia affected site.
8.	*Oroxylum indicum Linn.*	Tantu	Begnoniaceae	Stem bark, leaf, and fruit	Stem bark paste is used for the cure of scabies.Fruits are used in treating cough piles and cardiac disorders. Leaf decoction is used for stomachache.
9.	*Berberis lyceum Royle*	Kaemblu	Berberidaceae	Roots, leaves, and fruits	The root extract is used to relieve kidney stones. Fruit, leaves arealso applied on bleeding piles.
10.	*Betula utilis*	Bhojpatri	Betulaceae	Twigs, bark leaves,	Used for blood purifier.
11.	*Bombax ceiba L.*	Simbal	Bombacaceae	Bark, fruit, and root	Root decoction is used for diarrhea. Bark is applied to stop bleeding and fruit is used to treat kidney and bladderulcer.
12.	*Cordia dichotoma Linn.*	Lusade	Boraginaceae	Fruits	Fruits are used against dysentery and cholera.
13.	*Brassica campestris L.*	Sarsoon	Brassicaceae	Seeds	Extracted oil is used to detoxify the poisonous insect or weed intake in animals.
14.	*Brassica rapa L.*	Gonglu	Brassicaceae	Whole plant	Whole plant is fed to cattle as galactagogue.
15.	*Cannabis sativa Linn.*	Bhang	Cannabinaceae	Leaves	Easing pain and inducing sleep.
16.	*Carica papaya L.*	Papita	Caricaceae	Fruit	Ripe and unripe fruits are used for the treatment of piles, and stone.

17.	*CuscutareflexaRoxb.*	Amar bel	Convolvulaceae	Whole plant	Whole plant is used for itchy skin. Seeds and stem are used for the treatment of bilious disorders.
18.	*Cyperus rotundus Linn.*	Dilla	Cyperaceae	Rhizome	Roots are good antidotes for all poisons.
19.	*Emblica officinalis*	Amla	Euphorbiaceae	Fruit	Used against Jaundice, dried fruit as good blood purifier, vomiting, gastric problem.
20.	*Mallotus philippinensis*	Kaamla	Euphorbiaceae	Seeds	The powders of seed are used for expelling out intestinal worms.
21.	*Ricinus communis L.*	Arandi	Euphorbiaceae	Oil, leaves	Oil is applied externally to cure itching. Leaf paste is applied to the forehead to relieve headache.
22.	*Dalbergia sissoo*	Taali	Fabaceae	Leaves	The fresh juice of leaves mixed with honey dropped into the eyes for improvement of eye sight.
23.	*Mimosa pudicaLinn.*	Chui-mui	Fabaceae	Leaves	Decoction of leaves is used for diabetes.Paste of leaves fasten the wound healing process.
24.	*Mentha arvensis L.*	Pootna	Lamiaceae	Leaves	Leaf decoction checks flatulence, abdominal spasms and act as an appetizer.
25.	*Mentha longifolia L.*	Jangalipootna	Lamiaceae	Leaves	Leaf decoction checks flatulence, abdominal spasms and act as an appetizer.
26.	*Ocimumteluislorum*	Tulsi	Lamiaceae	leaves	Used for the treatment of cure cold and cough.
27.	*Allium cepa L.*	Payaaz, Ganda	Liliaceae	Bulb	Juice of bulb taken orally checks nausea and vomiting.
28.	*Allium sativum L.*	Thom	Liliaceae	Bulb and Seeds	Extracted oil is used as aeardrop to check otalgia. Seeds are deep- fried in clarified butter are eaten to cure joint pain.
29.	*Aloe barbadensis L.*	Kuargandal	Liliaceae	Leaves	Skin disorders, piles and jaundice. Latex is applied on forehead to get relief from headache and burns.
30.	*Woodfordiafruticosa*	Dhai	Lythraceae	Leaves and Flowers	Flowers are used for skin diseases, headache, fever,Diarrhea, wounds and ulcers. The juice of Leaves is used against problems associated with gall bladder.
31.	*Hibiscus rosa-sinensis*	Gudaal	Malvaceae	Flowers	Decoction of flower act as diuretic paste of flower prepared in mustered oil is then applied at the site of alopecia
32.	*Toona hexandra*	Tooni	Meliaceae	Leaves	Leaves are used for chronic dysentery. Flowers are used for menstrual disorders.

33.	*Melia azedarach L.*	Daraink	Meliaceae	Bark, leaves	Decoction of bark is used to wash the skin against achne, rashes, and dermatitis. Fruit extract are taken as snake bite.
34.	*Azadirechta indica L.*	Nim/Neem	Miliaceae	Leaves	Leaves eaten for curing stomach ailments.
35.	*Acacia nilotica Linn.*	Kikar	Mimosaceae	Pods, bark, flowers, gum leaves and roots	Pods are used for urinogenital disorder. Gums are used for, asthma bleeding and vaginal discharge. Flowers are used as tonic in diarrhea and dysentery. Paste of leaves used for skin itching. Roots and trunk paste used to heal wounds.
36.	*Acacia catechuLinn.*	Khair	Mimosaceae	Stem	It is a source of Katha, which is astringent digestive and useful in ailments of throat, mouth, gums, cough, and diarrhea.
37.	*Ficus religiosaLinn.*	Peepal	Moraceae	Leaves Roots and fruits	Leaves are used to treat constipation. Roots are chewed to prevent gum diseases. Powder of fruits is used for asthma.
38.	*Morus alba Linn.*	Toot	Moraceae	Leaves	Promote a hair growth, and stimulate appetite
39.	*Ficus racemose Linn.*	Rumbal	Moraceae	Fruits and latex	Fruits are used for kidney diseases. Latex applied externally for healing wounds.
40.	*Ficus benghalensisLinn.*	Bado	Moraceae	Latex	Latex is used to expel out the thorns which are broken down inside the body.
41.	*Psidium guajava L.*	Amrood	Myrtaceae	Leaves, fruit	Chewing young leaves and cures oral ulcers.Ground raw fruit is applied on forehead to relieve headache.
42.	*Syzygiumcumini L.*	Jamnoo, Tallay	Myrtaceae	Leaves, fruit, seeds	Fruit provide relief from anorexia. Seeds and leaves for diabetes,piles, and oral ulcers.
43.	*Oxalis corniculata L.*	Khattibooti Niki Ammi	Oxilidaceae	Whole plant	Fresh leaves are chewed as toothache and theextract of plant is used for blood purification
44.	*Pinus roxburghiiSar.*	Chir	Pinaceae	Resin	The oleo-resin is useful dressing for ulcers.
46.	*Zea mays*	Makai	Poaceae	Stigma	Corn used for kidney stone.
47.	*Hordeum vulgare*	Jau	Poaceae	Seeds	The seeds are used to produce a special wine called Shang which keep the body warmth in temperate region
48.	*Dendrocalamusstrictus*	Bamboo/ Baans	Poaceae	Tender shoots,	Used as tonic and in case of calcium deficiency

49.	*Punica granatum L.*	Dadunni	Punicaceae	Leaves, roots,Bark and seeds	The bark is used against tapeworm. The Fruit juice is used for jaundice, and cough. Leaves, roots and seeds are effective for anti-helminthic activity.
50.	*Prunus persica L.*	Aru	Rosaceae	Leaves	Leaves are crushed and the paste so formed is applied on cuts, wounds, for quick healing.
51.	*Rosa indica L.*	Gulab	Rosaceae	Flower	Used for dyspepsia, flatulence, and act as aperients.
52.	*Xanthoxylumalatum*	Tirmiru	Rutaceae	Stem	The bark of stem is used against toothache, stomachache.
53.	*Citrus lemon Burm.*	Nimbu	Rutaceae	Fruit	Lemon juice cures haematuria. Washing hair with lemon juice removes dandruff and reduces hair fall.
54.	*Citrus media L.*	Gargal	Rutaceae	Fruit	Used for gastric disorders
55.	*Populus alba L.*	Safeda	Salicaceae	Bark	Decoction of bark is antipyretic, diuretic and blood purifier.
56.	*Datura metal Linn*	Datura	Solanaceae	Leaf, twig and fruits	Twigs and Leaves are used to cure asthma.Fruit juice is usedagainst falling of the hair and dandruff.
57.	*Withania somnifera L.*	Ashwagandha	Solanaceae	Leaves	Act as memory enhancer and also reduces obesity.
58.	*Taxus baccata L.*	Barmi	Taxaceae	Leaves	Decoction of leaves is used to cure asthma, bronchitis and cough.
59.	*Grewia optiva*	Dhaman	Tiliaceae	Leaves, and seeds	Leaves and seeds are used to cure the weakness of cattle.
60.	*Celtis australis*	khadak	Ulmaceae	Leaves	Decoction of leave and fruits is used in the treatment of menstrual disorders.
61.	*Vitex negundoLinn.*	Bana	Verbanaceae	Flower and leaves	The extracts of the leaves are used to expel out worms in children.Fresh flowers are extractto cure diarrhoea.
62.	*Lantana camaraLinn.*	Panjfulli (Jadi)	Verbenaceae	Leaves	Leaves are used as an antiseptic for wounds. Leaf juice used for the treatment of skin itches
63.	*Curcuma aromatic Salisb.*	Ban haldi	Zingiberaceae	Rhizome	To stop bleeding from the wounds.
64.	*Curcuma domestica*	Haldi	Zingiberaceae	Rhizome	Powder mix with milk and given orally to quick relive from cut wounds and internal bleeding disorders

References

Bhatia H., Sharma Y.P., Manhas R. K. and Kumar K. (2014). Ethnomedicinal plants used by the villagers of district Udhampur, J&K, India. *J. Ethnopharmocol*;151 (2), Pp. 1005–1018.

Bunalema L., Obakiro S., Tabuti J.R. S. and Waako P. (2014). Knowledge on plants used traditionally in the treatment of tuberculosis in Uganda. *J. Ethnopharmacol*;151: Pp. 999–1004.

Cordell G.A. (2000). Biodiversity and drug discovery; A symbiotic relationship. *Phytochemistry*; p. 463.

Dangwal L. R., Sharma A. and Rana C. S. (2010). Ethno-medicinal plants of the Garhwal Himalaya used to cure various diseases. A case study. *New York Science Journal*;3(12):Pp. 28-31.

Devi S., Kumar O. and Kumar M. (2016). Ethno-botanical values of anti-diabetic plants of M.P. region India. *J. Medicinal Plant Studies*; 4(3): Pp. 26-28.

Dhar U., Rawal R.S. and Upreti J. (2000). Setting priorities for conservation of medicinal plants: A case study in the Indian Himalaya. *Biol. Cons.*; p. 57.

Ganie A.H., Tali B.A. and Rather A.M.(2013). An ethno-botanical study in Budgam district of Kashmirvalley: An attempt to explore and document traditional knowledge of the area. *Int. Res. J. Pharmacy*; 4(1): Pp. 201-204.

Gupta A., Sahoo T. R. and Tiwari E. (2005). Ethnobotanical importance of some common aquatic and marshy plants of Sagar district. *J.Bot. soc. Uni.Sagar*; Pp. 65-73.

Kumar N, Wani Z A, Dhyani S (2015). Ethnobotanical Study of the Plants Used by the Local People of Gulmarg and its Allied Areas, Jammu & Kashmir, India *Int. J Curr Res. Biosci. Plant Biol.* 2 (9): 16-23

Kumari P., Joshi G.C., Tewari L.M. (2012). Indigenous uses of threatened ethnomedicinal plants used to cure different diseases by ethnic people of Almoradistrict of Western Himalaya. *Int.J. Ayurvedic Herb. Med.*; 2 (4), Pp. 661–678.

Rao PK, Hassan SS, Bhellum BL, Manhas RK (2015). Ethnomedicinal plants of Kathua District, J&K India. *Journal of Ethnopharmacology*, 171: 12-15

Shah A., Karim A., Ahmad J. and Sharma M.P. (2015). Medicinal shrubs used by Gujjar and Bakerwaltribes against various non-communicable diseases in Rajouri district J&K India. *Ind. J. Tradi. Knowl*; 14(3): Pp. 466-474.

Shah N. H., Mahmud S. and Shamim A. A. (2009). Plants used against rheumatism by the Gujjar, Bakerwalandpahari tribes of District Poonch (J&K).*Plant Sciences*; (11): Pp. 587-588.

Singh L. and Tyagi E. (2006). Plants used as toothbrushes by ethnic people of East-Sikkim. *Plantsciences*; (2): Pp. 561 562.

****