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Research Article

EXPLORATION OF ETHNOBOTANICAL WISDOM FROM THOI VALLEY, YASIN DISTRICT GHIZER GILGIT BALTISTAN, PAKISTAN

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Abstract:

Background: Medicinal plants play an important role in primary health care especially in those areas where basic and proper health facilities are unavailable. The indigenous knowledge about the usage of medicinal plants to cure different human diseases is present in every part of the world. Through ages of test and mistake, people have expanded significant knowledge of medicinal plants and their usage which has been spread from generation to generation orally. According to WHO about 80% of people in developing countries are dependent on the traditional medicinal knowledge for their primary health care. According to research this indigenous knowledge is perishing at an alarming rate throughout the world therefore it is important to record this precious knowledge.

Materials and Methods: An Ethnobotanical survey was carried out in Thoi Valley Yasin District Ghizer, Gilgit Baltistan, during the months of July and August 2019 to document ethnobotanical usage of plants for curing different human ailments through a questionnaire survey. Total 148 inhabitants of the study area were interviewed out of which 90 were males and 58 were females. The questionnaires were filled through structured interviews, individual interviews and focused group discussions the questions were focused mainly on the medicinal uses of plants, plant parts used, and method of preparation. The field survey for specimen collection was done in Khaimeth pasture Thoi Valley and plant identification was done in KIU Herbarium.

Results: Ethnobotanical usage of 40 plants species belonging to 24 families was documented from the study area. The species of Asteraceae were highest as compared to any other family. Among these, 29 were herbs, 6 were shrubs and 5 were trees and 28 were wild and 12 were cultivated plants. ICF values were estimated to find the agreement among the information provided by inhabitants of study area. The ICF values ranges from 0.88 to 0.97 with an average value of 0.86. The highest FL value was calculated for *Mentha sylvestris*. Digestive diseases were more common than any other diseases. Seed is the most common plant part used for medicinal purposes in the study area. Inhabitants of the study area mostly use medicine in the form of juice. Most of the plants were taken orally.

Conclusion: Various plant species were used in the study area for medicinal purposes. Indigenous knowledge about medicinal plants is restricted to elders and youth has little knowledge. It was observed that indigenous knowledge is perishing with older inhabitants due to the prevalence of allopathic drugs.

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INTRODUCTION:

Millions of people in developing countries of the world are reliant on medicinal plants for their primary health care (Mahmoud and Gairola, 2013). They play an important role in the treatment of various diseases in remote areas where proper and basic health facilities are not available (Khan et al, 2018). On Earth there are more than 3,50,000 number of plants out of which 35,000 to 70,000 are medicinal (Ali et al, 2016). The use of plants by man for treating different diseases dates back to the earliest times of human history. Molecular studies show that Neanderthals, one of the extinct species of humans made use of medicinal plants (Ahmad et al, 2018). This long history has formed a unique and sophisticated medicinal system in different parts of the world (Sarangazai et al, 2013). About 50,000 medicinal plant species are used in cosmetics and pharmaceutical industries (Jamshidkia, 2018) and about 60% of allopathic drugs are produce from medicinal plants (Bora et al, 2010). In 2002 the worth of medicinal plants was recorded \$62 billion and it is predicted that it will increase to \$5 trillion by 2050 (Hassan et al, 2017). According to WHO in the developing countries about 80% of the people are dependent on medicinal plants for the treatment of various diseases (Mahmoud and Gairola, 2013) and in developed countries about 60% of people are reliant on medicinal plants (Alamgeer et al, 2018). Large number of people in the world prefer herbal medicines because they are cheap and easily available with almost no side effects (Jabeen et al, 2015) and people living in remote areas mostly rely on local resources for their primary healthcare (Abbas et al 2016). Research shows that the indigenous knowledge about medicinal plants and their usage is present in every culture and society of the world. It should be recorded and documented otherwise this precious knowledge will be lost forever (Maroyi, 2013). Pakistan lies between 60° 55' to 75° 30' E (Longitude) and 23° 45' to 36° 50' N (Latitude) and covers an area of 80,943 km² on the globe (Shinwari, 2010). There are almost 6000 number of plants in Pakistan and out of these 600 to 700 are medicinal (Shah et al, 2019). Pakistan is among top ten herbs exporting countries in the world with 400 local herbal industries (Shah et al, 2015). In Pakistan there are

almost 40,000 registered practitioners of traditional medicinal system locally known as Hakeems or Tabibs and about 60% of people take help from these practitioners (Noor et al, 2010). Gilgit Baltistan covers an area of 72496 km, with a population of 1.8 million. It is situated at 35° 37' N (Latitude) and 72° 75' E (Longitude). Gilgit Baltistan is situated at the intersection of three huge mountainous ranges Karakoram, Himalaya, & Hindukush and well known for its amazing and unique biodiversity due to its diverse climate, (Abbas et al, 2013). It consists of seven districts Gilgit, Skardu, Diamer, Ghanche, Astore, Hunza-Nagar and Ghizer (Abbas et al, 2014). About 1000 vascular plant species are found in Gilgit Baltistan (Rehmat et al, 2014) and a total of 3000 species of plants have been reported from Gilgit Baltistan out of which at least 124 are medicinally important (Qureshi et al, 2006). The local people of Gilgit Baltistan mainly rely on plant resources for their primary needs such as food, shelter, timber and medicine (Awan et al, 2013).

District Ghizer is blessed with huge number of natural resources and medicinal plants have been used in this region from time immemorial to treat various human and animal ailments just like any other part of the world (Shedayi et al, 2014). The main objective of this research was to record ethnobotanical usage of medicinal plants in the proposed area.

MATERIALS AND METHODS:**Study Area:**

The study was carried out in Thoi Valley, district Ghizer, Gilgit Baltistan, Pakistan. Thoi valley is the most beautiful valley in district Ghizer with majestic mountains, splendid glaciers, amazing waterfalls, and vast pastures. According to Union Counsel Thoi, there are 22 villages, 1135 households, and the population is more than 12000. Mostly Boroshaski is spoken and Khowar is also spoken. The winter becomes cool with long nights and short days and the summer is enjoyable with long days and short nights. Thoi valley is blessed with many natural resources. The people of Thoi mostly rely on agriculture and have a very close relationship with plants.

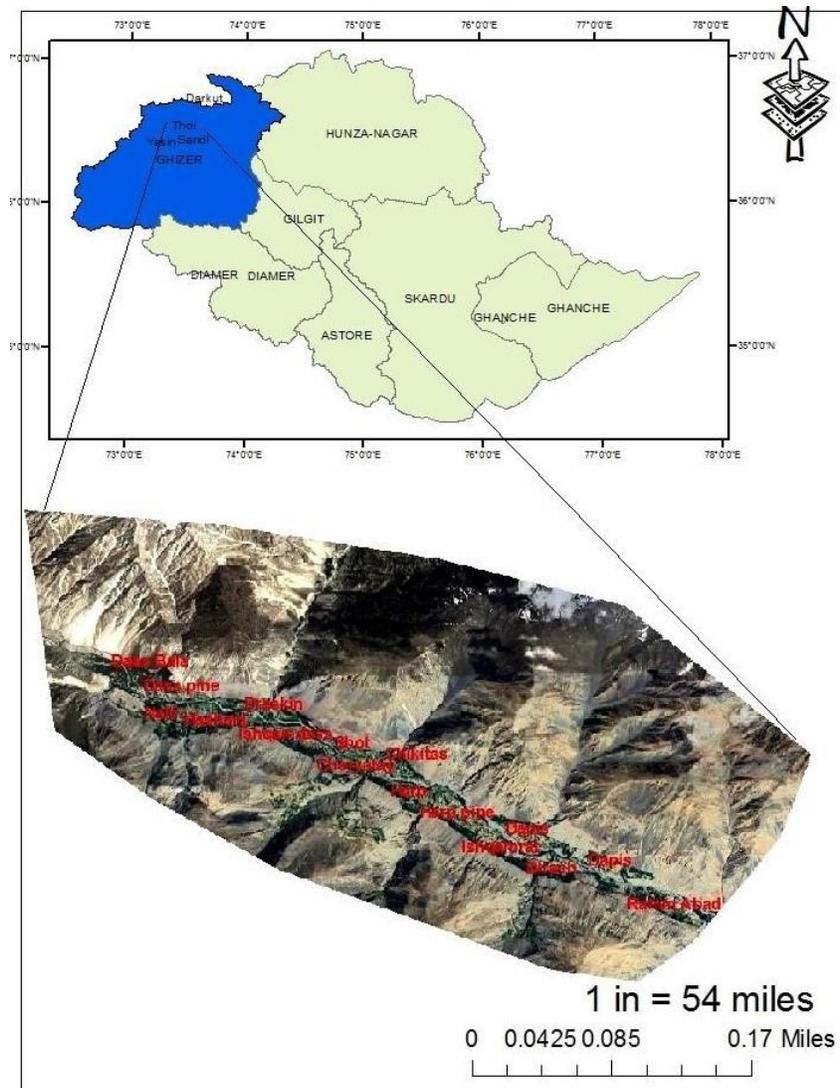


Figure 2.1 Map of the Study Area

Most of the people in Thoi Valley are farmers, while others are government servants especially in the Pakistan army, and some have their own small businesses. People keep domestic animals, such as goats, cows, sheep, etc. From April to November they live in higher pastures far from their home with their domestic animals and they are strongly bonded with nature.



Figure 2.2 Thoi Valley Yasin District Ghizer Gilgit Baltistan

Data Collection:

A summarizing and inclusive questionnaire was made to fulfill all the necessities of the research objectives. The questionnaire survey tried to obtain all the essential data for the completion of the current study. The questions were focused mainly on the medicinal uses of plants, plant parts used, and method of preparation. A total of 148 inhabitants were interviewed to record Ethnomedicinal usage of medicinal plants in the study area during the months

of July and August 2019. The questionnaires were filled through structured interviews, individual interviews and focused group discussions.

Field Survey for Specimen Collection:

The field survey for specimen collection is done in Khaimeth pasture which is one of the most beautiful pastures in Thoi Valley. The plants were collected and left to dry. To remove moisture from plants, blotting paper was used.



Figure 2.3 Khaimeth Pasture, Thoi Valley District Ghizer Gilgit Baltistan
(Picture taken during specimen collection)

After that, plants were pressed by the plant presser. After drying and plants been pressed were glued to the herbarium sheets. The photographs were also taken for identification and documentation using a digital camera.

Data Analysis:

Informant Consensus Factor

Calculation of the level of resemblance among information provided by the inhabitants of study area is done by using ICF (Informants' Consensus Factor) formula which is as follow:

$$ICF = \frac{Nur - Nt}{(Nur - 1)}$$

Nur is equal to the number of use citations from informants for a specific plant use category.

Nt is equal to the number of taxa or species that are used for that plant use category for all informants.

The value of ICF ranges from 0 to 1, where 1 shows the highest level of informant agreement.

Fidelity Level:

The fidelity level was calculated by using the following formula:

$$FL (\%) = \frac{Np}{N} \times 100$$

FL is the percentage of informants claiming the use of a certain plant for the same major purpose.

Where Np is the number of informants that claim a use of a plant species used for a particular disease or purpose.

N is the number of informants that use the plants to treat a given diseases or any other purpose.

The data collected through questionnaire survey was used in MS Excel spreadsheet 2016 and analyzed using different descriptive statistical methods such as graphs, tables, percentage and frequency.

RESULTS AND DISCUSSIONS:

Total Number of Plants:

A total of 40 plant species belonging to 24 families were collected from the study area as shown in figure 3.1. The dominant family was Asteraceae consist of 7 species.

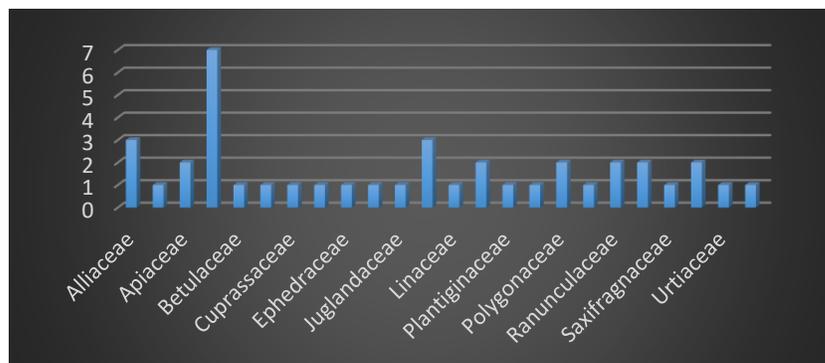


Figure 3.1 Number of Plants in Each Family

Our results were much similar to the findings of previous studies in the same district by (Shedayi et al, 2014) and (Jabeen et al, 2015), i.e. dominant family in the previous studies was Asteraceae. Out of 40 plants 38 were angiosperms and 2 were gymnosperms.

Diseases and Usage of Medicinal plants:

The results show that inhabitants of study area use 40 plants to cure more than 20 diseases as shown in Table 3.1. These diseases were categorized into 12 groups. For better understanding, various disorders such as dyspepsia, abdominal pain, acidity, intestinal worms, diarrhea, constipation, and indigestion are grouped into digestive disorders. Asthma, throat diseases,

pneumonia, and cough are categorized into respiratory disorder. Joint pain such as back pain, legs' pain and bone fractures are included in rheumatic disorders and wounds, eye problems are placed in ophthalmic diseases, kidney stone, urine flow problems are placed in kidney disorders. Skin dryness, pimples, burns, hair fall, dandruff, abnormal hair growth are grouped into skin and hair problems, Hepatitis and jaundice are categorized into liver disorders and other diseases included are hypertension, flu and fever, toothache, heart problems and insomnia. It was found that most of the medicinal plants are used for digestive disorders such as dyspepsia, abdominal pain, gas formation, indigestion, stomach pain, intestinal worms, and acidity as shown in figure 3.2.

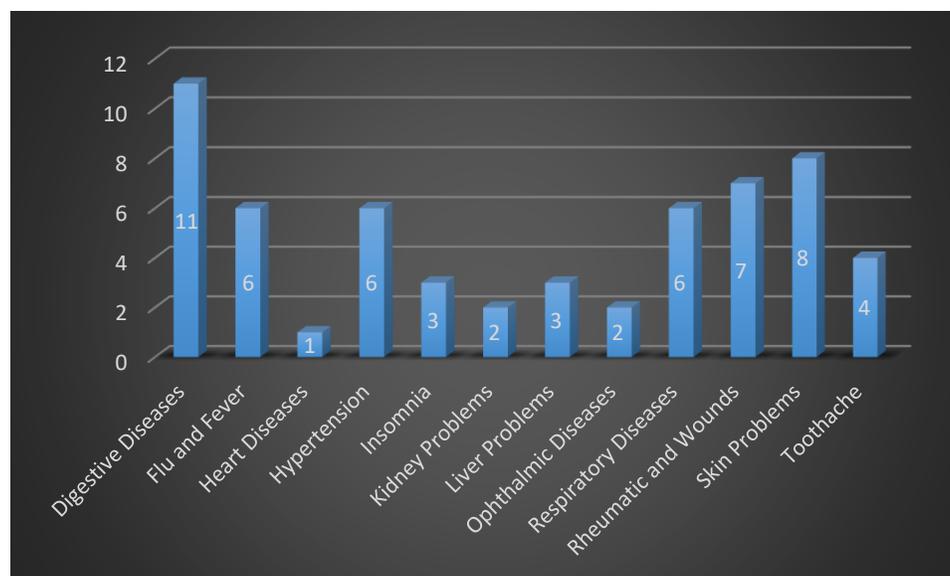


Figure 3.2 Number of Species Used for Different Diseases

Table 3.1 Medicinal Plants and Their Uses

Scientific Name	Family Name	Local Name	Plant Part Used	Form of Medicine	Plant Habit	Plant Category	Mode of usage	Diseases That it Cures
<i>Allium carolinianum</i> L.	Alliaceae	Khast	Flower	Paste	Herb	Wild	Oral	Joint pain such as back pain, legs' joint pain and other rheumatic problems.
<i>Allium sativum</i> L.	Alliaceae	Phokpa	Bulb	Mixed with Food	Herb	Cultivated	Oral	Flu and fever, digestive diseases and high blood pressure.
<i>Allium schoenoprasum</i> L.	Alliaceae	Bar gasho	Whole Plant	Mixed with Food	Herb	Wild	Oral	Joint pain and high blood pressure.
<i>Anthemis maritima</i> L.	Asteraaceae	Bata sqor	Flower	Juice	Herb	Wild	Oral	Abdominal pain, dyspepsia, acidity and used as an intestinal worm killer.
<i>Artemisa absinthium</i> L.	Asteraaceae	Muing	Leaf	Juice	Herb	Wild	Oral	Pneumonia, abdominal pain, dyspepsia, acidity and used as an intestinal worm killer.
<i>Artemisia gmelinii</i> Weber.	Asteraaceae	Kakasho	Seed	Mixed with Food	Herb	Wild	Oral	Blood deficiency, high blood pressure, fever, and flu. It also increases milk production in women
<i>Berberis lyceum</i> Royle.	Asteraaceae	Ishqoroh	Root	Powder	Shrub	Wild	Oral	Bone fracture, wound healing and joint pain.
<i>Berginia stracheyi</i> Stein.	Saxifragaceae	Gee sapur	Root	Powder	Herb	Wild	Oral	Asthma, chest pain, and toothache.
<i>Betula utilis</i> Don.	Betulaaceae	Tal	Stem	Direct	Tree	Wild	Dermal	It used for the treatment of pustules and other skin problems.

<i>Capparis Spinosa</i> Linn.	Capparidaceae	Chupor	Flower	Juice	Shrub	Wild	Oral	Hepatitis, Jaundice and stomach disorders
<i>Carthamus tinctorius</i> L.	Asteraceae	Pong	Seed	Mixed with Food	Herb	Cultivated	Oral	Cough, sneezing, flu, shivering, fever and headache. It is used as a coloring agent.
<i>Carum carvi</i> L.	Apiaceae	Hojoj	Seed	Mixed with Food	Herb	Wild	Oral	High blood pressure, and used as a spicy.
<i>Chenopodium foliosum</i> L.	Amaranthaceae	Tik Branj	Fruit	Paste	Herb	Wild	Dermal	Skin dryness, toothache, and used as a skin whitening agent.
<i>Clematis baltistanica</i> Qureshi and Chaudri	Ranunculaceae	Margusht	Leaf	Paste	Herb	Wild	Dermal	Skin dryness and burns.
<i>Coriandrum sativum</i> L.	Lamiaceae	Thawoon	Seed	Mixed with Food	Herb	Cultivated	Oral	High blood pressure, flu, shivering, chest pain, and it is also used a spicy.
<i>Datura stramonium</i> L.	Solanaceae	Bang-e-Dewana	Seed	Smoke	Shrub	Wild	Dermal	It is used as an evil repellent and used to undo the effect of black magic and evil eye.
<i>Delphinium brunonianum</i> Royle.	Ranunculaceae	Zahar Ishqa	Flower	Juice	Herb	Wild	Oral	Cough, fever and asthma.
<i>Dracocephalum moldavica</i> L.	Lamiaceae	Gas mali	Seed	Direct	Herb	Cultivated	Dermal	It is used for ophthalmic diseases.
<i>Eleagnus angustifolia</i> L.	Elaeagnaceae	Gee nahur	Fruit	Direct	Tree	Cultivated	Oral	Asthma, cough, and throat diseases.
<i>Ephedra georgeana</i>	Ephedraceae	Sop at	Stem	Paste	Shrub	Wild	Dermal	Toothache, skin fairness, and it has hair removal action.
<i>Hiphophae rhamnoides</i> L.	Asteraceae	Boro	Fruit	Juice	Shrub	Wild	Oral	Asthma, skin problems such as skin dryness. It is also used for making fence around fields and gardens.
<i>Hyoscyamus niger</i>	Solanaceae	Phaphang	Seed	Smoke	Herb	Wild	Dermal	Toothache, used as an evil repellent and to undo the effect of evil eye.
<i>Iris lutescens</i> Lam.	Iridaceae	Sausan	Root	Powder	Herb	Cultivated	Oral	Ulcer, acidity, stomach pain and other digestive disorders. It is also used for skin fairness.
<i>Juglan regia</i> L.	Juglandaceae	Talay	Seed	Direct	Tree	Cultivated	Oral	Heart diseases. It lessens cholesterol. Oil is also extracted. Wood is used for making agricultural tools.
<i>Juniperus excels</i> M.Bieb.	Cupressaceae	Gal	Fruit	Juice	Tree	Wild	Oral	Kidney problems, diuretic and used as an antiseptic and wound healer. Wood is used for making agricultural tools and as a timber

<i>Linum usitatissimum</i> Linn.	Linaceae	Hom an	Seed	Mixed with Food	Herb	Cultivated	Oral	Joint pain and other rheumatic disorders.
<i>Medicago sativum</i> Linn.	Papilionaceae	Ishpit ing	Leaf	Paste	Herb	Cultivated	Oral	Constipation and insomnia. It is used for animal's constipation and animal fodder.
<i>Mentha sylvestris</i> L.	Lamiaceae	Falaling	Leaf	Juice	Herb	Wild	Oral	Acidity, formation of gas, dyspepsia, and stomach pain. It is also used as a salad.
<i>Peganum harmala</i> L.	Zygophyllaceae	Ispan dur	Leaf	Smoke	Herb	Wild	Dermal	It is considered as a sacred plant. It is used as an evil repellent, to undo the effect of evil eye and black magic.
<i>Plantago major</i> L.	Plantaginaceae	Thare skeya ng	Seed and Leaf	Juice	Herb	Wild	Oral	Diarrhea, acidity, high blood pressure and for the treatment of pustules and bruises.
<i>Primula macrophylla</i> Don.	Primulaceae	Punar	Flower	Powder	Herb	Wild	Dermal	Ophthalmic diseases.
<i>Prunus armeniaca</i> L.	Rosaceae	Joo	Fruit	Juice	Tree	Cultivated	Oral	Constipation, and blood deficiency. Wood is used as timber.
<i>Rheum spiciforme</i> Royle.	Polygonaceae	Jecup	Stem	Direct	Herb	Wild	Oral	Acidity, dyspepsia and used as appetizer.
<i>Rosa webbiana</i> Wall.	Asteraceae	Shaw oo	Fruit	Paste	Shrub	Wild	Dermal	Skin dryness and other skin problems. In the past the bark was used as a tea. It is also used for making fence around field.
<i>Rumex crispus</i> Linn.	Polygonaceae	Mes ka n g ke ya n g	Root	Powder	Herb	Wild	Dermal	Wound healer and used as an antiseptic.
<i>Taraxacum Officinale</i> Weber.	Asteraceae	Q aq a Is h qa na ch o	Root	Juice	Herb	Wild	Oral	Abdominal pain and other stomach pain.
<i>Thymus serpyllum</i> L.	Lamiaceae	Tumu r	Flower	Juice	Herb	Wild	Oral	High blood pressure, flu and fever.
<i>Urtica dioica</i> Linn.	Urticaceae	Ghas hoshi ng	Leaf	Paste	Herb	Wild	Dermal	Skin problems such as burns.

<i>Vicia faba</i> L.	Papilionaceae	Muka k	Seed	Direct	Her b	Cultiva ted	Oral	Hepatitis and jaundice.
<i>Hordeum vulgare</i> L.	Poaceae	Hara y	Seed	Juice	Her b	Cultiva ted	Oral	Hepatitis, Jaundice and kidney problems.

ICF values were estimated to find the agreement among the information provided by inhabitants of study area for the usage of plants to treat various disease categories as shown in Table 3.2. The ICF values ranges from 0.88 to 0.97 with an average value of 0.86. This result shows that the digestive disorders are common in the study area. The low (ICF) values

were recorded for kidney problems and heart disorders which were 0.88 and 0.89 respectively. Our results are similar to the findings of previous studies in the same district by (Shedayi *et al*, 2014) in which they also found that most of the plants are used for digestive disorders.

Table 3.1 Informant Consensus Factor (ICF)

Disease Category	Nur (Use Reports)	Nt (Species)	ICF Value
Digestive Disorders	144	4	0.97
Hypertension/High Blood Pressure	96	5	0.95
Skin and Hair Problems	81	7	0.92
Flu and Fever	75	7	0.91
Rheumatism and wounds	140	6	0.96
Toothache	90	6	0.94
Liver Problems	57	4	0.94
Kidney Problems	35	5	0.88
Ophthalmic Diseases	25	2	0.95
Heart Problems	40	5	0.89

To find the significance of medicinal plants in the study area FL (Fidelity Level) was calculated which was based on the use reports cited by informants.

Table 3.2 Fidelity Level (FL)

Botanical Name	Disease Category	Use Citation	Fidelity Level
Mentha sylvestris	Digestive disorders	144	97%
Berberis lyceum	Rheumatic disorders	140	94%
Thymus Sepyrlum	Hypertension	96	64%
Hippophae rhamnoides	Respiratory diseases	93	62%
Ephedra gergediana	Toothache	90	60%
Clematis baltistanica	Skin and hair problems	81	54%
Artemisia gmelinii	Flu and Fever	75	50%
Capparis spinosa	Liver Diseases	57	38%
Juglan regia	Heart Problems	40	27%
Juniperus excels	Kidney problems	35	23%
Primula macrophylla	Ophthalmic diseases	25	16%

Some of the pictures of medicinal plants taken during specimen collection in Khaimeth Pasture, Thoi Valley.



Figure 3.3 *Delphinium brunonianum* Royle.



Figure 3.4 *Allium carolinianum* L.



Figure 3.5 *Primula macrophylla* Don.

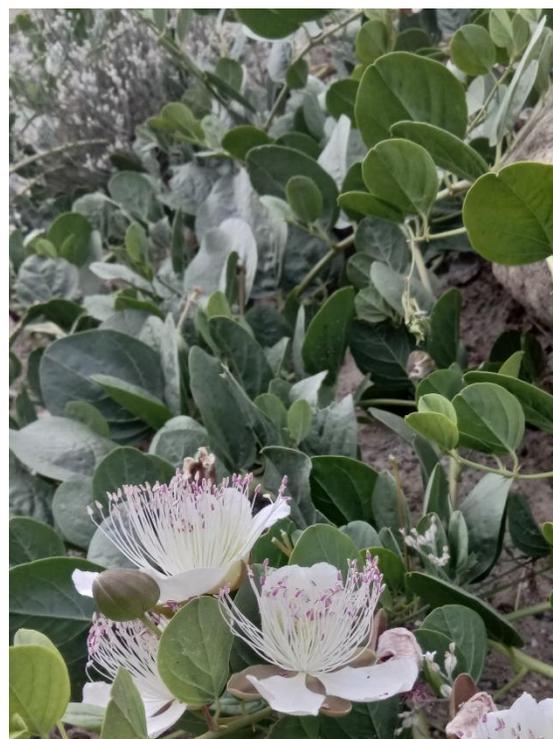


Figure 3.6 *Capparis spinosa* Linn.

The results showed that the highest FL value was calculated for *Mentha sylvestris* followed by *Berberis lyceum*, *Thymus sepyrillum*, *Hippophae rhamnoides*, *Ephedra geardiana*, *Clematis baltistanica*, *Artemisia gmelinii*, *Capparis spinosa*, *Juglan regia*, *Juniperus excels*, and *Primula macrophylla* as shown in figure 3.2. The least FL values were recorded for *Juglan regia*, *Juniperus excels* and *Primula macrophylla*.

Plant Habit:

The results show that out of 40 plants 6 were shrubs, 5 were trees and 29 were herbs. Herbs are highest in percentage 73%, followed by shrubs 15% and trees 12% as shown in Figure 3.2.

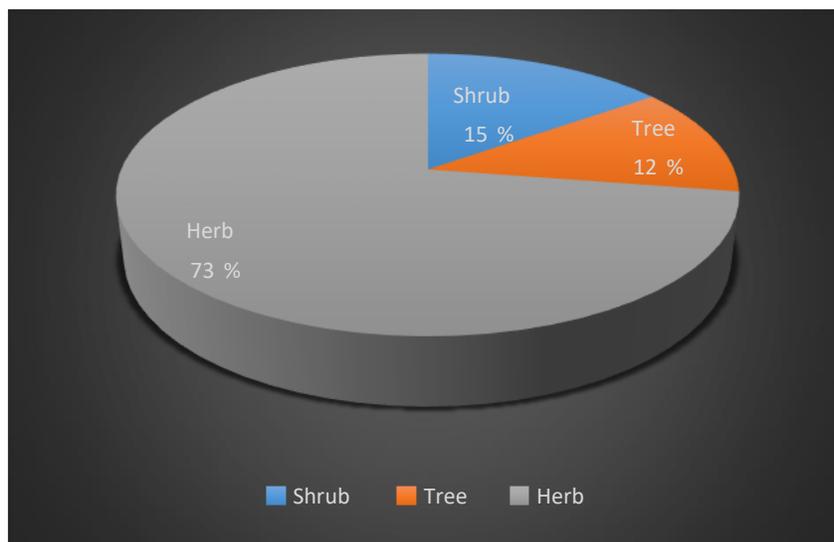


Figure 3.7 Plant Habit

Plant Part Used:

It is important to know which part of the plant is useful for medicinal purposes and which is not. A medicinal plant contains medicinal ingredients in its different parts such as seed, flowers, stem, root, leaf, and fruit. It was found that in the study area seed is mostly used part followed by leaves, root, fruit, flower, stem and bulb.

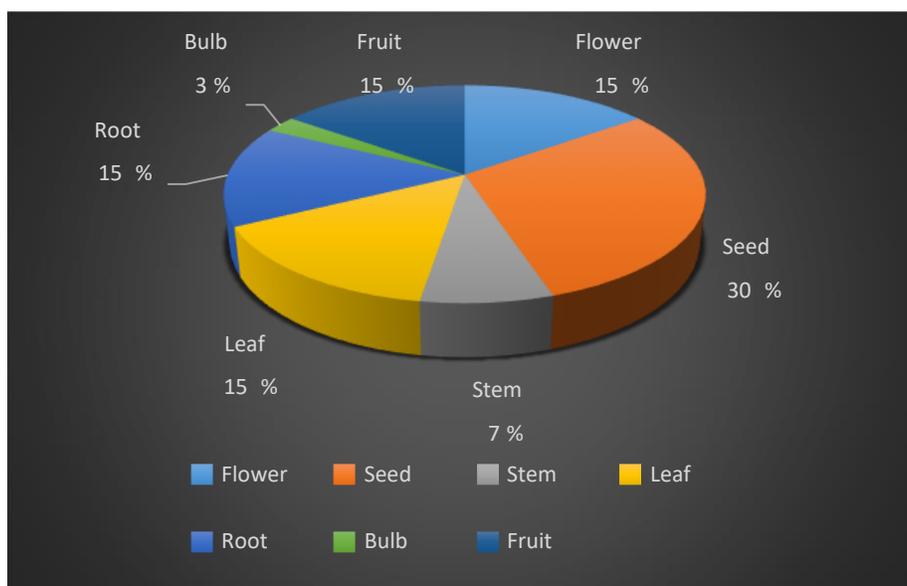


Figure 3.8 Plant Part Used

Form of Medicine:

Medicinal plants are collected from their natural habitats and are used in six different forms i.e. by making juice, paste, powder, direct, by burning/smoke, by mixing different medicinal plants with local foods. It was found that the inhabitants of the study area mostly use different medicinal plants in the form of juice, followed by powder, paste, with local foods, direct use, and burning

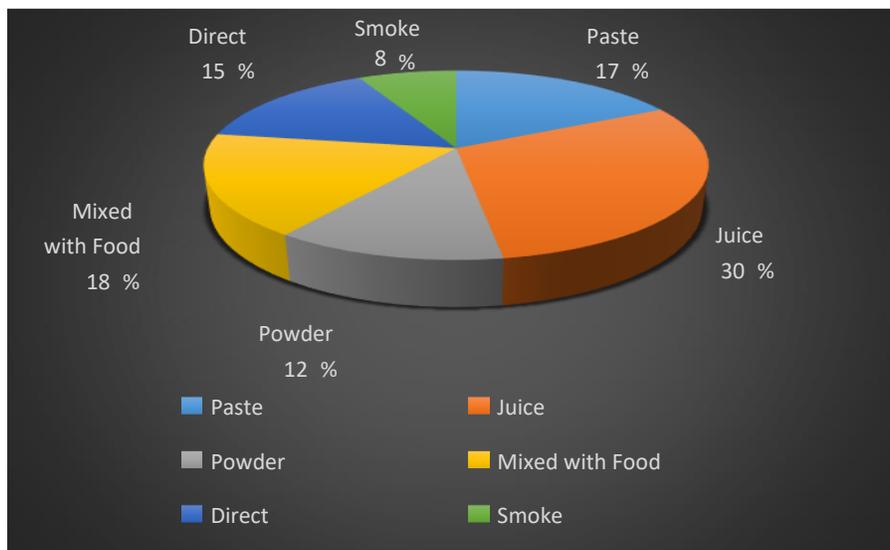


Figure 3.9 Form of Medicine

Plant Category:

Out of 40 plants 28 were wild and 12 were cultivated plants which indicates that the inhabitants of study area mostly use wild plants for medicinal purposes as shown in figure 3.6.

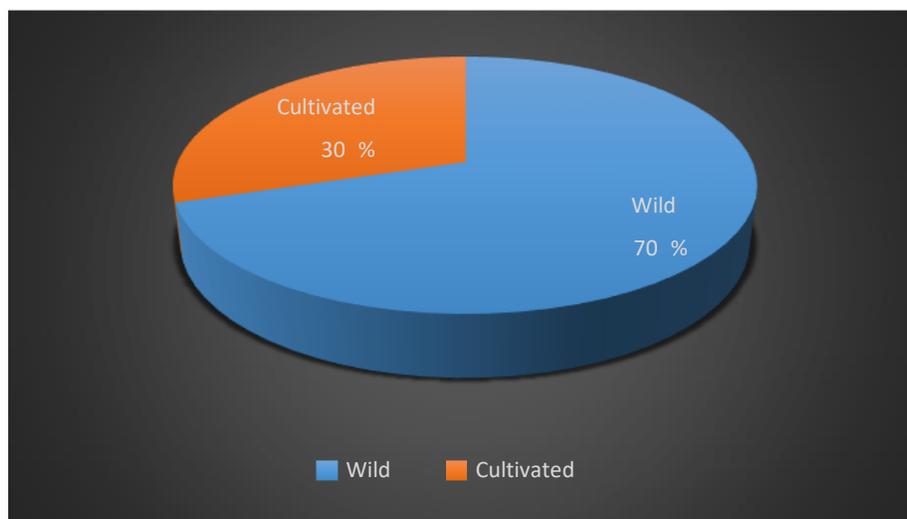


Figure 3.10 Plant Category

Mode of Application:

Our results show that most of the plants were used orally. As figure 3.7 indicates that 28 of the medicinal plants were taken orally about 12 of medicinal plants were taken dermally.

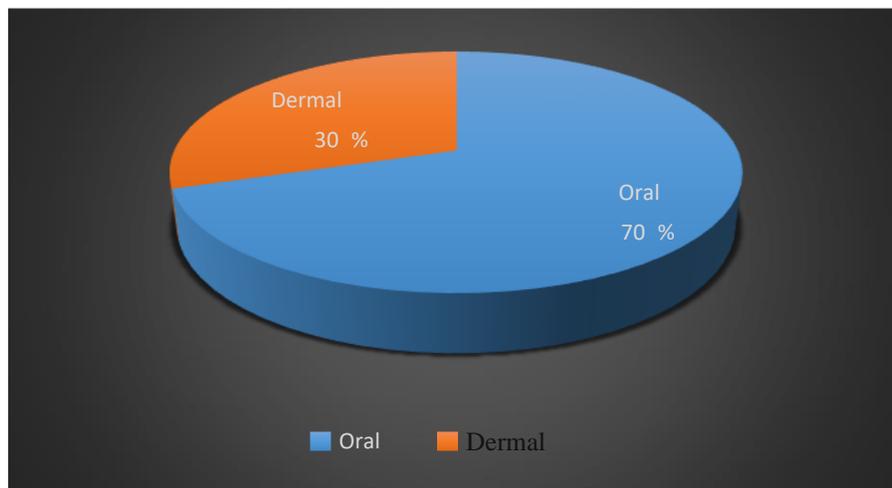


Figure 3.11 Mode of Application

Plants Used for Other Purposes:

Inhabitants of the study area also use medicinal plants for other purposes such as animal fodder, firewood, in construction, for making agricultural tools and fence around their fields, as spices and flavoring agent, as an evil repellent and for curing evil eye and black magic.

Number of Respondents:

Total 148 inhabitants were interviewed in 22 different villages in the study area. Table 4.3 shows their age and gender. Out of 148 inhabitants interviewed 90 were male 58 were female. It was found that the elders are more knowledgeable as compared to the youth.

Table 3.4

Total No. of Respondents	Male 90		Female 58	
	Above 40	Below 40	Above 40	Below 40
148	73	17	37	13

Figure 3.8 shows the percentage of male and female respondents.

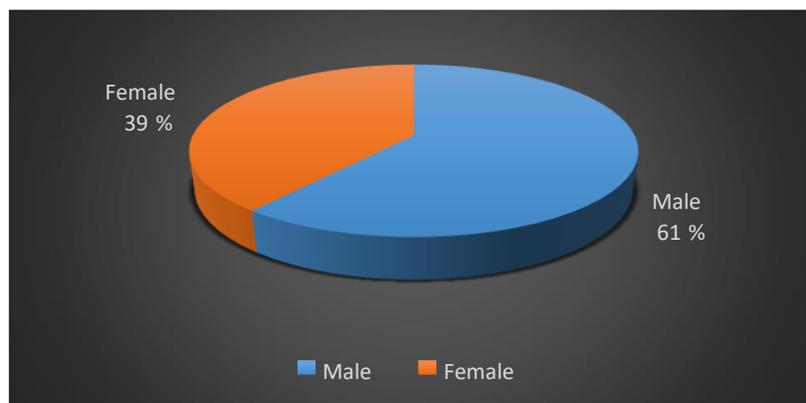


Figure 3.12 Male and Female Respondents

CONCLUSION:

Various plant species were used in the study area for medicinal purposes. The species of Asteraceae are highest as compared to any other family. *Mentha sylvestris*, *Hippophae rhamnoides*, *Artemisia gmelinii*, *Berginia stracheyi* are mostly used for various diseases. Digestive disorders are most common in the study area followed by rheumatic problems such as joint pain and respiratory disorders.

The medicinal plants are also used for the treatment of animal ailments and also used for other purposes for example in construction, as animal fodder and firewood, and for making agricultural tools which are threats for extinction. Many plants have aesthetic values such as *Peganum harmala* and *Juniperus excels* which are considered sacred plants and are used as evil repellants, to undo the effect of black magic and the evil eye.

In the study area, most of the plants under study were wild and few plants were cultivated. Inhabitants of the study area prepare medicines in various forms and most of the medicine is taken orally followed by dermally and few medicinal plants are used both dermally and orally. The folks used medicinal plants in various forms such as juice, powder, paste, etc. The indigenous knowledge is only restricted to elders and the youth has little knowledge. The usage of medicinal plants and indigenous knowledge in the study area is declining with the passage of time due to the prevalence and easy availability of allopathic drugs.

REFERENCES:

1. Mahmoud, T., & Gairola, S. (2013). Traditional knowledge and use of medicinal plants in the Eastern Desert of Egypt: a case study from Wadi El-Gemal National Park. *Journal of Medicinal Plants*, 1(6), 1017.
2. Hassan, N., Nisar, M., Kakar, S. U. R., Hassan, F., Zhiwei, Z., Nong, L., ... & Wang, D. (2017). Determination of informant consensus factor of medicinal plants used as therapy in district Dir Lower Pakistan. *Journal of medicinal plant studies*, 5(4), 183-188.
3. Khan, T. Y., Badshah, L., & Ali, A. Ethnobotanical survey of some important medicinal plants of area Mandan district Bannu, Khyber Pakhtunkhwa, Pakistan.
4. Ali, S., Nasreen, S., Safeer, S., Andleeb, S., Ejaz, M., Bano, S., & Shakir, H. A. (2016). Medicinal plants as therapeutic agents for cancer treatment. *Punjab Univ J Zool*, 31, 305.
5. Ahmad, L., Semotiuk, A. J., Liu, Q. R., Rashid, W., Mazari, P., Rahim, K., & Sadia, S. (2018). Antihypertensive plants of rural Pakistan: Current

use and future potential. *Journal of complementary medicine research*, 7(2), 138153.

6. Sarangzai, A. M., Ahmed, A., & Laghari, S. K. (2013). Traditional uses of some useful medicinal plants of Ziarat District Balochistan, Pakistan. *FUUAST Journal of Biology*, 3(1 June), 101-107.
7. Qureshi, R. A., Ghufuran, M. A., Sultana, K. N., Ashraf, M., & Khan, A. G. (2007). Ethnomedicinal studies of medicinal plants of Gilgit District and surrounding areas. *Ethnobotany Research and Applications*, 5, 115122.
8. Shah, A., Poudel, R. C., Ishtiaq, M., Sarvat, R., Shahzad, H., Abbas, A., ... & Summaya, A. (2019). ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS OF NAMAL VALLEY, SALT RANGE, PAKISTAN. *APPLIED ECOLOGY AND ENVIRONMENTAL RESEARCH*, 17(2), 4725-4805.
9. Maroyi, A. (2013). Traditional use of medicinal plants in south-central Zimbabwe: review and perspectives. *Journal of ethnobiology and ethnomedicine*, 9(1), 31.
10. Aziz, M. A., Adnan, M., Khan, A. H., Shahat, A. A., Al-Said, M. S., & Ullah, R. (2018). Traditional uses of medicinal plants practiced by the indigenous communities at Mohmand Agency, FATA, Pakistan. *Journal of ethnobiology and ethnomedicine*, 14(1), 2.
11. Sharif, A., Asif, H., Younis, W., Riaz, H., Bukhari, I. A., & Assiri, A. M. (2018). Indigenous medicinal plants of Pakistan used to treat skin diseases: a review. *Chinese medicine*, 13(1), 52.
12. Jabeen, N., Ajaib, M., & Siddiqui, M. F. (2015). A survey of ethnobotanically important plants of district Ghizer, Gilgit-Baltistan. *FUUAST Journal of Biology*, 5(1), 153-160.
13. Abbas, Z., Khan, S. M., Abbasi, A. M., Pieroni, A., Ullah, Z., Iqbal, M., & Ahmad, Z. (2016). Ethnobotany of the Balti community, Tormik valley, Karakorum range, Baltistan, Pakistan. *Journal of ethnobiology and ethnomedicine*, 12(1), 38.
14. Shah, G. M., Hussain, M., & Abbasi, A. M. (2015). Medicinal Plants Used to Treat Respiratory Tract Illness in Kaghan Valley, Himalayan Region-Pakistan. *SMGE book*, 5.
15. Shinwari, Z. K. (2010). Medicinal plants research in Pakistan. *J Med Plants Res*, 4(3), 16176.
16. Ali, R., Ali, B. K., Khan, M. Z., Khan, G., Abbas, S., & Ali, E. H. (2014). Baseline Study of Vegetation in Doyan Valley District Astore, Gilgit-Baltistan, Pakistan. *IJETST*, 1, 7-19.
16. Awan, M. R., Jamal, Z. A. F. A. R., & Khan, A. Z. H. A. R. (2013). Ethno-botanical studies of economically important plants from mountainous

- region of Gilgit-Baltistan, Pakistan. *Sci Tech Dev*, 32(4), 308-18.
17. Bora, K. S., & Sharma, A. (2010). Phytochemical and pharmacological potential of *Artemisia absinthium* Linn. and *Artemisia asiatica* Nakai: a review. *J Pharm Res*, 3(2), 325328.
 18. Jamshidi-Kia, F., Lorigooini, Z., & AminiKhoei, H. (2018). Medicinal plants: Past history and future perspective. *Journal of herbmed pharmacology*, 7(1).
 19. Abbas, Q., Qureshi, R., Naqvi, A. U. N., Khan, S. W., & Hussain, I. (2013). Floristic inventory and ethnobotanical study of the Naltar valley (Karakoram Range), Gilgit, Pakistan. *Pak J Bot*, 45, 269-277.
 20. Abbas, Q., Khan, S. W., Khatoon, S., Hussain, S. A., Hassan, S. N., Hussain, A., ... & Hussain, I. (2014). Floristic biodiversity and traditional uses of medicinal plants of Haramosh valley Central Karakoram National Park of Gilgit district, Gilgit-Baltistan. *Pakistan*.
 21. J Bio Env Sci, 5, 75-86. Shedayi, A. A., Xu, M., & Gulraiz, B. (2014). Traditional medicinal uses of plants in Gilgit-Baltistan, Pakistan. *Journal of Medicinal Plants Research*, 8(30), 992-1004.