



ISSN (E): 2320-3862
ISSN (P): 2394-0530
NAAS Rating: 3.53
JMPS 2019; 7(3): 24-28
© 2019 JMPS
Received: 14-03-2019
Accepted: 18-04-2019

Faheem Tariq
Department of Botany, Islamia
College Peshawar, Pakistan

Syed Inziam ul haq
Department of Botany, Islamia
College Peshawar, Pakistan

Kiran Natasha
Department of Botany, Islamia
College Peshawar, Pakistan

Jalil Ahmad
Department of Botany, Islamia
College Peshawar, Pakistan

Fayaz Ahmad
Department of Botany, Islamia
College Peshawar, Pakistan

Adnan
Department of Life Sciences,
Northeast Normal University,
China

Amir Ali
Department of Botany, Islamia
College Peshawar, Pakistan

Abdul Basit
Department of Botany, Islamia
College Peshawar, Pakistan

Correspondence
Faheem Tariq
Department of Botany, Islamia
College Peshawar, Pakistan

Ethnomedicinal study of various plants in lone valley, district Chitral, KPK, Pakistan

Faheem Tariq, Syed Inziam ul haq, Kiran Natasha, Jalil Ahmad, Fayaz Ahmad, Adnan, Amir Ali and Abdul Basit

Abstract

The valley of lone, district Chitral (Pakistan) is an area of great importance as it is endemic to variety of plants diversity. This present study aims to analyze the variety of ethno medicinal plants found in Chitral. The present study was carried out in lone valley of district Chitral, during 2016–2017. A total of 35 species belonging to 30 genera and 19 families were recorded. Out of 35 species, 34 were angiosperms, having 33 dicots and 2 monocots, one species belonging to Gymnosperm. The dominant family was Asteraceae with 5 species (14.28%) followed by Rosaceae with 4 species (11.42%), Lamiaceae, Apiaceae and Chenopodiaceae with 3 (8.57%) species and Ranunculaceae, Brassicaceae and Solanaceae, with 2 (5.71%) species each, Alliaceae, Boraginaceae, Eleagnaceae, Malvaceae, Oleaceae, Plantaginaceae, Berberidaceae, Convolvulaceae, Ephedraceae, Rubiaceae, Geraniaceae, Chenopodium represented as dominant genus followed by, *Prunus* and *Artemesa* each with 1 species (2.85%).

Keywords: ethnomedicinal; chitral; asteraceae; endemic

1. Introduction

Chitral is a district, of Khyber Pakhtunkhwa (KP) Province of Pakistan, located at 322 Km north from Peshawar. It is situated between 35°50'46" N and 71°47'09" E. It is the largest district of Khyber Pakhtunkhwa with a total area of 14,850 sq. Km. Mountains of Chitral are mostly bare except few patches present at the bottom of the deep and narrow valley with cultivated land. Other important valleys of Chitral includes Mulkhow, Terich, Laspur, Torkhow, Owir, Drosh Bumburet, Ashuret, Totkoh, and Shishi.

There are almost 350,000 to 400,000 plant species reported across the world, in which the majority of plants are used for the treatment of various ailments [1, 2, 3, 4]. According to WHO (World health organization), in third world countries, 80% of the world's human population depends on herbal medicines [5]. Modern day's health care systems of various pharmaceuticals are of plant origin and inspired by traditional methods [6]. During the last decades, a commercial and significant trend has been observed in Pakistan, because of its widespread cultural and economic acceptability based on plants products [7, 8]. Due to lack of access to modern pharmacopeia, a rural population mostly relies on traditional herbal remedies [9]. There are several factors which are responsible for changes observed in practicing traditional medication i.e. history, culture, attitude, and community's philosophy [10]. The knowledge about the preparation of homemade traditional herbal remedies, transfer from one generation to another over a period [11, 12]. In developing countries, medicinal plants provide an alternate source for the primary health care system [13]. In rural area due to the lack of medicinal health care facilities and the high cost of conventional allopathic medicines, locals are compelled to use medicinal plants. In Pakistan, around 1,572 genera and 5521 species are identified which are mostly restricted to mountainous areas [14]. There are very limited attempts been made to document indigenous uses of medicinal plants [15]. This information is incomplete as a very little number of common plants are listed.

Qureshi and his research mates reported around 27 plants species from Gilgit Baltistan, used for wide range of purpose [16]. Medicinal plants (26 species) used in various drugs and curing various diseases, agricultural implements and in food are been reported from district Mianwali [17]. During 2007-2008, a total of 38 species of 36 genera used as fuel, shelter, fodder and agricultural tools have been reported from district kotli, Azad Kashmir, Pakistan [18]. Similarly, taxonomic studies have been conducted in district Haripur during 2004-2008, a total of 211 species belonging to 170 genera and 66 families has been reported [19]. Medicinal plants used

against 32 different types of diseases were studied during 2010 in Neelum Valley of Azad Kashmir, Pakistan [20]. Ethnobotanical study on district Dir Kohistan valley, Khyber Pakhtunkhwa, Pakistan has conducted, a total of 40 species, belonging to 25 families were recorded [21]. Chitral Gol National park medicinal plants were studied, a total of 31 species belonging to 21 families were recorded used in medicines, fuel and for fencing by local peoples [22]. Folk medicines of 75 plant species used for various human ailments from Brah, Totay, pirkhel, Mekhband, Kot and Haryankot of Hazar Nao forest has been reported [23]. Ethnobotanical plants used by local inhabitants of the Naltar Valley were studied during summer 2009-11, i.e. 141 species belonging to 107 genera and 48 families [24].

The present study was conducted to study the medicinal plants used in different areas of lone valley of Chitral. The area is considered to be rich in plant diversity including most importantly the medicinal plants. Local inhabitant relies on plants for their daily usage that is fire, foddering, thatching, medicines etc.

2. Materials and Methods

Area exploration

The present study was undertaken on lone valleys of Chitral, KPK. Regular visits were made to 23 different sites, during 2016-17 for the collection of medicinal plants. All the plants were conserved properly in the department of Botany, Islamia College Peshawar, Pakistan.

Local flora exploration

Map of district Chitral was used (Google Map) and guidance was taken from the respective locals and concerned office. In order to explore a flora of study area, the design was made i.e. local name, traditional uses of plants with emphasis on medicinal uses were documented and interviews of the local elderly knowledgeable persons including local herbal practitioners (hakims).

Medicinal flora

Medicinal flora was carefully collected according to the recommended procedure used by [25], the pictures were taken. Locals were interviewed to know about its importance and use in curing different diseases in human beings. The outcome of the results was compared to the available literature.

Statistical analysis

The collected data was analyzed, and graphs were plotted using Excel 365.

3. Results and Discussion

The medicinal plants were surveyed according to the flowering period and collected information related to taxa with various indigenous uses, especially medicinal plants of lone valley, District Chitral. A total of 35 species belonging to 30 genera and 19 families were recorded. Out of 35 species, 34 were angiosperms, having 32 dicots and 2 monocots, one species belonging to Gymnosperm. The dominant family was Asteraceae with 5 (14.28 %) species followed by Rosaceae with 4 (11.42 %), Lamiaceae, Apiaceae and Chenopodiaceae with 3 (8.57 %) species Ranunculaceae, Brassicaceae and Solanaceae, with 2 (5.71 %) species and each Alliaceae Boraginaceae, Eleagnaceae, Malvaceae, Oleaceae, Plantaginaceae, Berberidaceae, Convolvulaceae, Ephedraceae, Rubiaceae, Geraniaceae, *Chenopodium* represented as dominant genus followed by, *Prunus* and *Artemisia* each with 1 (2.85%) species (Table. 1). Among them, some taxa were used for a number of purposes and our main aim was to investigate their medicinal purposes. Among 35 collected medicinal plants 33 are considered wild, while 2 species are reported as cultivated. The results suggested that the maximum medicinal plants were used as a whole plant or fruit, leaves, the flower seed root etc. were used.

Among the reported medicinal plant species, in lone valley (Chitral) some plants species are used for many purposes such as fodder, fuelwood, commercial purposes, fruit, broom, fencing, thatching, vegetable, spices, agriculture tools, condiments, flavoring, and cosmetics. These plants include *Berberis lycium*, *Eleagnus angustifolia*, *Ephedra gerardiana*, *Cotoneaster nummularia*, *Craetagus songorica*, *Capsella bursa-pestoris*, *Galium aparine*, *Fraxinus hookeri* etc.

Medicinal plants against different ailments were *Artemisia parvifolia*, *Chichorium intybus*, *Matricaria chamomile*, *Ferula narthex*, *Berberis lycium*, *Eleagnus angustifolia*, *Ephedra gerardiana*, *Mentha spp*, and *Plantago major*. These plants are used for diseases such as abdominal pain, blood pressure, constipation, fever, typhoid, gastrointestinal disorders, asthma, gastric problems, joint diseases, malaria, diarrhea, headache, dysentery, jaundice, and vomiting.

The decline in flora number or fading of flora may be due to deforestation, soil erosion, overgrazing, poor harvesting method, and purity. The uprooting of important medicinal plant result soil erosion. After the field survey, it is estimated that about 55% of the people in lone valley depends on medicinal plants for their treatment of the various ailment, from ancient times. Thus, the loss of these plants resources will not affect only the health care system but will also affect the ecosystem. Therefore, the conservation of plant resources especially medicinal plants in the concerned area is urgently needed.

Table 1: List of selected plants and their ethnobotanical uses

S No.	Name of Plant	Family	Local name	Habit	Part used	Uses
1.	<i>Ajuga Bracteosa</i> Wall. ex Benth	Lamiaceae	boti	Perennial herb	Leaves	Throat infection and fever.
2.	<i>Mentha Royleana</i> Benth.	Lamiaceae	Bain	Perennial herb	Leaves	Cure vomiting dysentery, and diarrhea.
3.	<i>Origanum vulgare</i> L.	Lamiaceae	Ishpain	Perennial herb	Whole plant	The shoot is chewed.
4.	<i>Allium barszczewskii</i> Lipsky	Alliaceae	Kach	Biennial herb	Leaves	gastrointestinal disorders and stomachache.
5.	<i>Artemisia brevifolia</i> Wall. Ex. D.C.	Asteraceae	Drone	Herb	Whole plant	Cure gastric problem
6.	<i>Cichorium intybus</i> L.	Asteraceae	Khasti	Herb	Root and Flower	Cure constipation, fever, typhoid and help in digestion.
7.	<i>Matricaria chamomilla</i> L.	Asteraceae	Shirisht	Herb	Inflorescence	gastrointestinal disorders
8.	<i>Taraxicum officinale</i> Weber ex F.H.Wigger	Asteraceae	Phowo	Herb	Rhizome and stem	Urinary flow and kidney problems

9.	<i>Artemisia parviflora</i> Roxb ex. D. Don	Asteraceae	Kharkhalich	Herb	Seeds	Abdominal pain and blood pressure.
10.	<i>Arnebia Euchroma</i> (Royle ex Benth.) I.N. Johnston	Boraginaceae	Phosuk	Perennial herb	Root and stem	Used for burnt and wounds
11.	<i>Berberis Calliobotrys</i> Aitch. ex Koehne	Berberidaceae	Chowenj	Shrub	Fruits and bark	Fever, cure backache.
12.	<i>Bunium persicum</i> (Boiss.) Fedtsch	Apiaceae	Hojoj	Perennial herb	Fruits	Indigestion, gastrointestinal disturbances and abdominal pains.
13.	<i>Prangos pabularia</i> Lindl	Apiaceae	Moshain	Perennial herb	Whole plant	The gastric problem, constipation.
14.	<i>Ferula narthex</i> Boiss	Apiaceae	Raw	Perennial herb	Whole plant	A cough, asthma, toothache, gastric problems, and anti-constipation.
15.	<i>Chenopodium album</i> L.	Chenopodiaceae	Kunakh	Annual herb	Whole Plant	Catarrh and anthelmintic.
16.	<i>Chenopodium foliosum</i> Asch.	Chenopodiaceae	Pelilimrach	Annual herb	Ripe fruits	Eye infection
17.	<i>Chenopodium murale</i> L.	Chenopodiaceae	Darkunakh	Annual herb	Whole plant	Abdominal pain, diuretic and anthelmintic.
18.	<i>Clematis orientalis</i> L.	Ranunculaceae	Chontruk	Shrub	Flowers and fruits	Diarrhea and dysentery.
19.	<i>Delphinium nordhagen</i> Wendelbo	Ranunculaceae	JaghJosho	Perennial herb	Roots and flowers	Hair tonic.
20.	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Bakarwali	Perennial herb	Root	Purgative
21.	<i>Cotoneaster nummularia</i> Fish. & Mey.	Rosaceae	Mikeen	Shrubs	Fruit	Asthma, blood purifier, cardiotoxic, cough, hemorrhage, and hypertensive.
22.	<i>Crataegus songarica</i> K. Koch.	Rosaceae	Goni	Tree	Fruit	Cardiotonic.
23.	<i>Prunus armeniaca</i> L.	Rosaceae	Zholly	Tree	Whole plant	Skin cure, refrigerant, and laxative.
24.	<i>Prunus amygdalus</i> Dulcis.	Rosaceae	Badam	Tree	Whole plant	Stimulant and prevent hair fall.
25.	<i>Elaeagnus angustifolia</i> . var. <i>angustifolia</i>	Elaeagnaceae	Shinjoor	Tree	Fruit and flowers	Sour throat and high fever.
26.	<i>Ephedra intermedia</i> Schrenk and Meyer	Ephedraceae	Somani	Shrub	Whole plant	Asthma and tuberculosis.
27.	<i>Fraxinus hookeri</i> Wenzig	Oleaceae	Toor	Tree	Bark and leaves	Fever and reduce astringency.
28.	<i>Galium aparine</i> Wall.	Rubiaceae	Mattar	Perennial herb	Whole plant	Aperients and diuretic.
29.	<i>Geranium wallichianum</i> D. Don ex Sweet	Geraniaceae	Ratanjothe	Perennial herb	Rhizome	Lowering blood pressure and Leucorrhoea.
30.	<i>Hyoscyamus niger</i> L.	Solanaceae	Joligao	Biennial herb	Leaves	An asthma and woofing cough.
31.	<i>Solanum nigrum</i> L.	Solanaceae	Pirmilik	Herb	Whole plant	Cosmetics, dried skin, skin pimples, freckle and sunblock.
32.	<i>Lepidium sativum</i> L.	Brassicaceae	Sat-bootey	Annual herb	Leaves and seeds	Abdominal problem and colic
33.	<i>Capsella bursa-pastoris</i> L.	Brassicaceae	Jalajali	Herb	Whole plant	Diuretic and cure injuries
34.	<i>Malva neglecta</i> Wallr.	Malvaceae	Yorpaghusu	Perennial herb	Whole plant	Purgative agent and face patches.
35.	<i>Plantago major</i> L.	Plantaginaceae	Hojoj, Brono Achar	Perennial herb	Leaves and seeds	Skin discoloration and dysentery.

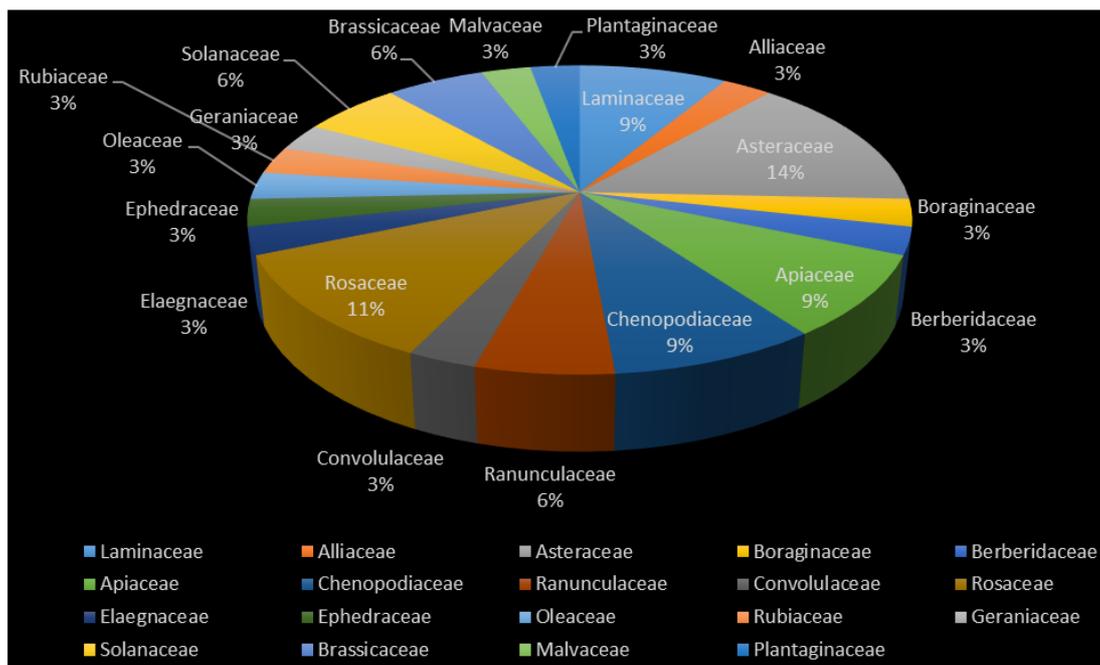


Fig 1: Graphical representation Percentage of Families

Table 2: Percentage of families and species distribution among the families

S. No	Family	Plants	Percentage
1	Lamiaceae	3	8.57
2	Alliaceae	1	2.85
3	Asteraceae	5	14.28
4	Boraginaceae	1	2.85
5	Berberidaceae	1	2.85
6	Apiaceae	3	8.57
7	Chenopodiaceae	3	8.57
8	Ranunculaceae	2	5.71
9	Convolvulaceae	1	2.85
10	Rosaceae	4	11.42
11	Elaeagnaceae	1	2.85
12	Ephedraceae	1	2.85
13	Oleaceae	1	2.85
14	Rubiaceae	1	2.85
15	Geraniaceae	1	2.85
16	Solanaceae	2	5.71
17	Brassicaceae	2	5.71
18	Malvaceae	1	2.85
19	Plantaginaceae	1	2.85
	Total 19 family	35	

4. Author's contribution

Conceived and designed the Experiment: Faheem Tariq and Kiran Natasha, performed experiments: Faheem Tariq, Syed Inziam Ul Haq, Adnan, Jalil Ahmad, and Amir Ali, Analyzed the data: Faheem Tariq & Abdul Basit, contributed materials/analysis/ tool: Fayaz Ahmad, Wrote the paper, Faheem Tariq.

5. Acknowledgments

We are thankful to the Department of Botany, Islamia College Peshawar, Pakistan for helping us in our research work.

6. References

- Bussmann R, Sharon D, Ly J. From Garden to Market? The cultivation of native and introduced medicinal plant species in Cajamarca, Peru and implications for habitat conservation. *Ethnobot. Res. Appl.* 2008; 6:351-361.
- Bussmann RW, Sharon D, Vandebroek I, Jones A, Revene Z. Health for sale: the medicinal plant markets in Trujillo and Chiclayo, North Peru. *J. Ethnobiology.* *Ethnomed.* 2007; 3(37):1-9. doi:10.1186/1746-4269-3-37
- Paton AJ, Brummitt N, Govaerts R, Harman K, Hinchcliffe S, Allkin B, *et al.* Towards Target 1 of the Global Strategy for Plant Conservation: a working list of all known plant species—progress and prospects. *Taxon.* 2008; 57(2):602-611.
- Joppa LN, Roberts DL, Pimm SL. How Many Species of flowering Plants Are There? *Proc. R. Soc. B Biol. Sci.* 2011; 278:554-559. doi:10.1098/rspb.2010.1004
- World health organization. fifty-sixth world health assembly a56/18 provisional agenda item 14.10 traditional medicine report by the secretariat, 2003, 1-4.
- Newman DJ, Cragg GM. Natural products as sources of new drugs over the 30 years from 1981 to 2010. *J. Nat. Prod.* 2012; 75(3):311-335.
- Sher H, Aldosari A, Ali A, de Boer HJ. Economic benefits of high value medicinal plants to Pakistani communities: an analysis of current practice and potential. *Journal of Ethnobiology and Ethnomedicine.* 2014; 10(71):1-16.
- Sher H, Aldosari A, Ali A, de Boer HJ. Indigenous knowledge of folk medicines among tribal minorities in Khyber Pakhtunkhwa, northwestern Pakistan. *J. Ethnopharmacology.* 2015a; 166:157-167.
- Khan AA. A draft strategic framework to arrest the plight of medicinal plants in Pakistan. In: Proceeding of PARC and TASO-PGR Workshop on Conservation and Sustainable Utilization of Medicinal Plants in Pakistan. National Herbarium PARC, Islamabad, Pakistan, 2012, 8-11.
- Savikin K, Zdunic G, Menkovic N, Živkovic J, Č'ujic' N, Terescenko M, *et al.* Ethnobotanical study on traditional use of medicinal plants in South- Western Serbia, Zlatibor district. *J. Ethnopharmacol.* 2013; 146:803-810.
- Mahmood A, Mahmood A, Shaheen H, Qureshi RA, Sangi Y, Gilani SA. Ethnomedicinal survey of plants from district Bhimber Azad Jammu and Kashmir, Pakistan. *J. Med. Plants Res.* 2011b; 5(11):2348-2360.
- Mahmood A, Mahmood A, Tabassum A. Ethnomedicinal survey of plants from District Sialkot, Pakistan. *J. Applied Pharm.* 2011a; 2:212-220.
- Buitron X. Ecuador; OSU y comercio de plantas medicinales, situacion actual y aspectos importantes para su conservacion. UN. INFORME DE LA RED TRAFFIC, 1999.
- Ali SI, Qaiser. A phytogeographical Analysis of Phanerogams of Pakistan and Kashmir. *Proc. of Royle Soc. Edinburgh.* 2009; 89B:89-101.
- Ahmad M, Sher H. Medicinally Important Wild Plants in view of Ethnobotanical studies of District Chitral, 2003. http://www/Telmedpak.com/agricultures.asp?a=medplant_pak&b=med-plant.
- Qureshi RA, Ghufuran MA, Sultana KN, Ashraf M, Khan AG. Ethnobotanical Studies of Medicinal Plants of Gilgit District and Surrounding Areas. *Ethnobotany Research & Applications.* 2006; 5:115-122.
- Qureshi RA, Gilani SA, Ghufuran MA. Ethnobotanical studies of plants of Mianwali district Punjab, Pakistan. *Pak. J. Bot.* 2007; 39(7):2285-2290.
- Ajaib M, Haider SK, Zikrea A, Siddiqui MF. Ethnobotanical studies of shrubs and trees of Agra valley Parachinar, upper Kurram Agency, Pakistan. *Fuust j. Biol.* 2014; 4(1):73-81.
- Fazal H, Ahmad N, Rashid A, Farooq S. A Checklist of Phanerogamic Flora of Haripur Hazara, Khyber

- Pakhtunkhwa, Pakistan. Pak. J. Bot. 2010; 42(3):1511-1522.
20. Qamar ZQ, Anwar M, Dar NI, Ali U. Ethno-Botanical Study of Wild Medicinal Plants of Neelum Valley, Azad Jammu and Kashmir, Pakistan. Pakistan J. Wildl. 2010; 1(1):25-30.
 21. Hazrat A, Shah J, Ahmed S, Nisar M, Jan AK, Sikandar. Medicinal Plants of Ushera Valley, Dir, NWFP. Pakistan. Pak. J. Bot. 2010; 42(1):31-34.
 22. Khan N, Ahmed M, Ahmad A, Shaukat SS, Wahab M, Ajaib M, *et al.* Important medicinal plants of Chitral Gol National park (CGNP) Pakistan. Pak. J. Bot. 2011; 43(2):797-809.
 23. Murad W, Ahmad A, Gilani SA, Khan MA. Indigenous knowledge and folk use of medicinal plants by the tribal communities of Hazar Nao Forest, Malakand District, North Pakistan. Journal of Medicinal Plants Research. 2011; 5(7):1072-1086.
 24. Abbas Q, Qureshi R, Naqvi AN, Khan SW, Hussain I. Floristic inventory and ethnobotanical study of the Naltar Valley (Karakoram Range), Gilgit. Pakistan. Pak. J. Bot. 2013; 45(SI):269-277.
 25. Hasan A, Khan MA, Ahmad M. Authenticity of folk medicinal plants of Pakistan. Taxonomic and Chemical Methods. 2007; 1:3-4.