Chapter

Historical Evidence and Documentation of Remedial Flora of Azad Jammu and Kashmir (AJK)

Fozia Abasi, Muhammad Shoaib Amjad and Huma Qureshi

Abstract

Determining the pharmacognostic specifications of medicinal plants used in several drugs is very necessary and actually crucial. Ethnobotany has significant role in understanding the active relations between the biological diversity and cultural systems. Azad Jammu and Kashmir (AJK) is gifted with variety of medicinal plants. The theme of this chapter is to present information about wild medicinal plants in different areas of Azad Jammu and Kashmir. Common woody species are *Diospyros lotus*, *Taxus wallichiana*, *Viburnum cylindricum*, and perennial herbs comprise *Geranium nepalense*, *Oxalis acetosella* and *Androsace umbellata*. *Betula utilis*, *Berberis lycium*, *Cedrus deodara*, *Abies pindrow*, *Pinus wallichiana*, *Juglans regia* and *Salix* species with large number of herbal diversity at elevations are common. Most of people use wild plants as traditional food and medicine. This ethnic flora not only plays important role in human health care but it is also an important source for present and future drug development. There is need for correct documentation, conservation of plants samples in herbarium of research institutes, and growing plants in gardens.

Keywords: medicinal plants, Himalaya Kashmir, ethno-veterinary resources, ethnomycological data, plant parts, sustainable use

1. Introduction

Azad Jammu and Kashmir valley extends between 34°22′25 North latitude and 73°28′14 East longitude. Muzaffarabad is capital city of Kashmir and total area covered by Kashmir valley is 13,297 square kilometers. Estimated population of Azad Jammu and Kashmir is about 4-million. Mean maximum temperature was documented during summer (16 °C–24 °C) while –4 °C was recorded mean minimum temperature during winter. AJK is rich in diversity of plants because of its expanded habitations, such as streams, springs, nullahs, lakes, rivers, steep mountain slopes and roads, waste lands and cultivated fields, etc.

2. Geographical conditions and topography

The area of valley can be divided into two geographical zones; East and North are mostly hilly and mountainous categorized by undulating terrain, deep ravines,
and rugged (Neelum, Muzaffarabad, Hattian, Bagh, Haveli, Poonch, and Sudhnoti) while South and West are valleys and plains (Kotli, Mirpur, Bhamber) (Figure 1).

3. Flora and plant diversity

In AJK, vegetation can be divided into four groups:

i. Subtropical vegetation is further divided into Dry scrub forest vegetation and Pine forest vegetation

ii. Temperate forest vegetation further divided into Moist Temperate and Dry Temperate Forest vegetation

iii. Subalpine vegetation

iv. Alpine vegetation

The Himalaya Kashmir is documented as worldwide epicenter of endemism and plant diversity. Accordance to the report of Pei [1], in Himalayan range,
total number of plant species is about 25,000 and total number of angiosperms in Kashmir Himalaya is about 3,054 [2]. About 80% endemic angiosperms is in Pakistan are confined to Northern and Western mountains [3, 4]. 70–80% of population in this region depends on traditional medicines for health care and in Himalayan ranges; at least 70% of the medicinal plants and animals in the region consists of wild species [5]. A total of 104 medicinal plant species including tree, shrubs and herb species used ethnobotanically by the local people of Muzaffarabad were reported from Machyara National Park Muzaffarabad [6, 7]. Most of People living in mountains regions use plants in different ways such as medicines, firewood, timber wood, food, fodder etc. [8].

4. Historical evidence of wild plants usage

Medicinal plants are considered as safe medication and it is also naturally valuable remedy for many human sufferings in rural and remote hilly regions of Kashmir [9]. Due to the lack of advanced medicinal services, usage of flora as ethno medicine is renowned. Traditional curative usage of herbal plants by indigenous populations of AJK has been stated ([10] a&b; [11]). Saghir et al. [12] found 53 plant species useful mostly as medicinal, fuel, fodder, fruit, timber and vegetables reported from Chikar and allied areas of District Muzaffarabad. Gorsi and Shahzad [13] documented medicinal flora and suggested regeneration work to save the traditional knowledge about plants of Dirkot. Ishtiaq et al. [14] stated that plants are indirectly related to the culture and they stated 36 plant species used for the treatment of various diseases in Samahni valley. Khan et al. [15] indicated that the inhabitants of Poonch Valley utilized 169 plant species for more than 30 domestic needs. Ajaib et al. [16] provided ethnobotanical data on medicinal flora of district Kotli by reporting 38 species of shrubs. Saqib et al. [17] studied the medicinal flora of mountainous areas of AJK. Some of medicinally important plant species include Saussurea lappa, Aconitum heterophyllum, Jurinea dolomea, Bistorta amplexicaule, Plectranthus rugosus,., Geranium wallichianum, Ajuga bracteosa, Taraxacum officinale, Quercus incana, Berberis lyceum and Viola canescens [18]. 70% of the therapeutic flora in the area comprise of wild species; 70–80% inhabitants dependent on traditional medications [19]. People of Azad Jammu & Kashmir are still dependent mainly on medicinal plants for folk remedies, hence creating immense pressure on native vegetation by overexploiting them, particularly in the mountainous region of Kashmir [20].

5. Documentation on remedial flora of Azad Jammu and Kashmir (AJK)

The original printed data of plants as medication initiating from the Himalayas date back to ancient scripts of the Rigveda, monitored by Auryveda (600–100 BC) and Atharveveda (2000–1000 BC). Northern mountains of Pakistan located at intersection of three Mountain ranges i.e., Himalaya, Karakorum and Hindu Kush are well recognized for their biodiversity [21]. Azad Jammu and Kashmir is endowed with productive variety of medicinal plants. It has been stated on many curative practices of plants by the indigenous populations [10, 14, 22, 23]. For above 10,000 classes of curative and scented plants, 600 million folks exist in in Himalayan section. In Himalayan ranges, 70% of therapeutic flora comprise of wild species [19]. Northern regions including Kashmir are in pressure from indigenous people and tourists. Primary reasons include unselective displacing and storing systems of remedial plants. Therefore, therapeutic tradition needs to be recognized
and protected. Hundreds of species are currently endangered for the reason of excessive harvesting. Northern mountainous areas have several climatic and vegetation regions. These diverse natural regions have distinctive ethnobotanical vital plants that are significant for the economy of a nation. For traditional medications People of AJK are generating massive stress on flora by damaging those [20]. In north-western zones of Pakistan, several ethnobotanical trainings have been convoyed and which have assembled evidence on the usage of therapeutic flora [4]. The valuable ethnobotanical data is declining owing to the deficiency of awareness and information.

6. Folklore of wild plants in medicine

Azad Jammu and Kashmir is gifted with dynamic variety of medicinal plants. Below, we discuss some wild fruits and vegetables commonly used by indigenous people of AJK. Main wild fruits of the valley are Ficus palmata Malus pumila, Prunus persica, Prunus cerasus, Morus alba, Diospyros lotus, Rubus fruticosus, Vitis vinifera, Viburnum foetens and Punica granatum. Fruit of Juglans regia L. (Juglandaceae) is used as dry fruit. Fruit also remove gall bladder stones and is aphrodisiac. Fruits of Morus nigra L. (Moraceae) are dried and sold in market as a dry fruit. Fresh fruit is used as food and for cough and throat irritation. Fruits of Rubus ellipticus Smith (Rosaceae) are edible. Withinia somnifera (L.) Dunal (Solanaceae) is used in Ayurvedic medicinal purposes and fruits are edible. Fruits of Zanthoxylum alatum DC. (Rutaceae) are aromatic, condiment and carminative and are used in sauce. They are also used for the treatment of piles. Ziziphus nummularia (Burm.f.) Wight & Arn. (Rhamnaceae) fruit is edible and laxative and leaves are used as fodder for goat. Punica granatum L. (Punicaceae) is used as treatment for Cancer, Osteoarthritis and other diseases. It has been used in natural and holistic medicine to treat sore throats, coughs, urinary infections, digestive disorders, skin disorders, arthritis. Pyrus pashia L. (Rosaceae) fruit is superlative to eat when it is slightly decaying. It is set apart from the cultivated pears by having a grittier quality. The fully ripe fruit has a reasonable taste and, when bletted, is sweet and very pleasant to eat. Viburnum grandiflorum Wall. (Caprifoliaceae) fruit is edible used against malaria [24] (Table 1). Miscellaneous uses of plants in the area comprise spices and condiments, ornamental plant species, vegetables and pot herbs, s agricultural tools, basket making, cosmetics, dish cleaner, house decoration, feed, field fencing, furniture, narcotics, packing material, curing snake and scorpion bite, soil binder, sticks and handles, shade tree, herbal tea and for making utensils. Maswak made from the roots of J. regia and branches of A. modesta, O. ferruginea and Z. alatum is used for cleaning their teeth. Plants are used as a major source of veterinary medicine. Interest of such use in the veterinary sector has resulted primarily from the increasing cost of livestock maintenance and the introduction of new technology in the veterinary medicines and vaccines. The important medicinal plant species showed the highest fidelity such as: Rumex nepalensis, Primula denticulata, (100%) used for dysuria, red urination, Skimmia laureola (100%), Swertia paniculata (99%), and Angelica glauca (97%), used for ague, cold, shivering, gastric ailments, Melia azedarach (100%), used to reduce intestinal worm load in cattle showing the conformity of knowledge on these species (Table 2). Plant communities have been largely disturbed due to deforestation for fuel, over consumption of medicinal resources for the population explosion, treatment of diseases, increased tourism and lack of awareness. Vulnerable species include Sorghum halepense, Acacia modesta and Solanum nigrum. Medicinal species like Cissus carnosa, Butea monosperma Ajugabracteosa, Mallotus philippinensis
| Botanical name                  | Family            | Common name | Traditional uses                                                                 |
|--------------------------------|-------------------|-------------|----------------------------------------------------------------------------------|
| 1. *Ajuga bracteosa* Wall.ex. Benth. | Lamiaceae         | Heri-booti  | A decoction is used for curing intestinal ulcer, jaundice, throat infection and high blood pressure |
| 2. *Argemone mexicana* L.       | Papaveraceae      | Dudhli kandyari | Seeds are analgesic and laxative.                                                  |
| 3. *Alstonia scholaris* (L.) R.Br. | Apocynaceae       | —           | The bark is used to treat malaria, fever, asthma and tumors.                       |
| 4. *Amaranthus viridis* L.      | Amaranthaceae     | Ganar       | Leaves are used on scorpion sting and snake bite. Root juice is used to treat constipation and inflammation during urination |
| 5. *Alternanthera pungens* Kunth | Amaranthaceae     | Itsit       | Roots and leaves are blood purifier and diuretic.                                  |
| 6. *Anisomeles indica* (L.) Kurz. | Lamiaceae         | —           | Decoction of leaves is anti-rheumatic and used in stomachic and toothache.         |
| 7. *Achyranthes aspera* L.      | Amaranthaceae     | Puth kanda  | Leaves are used in pneumonia and asthma.                                           |
| 8. *Albizia lebbeck* (L.) Benth. | Mimosaceae        | Sreeia      | Seeds are used for curing kidney infection.                                        |
| 9. *Bauhinia veriegata* L.      | Caesalpiniaceae   | Katchnar    | Fruit is edible and useful for leprosy and skin diseases.                          |
| 10. *Butea monosperma* (Lam.) Taubert | Papilionaceae     | Chechra     | Gum is tonic given for backache after birth.                                      |
| 11. *Buddleja asiatica* Lour.   | Buddlejaceae      | Batta       | Used for skin disease, and as a cure for loss of weight                            |
| 12. *Barleria cristata* L.      | Acanthaceae       | —           | Seeds are antidote for snake bites and for serious catarrhal infections            |
| 13. *Boerhavia diffusa* L.      | Amaranthaceae     | Sanati      | Improve eyesight, diuretic and useful in controlling blood sugar levels            |
| 14. *Buglossoides arvensis* (L.) Johnston | Boraginaceae     | Kalu        | Leaves infusion is sedative                                                        |
| 15. *Croton bonplandianus* Baill | Euphorbiaceae     | —           | Leaves control blood pressure                                                      |
| 16. *Cissampelos pareira* L.    | Menispermaceae    | Batrarr     | A rhizome decoction and pounded leaves are externally applied as a febrifuge and stomachic, cough and snake bite |
| 17. *Carissa opaca* Stapf ex. Haines | Apocynaceae     | Grunda      | Fruit is edible and blood purifier                                                 |
| 18. *Cassia fistula* L.         | Caesalpiniaceae   | Amaltas     | The root helps in reliving the symptoms of fever, asthma, leprosy and heart related diseases |
| Botanical name                  | Family                  | Common name | Traditional uses                                                                 |
|--------------------------------|-------------------------|-------------|----------------------------------------------------------------------------------|
| 19. *Chenopodium album* L.     | Chenopodiaceae          | Bathwa      | This plant is laxative                                                            |
| 20. *Cissus carnosa* (L.) Lamk | Vitaceae                | Dakh        | Fruit is good for abdominal diseases                                               |
| 21. *Calotropis procera*       | Asclepiadaceae          | Desi akk    | Plant extract is applied on dog bite. Latex is used for skin diseases and ring worm. |
| 22. *Cannabis sativa* (Ait.)   | Cannabinaceae           | Bhang       | Root is used for liver disorders. Leaves and flowers are analgesic, sedative, narcotic, laxative and aphrodisiac. |
| 23. *Cascuta reflexa* Roxb     | Cuscutaceae             | Neel Dhari  | Its infusion is anti-lice. It is also used in skin diseases and weaknesses of children. |
| 24. *Chenopodium album* L.     | Chenopodiaceae          | Bathwa      | Leaves are anthelmintic and laxative                                              |
| 25. *Convolvulus arvensis* L.  | Convolvulaceae          | Rawari      | Root is diuretic and purgative                                                    |
| 26. *Diplocyclos palmatus* (L.) C. Jeffery | Cucurbitaceae |            | Plant is used for skin diseases and cough                                          |
| 27. *Dodonea viscosa* (L.) Jacq. | Sapindaceae            | Sanatha     | Decoction of wood is used as febrifuge and skin diseases                          |
| 28. *Dalbergia sissoo* Roxb.  | Papilionaceae           | Tali        | Branches kill worms in the teeth                                                  |
| 29. *Eugenia jambolana* Lam.   | Myrtaceae               | Jaman       | It is used for the treatment of cancer                                             |
| 30. *Fumaria indica* (Hausskn.) Pugsley | Fumariaceae       | Papra       | Its infusion is used as diaphoretic, blood purifier and antipyretic               |
| 31. *Ficus palmate* Forssk     | Moraceae                | Phugwara    | Fruit is laxative, soothes bee sting                                              |
| 32. *Gymnosporia royleana* (Wall.ex Lawson) Cuf | Celastraceae |            | It is used for treatment of cough, asthma, tonic and abdominal pain               |
| 33. *Galium aparine* L.        | Rubiaceae               | Lahndara    | Plant extract is diuretic                                                         |
| 34. *Hedera nepalensis* K.Koch. | Araliaceae             |             | Leaves are used for treatment of diabetes                                          |
| 35. *Justicia adhatoda* L.     | Acanthaceae             | Bhakar      | It is used to treat colds, coughs, asthma, fevers, skin infections and inflammations |
| 36. *Juglans regia* L.         | Juglandaceae            | Khor        | Root and leaves are antiseptic. Fruit is aphrodisiac, remove stones in gall bladder |
| 37. *Malva parviflora* L.      | Malvaceae               | Sonchul     | Leaves extract is anthelmintic                                                    |
Botanical name | Family | Common name | Traditional uses
--- | --- | --- | ---
Mallotus philippinensis (Lam.) Muell. | Euphorbiaceae | Kamella | Fruit is purgative and anthelmintic
Medicago polymorpha L. | Papilionaceae | Sriri | Leaves are helpful in digestive disorders
Melia azadarach (L.) | Meliaceae | Draik | Leaves and fruit are blood purifier, antipyretic and antidiabetic
Malvastrum Coronandalanum (L.) Garcke | Malvaceae | | Leaves paste relieve pain. Flowers are diaphoretic
Morus nigra L. | Moraceae | Kala Toot | Fruit is tonic and used for throat irritation and cough
Mentha longifolia Benth | Lamiaceae | Jangli podina | Leaves are carminative and stimulant. Leaves are antispasmodic
Nasturtium officinale R.Br. | Brassicaceae | Chooch | The leaves and stem are used for internal tumors, scurvy and anemia
Nerium indicum L. | Apocynaceae | Gandeera | Leaves decoction is applied on skin diseases
Oxalis corniculata L. | Oxalidaceae | Khati Buti | Leaves decoction is used in dysentery and fever
Plantago lanceolata L. | Plantaginaceae | | Leaf extract is applied to wounds, sores and bruises; seeds are purgative
Pinus roxburghii Sargent | Pinaceae | Cheer | Resin is used for bleeding wounds and tumors and cough. Leaves and bark powder is useful for dysentery
Papaver dubium L. | Papaveraceae | Jangli post | Its infusion is blood purifier, antipyretic, and diaphoretic
Periploca aphylla Decne | Asclepiadaceae | Bata | It is used for treatment of swellings and tumors
Rumex dentatus L. | Polygonaceae | Herfli | Leaves are astringent and diuretic
Rhamnus triqueta (Wall.) Brandis | Rhamnaceae | Clader | Fruit and leaves are used in hemorrhagic septicemia
Ranunculus muricatus L. | Ranunculaceae | Kor-Kandoli | Fruits and leaves are useful on bursts and tumor

Table 1.
Important medicinal plant species with traditional uses in Azad Jammu and Kashmir.

and Zanthoxylum armatum are critically endangered. Among endangered species, *Juglans regia*, *Olean ferruginaea*, *Phyllanthus emblica*, *Viola canescens* are the notable species. Some medicinal plants like *G. wallichianum*, *J. dolomiaea*, *A. bracteosa*,
B. amplexicaule, S. lappa, A. heterophyllum, and B. lyceum are on the edge of extinction due to high rate of intake [25].

7. Wild mushrooms

Morel collection is an important activity during spring season and villagers take keen interest in collection of morels as it provides them a source of income. Mushroom flora and species diversity as important component of the natural environment in Azad Jammu and Kashmir. Wild mushrooms are sources of edible proteins, dietary fiber, essential amino acids, carbohydrates, and are an important
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source of food, livelihood, and traditional ethnobotanical health care. Kashmir region is rich with unknown macro fungal wealth. Among total morel population of Pakistan, 90% was reported from the Himalayan mountain ranges of Northern Pakistan. Wild edible fungi dominate the global morel trade, with an estimated value of more than US$2 billion. Ullah et al. [26] reported 56 wild edible mushrooms in Pakistan, of which 44 are from the Kashmir region. Important species include Agaricus campestris, Hydnum imbricatum, Sparassis crispa, Morchella esculenta, M. crassipes, M. elata, M. conica, Pleurotus ostreatus, Lycoperdon gemmatum, Helvella crispa, Tricholoma megnilvare and Gyrometra esculenta. The local communities of valley well recognize the habitats, morphological features, and qualities of these mushrooms. Ethno mycological data were collected through the use of a questionnaire and found that these species have great medicinal value against different ailments. Four species (A. campestris, H. imbricatum, P. ostreatus, and S. crispa) are highly recommended for their frequent use as food based on nutritional analysis (proteins, fats, fiber, and moisture). The major identified species from AJK are Agaricus arvensi, Amanita vaginata, A. fulva, Cantharellus cinereus, Coprinus micaceus, C. comatus, C. domesticus, Cypicoperdon perlatum, Daedalea quercina, Helvella crispa, Hygrophorus meliseus, Lepista nuda, Lactarius turpis, Marasmius alliaceus, Panaeolus campanulatus, Pleurotus ostreatus, Trametes versicolor, and Tricholoma ustaloidei.

Although Azad Jammu and Kashmir (AJK) have ample of medicinal plants to treat broad spectrum of ailments, there are many factors which are contributing for loss of ethnic flora e.g. over grazing, over exploitation, fire, deforestation etc. Lack of concern in the present generation has wiped out many rich wild flora of the area. It is necessary to create awareness about the usefulness of the flora. Cultivation of threatened medicinal plants should be encouraged by the local community in order to relieve pressure on wild plants. People should spread useful information on conservation and sustainable use of the natural resources of the area. There must be correct documentation, conservation of plants samples in herbarium of research institutes, and growing plants in gardens.

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References

[1] Pei, S. J. (1992). Mountain culture and forest resource management of Himalayas. Himalayan Ecosystem. Intel. Book. Distributors, Dehra Dun, India.

[2] Jee, V., U. Dhar and P. Kachroo. (1989). Cytogeography of some endemic taxa of Kasmir Himalaya. Proc. Indian Nat. Sci. Acad., 55 (3): 177-184

[3] Ali, S. I. (2008). Significance of flora with special reference to Pakistan. Pak. J. Bot., 40(30): 967-971.

[4] Ali, S. I. and M. Qaiser. (1986). A Phytogeographic analysis of the phanerogams of Pakistan and Kashmir. Proc. Roy. Soc. Edinb., 89: 89-101.

[5] Pie, S.J. and N.P. Manadhar (1987). Source of some local medicines in the Himalayan Regions. Himalayan Ecosystems, 77-112.

[6] Bokhari, A.H. (1994). Ethnobotanical survey abd vegetation analysis of Machyara National Park Azad Kashmir, Pakistan. M.Sc. Thesis, University of Azad Kashmir.

[7] Zandial, R. (1994). Ethnobotanical studies and population analysis of Machyara National Park, Azad Kashmir, M. Sc. Thesis University of Azad Kashmir.

[8] Hussain, F. and A. Khaliq. (1996). Ethnobotanical studies on some plants of Dabargai Hills. Swat. Proceedings of first training workshop on Ethnobotany and its application to conservation. NARC, Islamabad. pp. 207-215.

[9] Zaidi, S. H. (2001). Existing indigenous medicinal plant resources of Pakistan and their prospects for utilization. Medicinal Plants of Pakistan. 53 pp.

[10] Mahmood, A., R.N. Malik, Z.K. Shinwari and A. Mahmood. (2011).

Ethnobotanical survey of plants from Neelum, Azad Jammu & Kashmir, Pakistan. Pak. J. Bot., 43: 105-110.

[11] Ishtiaq, M., He, Q., Wang, Y. and Cheng, YY. (2010). A Comparative Study of Chemometric and Numerical Taxonomic Approaches in Identification and Classification of Traditional Chinese Medicines (TCMs) of Genus Clematis species. J. Plant Biosyst. 144(2): 288-297.

[12] Saghir, I.A., A.A. Awan, S. Majid, M.A. Khan and S.J. Qureshi. (2001). Ethnobotanical studies of Chikar and its allied area of District Muzaffarabad. Online Journal of Biological Sci., 1(12): 1165-1170.

[13] Gorsi, M.S. and R. Shahzad. (2002). Medicinal uses of plants with particular reference to the people of Dhirkot, Azad Jammu and Kashmir. Asian J. Plant Sci., 1: 222-223.

[14] Ishtiaq, C.M., M.A. Khan and W. Hanif. (2006). Ethnoveterinary medicinal uses of plants from Samahni valley, Bhimber, Azad Kashmir, Pakistan. Asian J. Plant Sci., 5: 390-396.

[15] Khan, M.A., M.A. Khan, M. Hussain, and G. Mujtaba. (2010). An Ethnobotanical Inventory of Himalayan Region Poonch Valley Azad Kashmir (Pakistan). Ethnobotany Research & Applications. 8: 107-123.

[16] Ajajib, M., Z. Khan, N. Khan and M. Wahab. (2010). Ethnobotanical studies on useful shrubs of District kotli, Azad Jammu & Kashmir, Pakistan. Pak. J. Bot., 42(3): 1407-1415.

[17] Saqib, Z., R.N. Malik, M.I. Shinwari and Z.K. Shinwari. (2011). Species Richness, Ethnobotanical Species Richness and Human Settlements along a Himalayan Altitudinal Gradient: Prioritizing Plant Conservation in Palas
Historical Evidence and Documentation of Remedial Flora of Azad Jammu and Kashmir (AJK)
DOI: http://dx.doi.org/10.5772/intechopen.96472

Valley, Pakistan. Pak. J. Bot., 43 (Special Issue): 129-133.

[18] Shaheen H., Z.K. Shinwari, R.A. Qureshi and Z. Ullah. (2012). Indigenous Plant Resources and their Utilization Practices in Village Populations of Kashmir Himalayas. Pak. J. Bot., 44(2): 739-745.

[19] Shaheen H, Shinwari ZK (2012). Phytodiversity and Endemic richness of Karambar Lake Vegetation from Chitral, Hindukush- Himalayas. Pak. J. Bot. 44(1):17-21.

[20] Alam, N., Z.K. Shinwari, M. Ilyas and Z. Ullah. (2011). Indigenous knowledge of medicinal plants of Chagharzai Valley, District Buner, Pakistan. Pak. J. Bot., 43: 773-780.

[21] Shinwari, Z.K. (2010). Medicinal plants research in Pakistan. Journal of Medicinal Plants Research, 4(3): 161-176.

[22] Dar, M.E.I. (2003). Ethnobotanical uses of plants of Lawat District Muzaffarabad, Azad Jammu and Kashmir. Asian J. Plant Sci., 2(9): 680-682.

[23] Ishtiaq, M. (2007). An Ethnomedicinal Survey and Documentation of Important Medicinal Folklore Food Phytonims of Flora of Samahni Valley, (A.K) Pakistan. Pakistan Journal of Biological Sciences, 10(13): 2241-2256.

[24] Ajaib, M., Ashraf, Z., Abid, A., Ishtiaq. M and Siddiqui, M.F. (2016). Ethnobotanical studies of wild plant resources of Puna hills, district Bhimber, AJK. AJAIB ET AL FUUAST J. BIOL., 6(2): 257-264.

[25] Khan, M.A., S.A. Khan, M.A. Qureshi, G. Ahmed, M.A. Khan, M. Hussain and G. Mujtaba. (2011). Ethnobotany of some useful plants of Poonch Valley Azad Kashmir. J. Med. Plants Res., 5(26): 6140-6151.

[26] Ullah, T.S., Firdous S.S., Mehmood, A., Shaheen, H., Dar, M. E. I. 2017. Ethnomycological and Nutritional Analyses of Some Wild Edible Mushrooms from Western Himalayas, Azad Jammu and Kashmir (Pakistan). International Journal of Medicinal Mushrooms, 19(10): 10.1615/IntJMedMushrooms.2017024383.