



## Medicinal Plants Diversity and their Utilization in Gilgit Region, Northern Pakistan

Ghulam Abbas<sup>1\*</sup>, Qamar Abbas<sup>2</sup>, Sher Wali Khan<sup>1</sup>, Iftikhar Hussain<sup>1</sup>  
and Syed Najumal-ul-Hassan<sup>2</sup>

<sup>1</sup>Department of Biological Science, Karakoram International University, Gilgit-Baltistan, Pakistan.

<sup>2</sup>Integrated Mountain Area Research Center (IMARC), Karakoram International University, Gilgit-Baltistan, Pakistan.

### Authors' contributions

*This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.*

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### ABSTRACT

The District Gilgit and surrounding areas of northern Pakistan are rich in floral diversity. The research surveys were conducted during 2011-2012 to identify medicinal plants being used and their uses. The continuous field visits during March to August to collect the indigenous knowledge was recorded. The paper encompasses 54 plant species distributed among 29 families out of them 18 species had traditional usage. Fast urbanization, habitat destruction over grazing and over harvesting of medicinal plants has result in loss of native species and traditional knowledge among the local communities. Efforts are required to conserve habitat as well as indigenous knowledge of the study area.

\*Corresponding author: E-mail: [gabbas682@gmail.com](mailto:gabbas682@gmail.com);

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## 1. INTRODUCTION

The picturesque region of Gilgit - Baltistan is located in the extreme North Pakistan (between 35-37°N and 72-75°E). It is spread over an area of 72,971 km<sup>2</sup>. Administratively, Gilgit -Baltistan region has been divided into two divisions Gilgit and Baltistan which contain seven districts: Gilgit, Baltistan, Ganche, Diamer, Ghizar, Astore and Hunza-Nagar [1].

Ethnobotany has been defined as the study of interaction between humans and plants [2]. Gilgit-Baltistan of Pakistan is well known for the biodiversity and they are situated at the three great mountain ranges i-e the Karakorum, Himalaya and Hindukush [3]. People who are live in mountains of Pakistan use plants in many ways including medicines, timber wood, firewood, food, and fodder [4]. Herbal medicine even today plays an important role in the rural areas and various locally produced drugs are still being used different ailments [5]. The local person largely depends upon their natural flora for various needs [6]. About 3000 species of plants have been reported from the area, out of which at least 124 have medicinal value [7]. The indigenous communities of the region have learned to use the bio-resources around them for the treatment of diseases. They depend upon the bio-resources for their primary health care because they perceive that the traditional medicines have no or lesser side effects [8]. The studies conduct in the area especially about the ethnobotanical and important medicinally plants species of Gilgit district and surrounding areas [9]. The largest family is Asteraceae which is surveyed from the Astore area of Gilgit to provide information about the conservation of plant biodiversity [10].

In view of this, the present study was conducted to identify the medicinal plants of this district Gilgit areas especially in Jutail area, Kargah area and Barmas extremes area and their utilization in primary health care in manage of common ailments.

## 2. MATERIALS AND METHODS

### 2.1 Field Study

The study area and adjacent Stream areas were visited to collect the plant specimens. The

indigenous knowledge was obtained from the local inhabitants, elders male and females through the oral interviews and designed questioners.

### 2.2 Data Collection and Identification

Plant specimens were collected from the different vegetative patches of each area. The whole area was surveyed and maximum number of plant specimens collected during 2011-2012. All collected plant specimens were identified with the help of Flora of West Pakistan [11,12] and finally all this herbarium is deposited in Biological science Department of Karakoram International University Gilgit-Baltistan Pakistan.

## 3. RESULTS

The data collected through interviews with local peoples indicates that below these medicinal plants species are mostly used in fever, cough, asthma, stomach and abdominal disorders, flu, constipation, urinary diseases and diarrhea. The most important family was Asteraceae containing 8 species. Families, genera and species are arranged in alphabetically; local names and uses are provided for each species as shown below the Table 1.

The family Asteraceae is having 8 species, Fabaceae having 5 species, Brassicaceae Cupressaceae, having 4 species and Solanaceae having 3 species each, Berberidaceae, Ephedraceae, Elaeagnaceae, Lamiaceae, and Polygonaceae having 2 species each as show in Fig. 1.

## 4. DISCUSSION

In most of the cases the older people were noted as being better informants and the vivid reason for this may be their personal experience of using these plants since old times (especially before the construction of Karakoram Highway in the region and the start of modern development activities). Respondents under 50 years of age were less aware of the potential of medicinal plants than their older counterparts who have gathered knowledge from the point of view of their traditional health care and their day to day practices. The data were collected the information from 31 men having age above 30

years, 29 women having age of 25 years and above, and young boys which are about 14 to 30 years ages.

## 5. USES OF MEDICINAL PLANTS

Science of traditional medicines is as old as human civilization. A person of our entire world

still feels this type of treatment as safe as other pharmacopeia. In Gilgit Baltistan the majority of population is living in the valleys and they are much familiar about their flora. Their primary medicinal usage is completely based on these wild herbs. The only way in medical science to treat such cases is through surgery with subsequent plastering for longer time periods.

**Table 1. shows the total Plant species which are collected from the study area and their description**

<b>I. Family Name:</b>	<b>Amaranthaceae</b>
<b>1. Botanical Name:</b>	<b><i>Amaranthus viridis</i> L.</b>
Voucher No:	12
Local Name:	Ganarie (shina)
Habit:	Herb
Part uses:	Leaves
Medicinal uses:	After decoction it is used for stomachic diseases, flu, diarrhea and gastrointestinal problems.
Date of collection:	4 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1590, 1640 m
Collectors:	GH.Abbas and Qamar Abbas
<b>II. Family Name:</b>	<b>Apocynaceae</b>
<b>2. Botanical Name:</b>	<b><i>Nerium oleander</i> L.</b>
Voucher No:	90
Local Name:	Unknown
Habit:	Herb
Part uses:	Leaves
Medicinal uses:	The leaves in powder form are effective remedy for nausea, vomiting, abdominal pain and diarrhea.
Date of collection:	9 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1590, 1640 m
Collectors:	GH.Abbas and Iftikhar Hussain
<b>III. Family Name:</b>	<b>Asteraceae</b>
<b>3. Botanical Name:</b>	<b><i>Artemisia absinthium</i> L.</b>
Voucher No:	71
Local Name:	Kakamush (shina)
Habit:	Herb
Part used:	Leaves
Medicinal uses:	It is used for treatment of various types of fevers, especially malaria and also used as an anthelmintic for children.
Date of collection:	7 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1590, 1640 m
Collectors:	GH. Abbas and Iftikhar Hussain
<b>4. Botanical Name:</b>	<b><i>Artemisia indica</i> L.</b>
Voucher No:	89
Local Name:	Rooner (shina)
Habit:	Herb
Part used:	Leaves/stems
Medicinal uses:	The fresh leaves and flowering stem are used after decoction for the treatment of anthelmintic, antiseptic, antispasmodic, and stomach diseases.
Date of collection:	9 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1590, 1650 m
Collectors:	GH.Abbas and Iftikhar Hussain

<b>5. Botanical Name:</b>	<b><i>Artemisia maritima</i> L.</b>
Voucher No:	45
Local name:	Roon (shina)
Habit:	Herbs
Part use:	Aerial parts
Medicinal uses:	Worms, digestion, diarrhea.
Date of collection:	7 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1590, 1640 m
Collectors:	GH.Abbas and Iftikhar Hussain
<b>6. Botanical Name:</b>	<b><i>Carthamus tinctorious</i> L.</b>
Voucher No:	19
Local name:	Pong
Habit:	Herb
Part used:	Petals
Medicinal uses:	Fever, cough, alternate use of Zafran, urine diseases.
Date of collection:	4 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1590 m
Collectors:	GH.Abbas and Qamar Abbas
<b>7. Botanical Name:</b>	<b><i>Cichorium intybus</i> L.</b>
Voucher No:	29
Local name:	Iskinagie (shina)
Habit:	Herb
Part use:	Leaves/Roots
Medicinal uses:	Urine treatment, constipation, fever.
Date of collection:	5 <sup>th</sup> June 2011
Place of collection:	Nagral bala
Elevation:	1410m
Collectors:	GH.Abbas and Sher wali khan
<b>8. Botanical Name:</b>	<b><i>Echinops echinatus</i> Roxb.</b>
Voucher No:	69
Local Name:	Jacheer (shina)
Habit:	Herbs
Part use:	Aerial part
Medicinal uses:	Urinary diseases.
Date of collection:	7 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1540 m
Collectors:	GH.Abbas and Iftikhar Hussain
<b>9. Botanical Name:</b>	<b><i>Helianthus annuus</i> L.</b>
Voucher No:	67
Local name:	Surie-muok (shina)
Habit:	Herb
Part use:	Seeds
Medicinal uses:	Seed oil is used as physiotharaphatic activities.
Date of collection:	7 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1450 m
Collectors:	GH.Abbas and Iftikhar Hussain .H. Wigg
<b>10. Botanical Name:</b>	<b><i>Taraxacum officinale</i> F</b>
Voucher No:	23
Local name:	Iskinagie (shina)
Habit:	Herbs
Part use:	Leaves
Medicinal uses:	Hepatitis, skin diseases, fever.
Date of collection:	4 <sup>th</sup> June 2011
Place of collection:	Nagral bala
Elevation:	1510, 1612 m

Collectors:	GH.Abbas, Iftikhar Hussain
<b>IV. Family Name:</b>	<b>Berberidaceae</b>
<b>11. Botanical Name:</b>	<b><i>Berberis lycium</i> Royle.</b>
Voucher No:	96
Local Name:	Ishkeen (shina)
Habit:	Shrub
Part used:	Root/ stems/ berries
Medicinal uses:	After decoction of roots and stems bark is used for treatment of rheumatism, joint and other pains. Berries and roots are boiled in water and used to treat diabetes and is highly recommended for bone injuries & fractures.
Date of collection:	9 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1570 m
Collectors:	GH. Abbas and Iftikhar Hussain
<b>12. Botanical Name:</b>	<b><i>Berberis orthobotrys</i> Bien. ex Aich.</b>
Local Name:	Ishkeen (shina)
Habit:	Shrub
.Part used:	Berries/roots
Medicinal uses:	Berries and roots are boiled in water and used to treat diabetes.
Date of collection:	11 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1530 m
Collectors:	GH.Abbas and Qamar abbas
<b>V. Family Name:</b>	<b>Brassicaceae (Cruciferae)</b>
<b>13. Botanical Name:</b>	<b><i>Brassica campestris</i> L.</b>
Voucher No:	103
Local Name:	Dohaar (shina)
Habit:	Herb
Part used:	flower and seed
Medicinal uses:	it is used as fodder and seed is used for the preparation of oil.
Date of collection:	18 <sup>th</sup> June 2011
Place of collection:	Nagral bala
Elevation:	1520 m
Collectors:	GH.Abbas and Qamar Abbas
<b>14. Botanical Name:</b>	<b><i>Capsella bursa pastoris</i> (L.) Medik</b>
Voucher No:	154
Local Name:	Burribory (shina)
Habit:	Herb
Part used:	leaves and seeds
Medicinal uses:	It is used for treatment of blood pressure and cough.
Date of collection:	11 <sup>th</sup> June 2011
Place of collection:	Nagral bala
Elevation:	1480 m
Collectors:	GH.Abbas and Qamar Abbas
<b>15. Botanical Name:</b>	<b><i>Descurainia sophia</i> (L.) Webb Ex Prantl.</b>
Voucher No:	104
Local Name:	Burribory (shina)
Habit:	Herb
Part used:	leaves and seed
Medicinal uses:	It is used for treatment of chest complains and cough.
Date of collection:	18 <sup>th</sup> June 2011
Place of collection:	Nagral bala
Elevation:	1490 m
Collectors:	GH.Abbas and Qamar Abbas
<b>16. Botanical Name:</b>	<b><i>Sisymbrium irio</i> L.</b>
Voucher No:	155
Local Name:	Donghar (shina)
Habit:	Herb
Part used:	Seeds

Medicinal uses:	It is used as vegetable.
Date of collection:	11 <sup>th</sup> June 2011
Place of collection:	Nagral bala
Elevation:	1420 m
Collectors:	GH.Abbas and Qamar Abbas
<b>VI. Family Name:</b>	<b>Cannabaceae</b>
<b>17. Botanical Name:</b>	<b><i>Cannabis sativa</i> L.</b>
Voucher No:	98
Local Name:	Thoochi (shina)
Habit:	Herb
Part used:	Seeds
Medicinal uses:	Seeds are used for the treatment of pain, abdominal disorders, cough, insanity, erectile dysfunction.
Date of collection:	11 <sup>th</sup> June 2011
Place of collection:	Nagral bala
Elevation:	1420 m
Collectors:	GH. Abbas and Qamar Abbas
<b>VII. Family Name:</b>	<b>Capparidaceae</b>
<b>18. Botanical Name:</b>	<b><i>Capparis spinosa</i> L.</b>
Voucher No:	99
Local Name:	Kabier (shina)
Habit:	Herb
Part used:	Flower/ seeds
Medicinal uses:	Flowers are used for the treatment of joint pain, kidney treatment in powder form and seed oil is used for joint pains and hair treatment.
Date of collection:	15 <sup>th</sup> June 2011
Place of collection:	Nagral bala
Elevation:	1410 m
Collectors:	GH.Abbas and Qamar Abbas
<b>VIII. Family Name:</b>	<b>Caryophyllaceae</b>
<b>19. Botanical Name:</b>	<b><i>Dianthus anatolicus</i> Boiss.</b>
Voucher No:	101
Local Name:	Unknown
Habit:	Herb
Part used:	Leaves
Medicinal uses:	The plant leaves are used for the treatment of external inflammation in paste form.
Date of collection:	15 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1600 m
Collectors:	GH.Abbas and Qamar Abbas
<b>IX. Family Name:</b>	<b>Chenopodiaceae</b>
<b>20. Botanical Name:</b>	<b><i>Chenopodium botrys</i> L.</b>
Voucher No:	102
Local Name:	Das-e-Hamyie (shina)
Habit:	Herb
Part used:	Whole plant
Medicinal uses:	After decoction it is used for the treatment of antiasthma, Catarrh and back treatment.
Date of collection:	18 <sup>th</sup> June 2011
Place of collection:	Nagral bala
Elevation:	1460 m
Collectors:	GH. Abbas and Qamar Abbas
<b>X. Family Name:</b>	<b>Cupressaceae</b>
<b>21. Botanical Name:</b>	<b><i>Juniperus communis</i> L.</b>
Voucher No:	106
Local Name:	Mitthary (shina)
Habit:	Tree
Part used:	Dried fruits (berries)

Medicinal used:	After decoction it is treated for diuretic, antiseptic, anti-rheumatic, Urinary antiseptic.
Date of collection:	21 <sup>th</sup> June 2011
Place of collection:	Jutail
Elevation:	1725, 1816 m
Collectors:	GH. Abbas and Qamar Abbas
<b>22. Botanical Name:</b>	<b><i>Juniperus excelsa M. Bieb.</i></b>
Voucher No:	107
Local Name:	Cheeley (shina)
Habit:	Tree
Part used:	Berries
Medicinal uses:	The Berries are used for tuberculosis and diabetes. The paste of berries is applied on painful joints.
Date of collection:	21 <sup>th</sup> June 2011
Place of collection:	Jutail
Collectors:	GH. Abbas and Qamar Abbas
<b>23. Botanical Name:</b>	<b><i>Juniperus macropoda Boss.</i></b>
Voucher No:	108
Local Name:	Cheeley (shina)
Habit:	Tree
Part used:	Berries
Medicinal uses:	Barriers are used in powder form for the removal of kidney stone.
Date of collection:	21 <sup>th</sup> June 2011
Place of collection:	Jutail
Elevation:	1816 m
Collectors:	GH. Abbas and Qamar Abbas
<b>XI. Family Name:</b>	<b><i>Elaeagnaceae</i></b>
<b>24. Botanical Name:</b>	<b><i>Elaeagnus angustifolia L.</i></b>
Voucher No:	153
Local Name:	Ghundair (shina)
Habit:	Herb
Part used:	whole plant
Medicinal uses:	It's used for the treatment of cough, flu, cold.
Date of collection:	26 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1490 m
Collectors:	GH. Abbas and Iftikhar Hussain
<b>25. Botanical Name:</b>	<b><i>Hippophae rhamnoides L.</i></b>
Voucher No:	109
Local Name:	Borro (shina)
Habit:	Shrub
Part used:	Fruit
Medicinal uses:	Its fruit & seed dry to make oil which is used for allergy, heart treatment, joint paint, sun block treatments.
Date of collection:	26 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1500 m
Collectors:	GH. Abbas and Qamar Abbas
<b>XII. Family Name:</b>	<b><i>Ephedraceae</i></b>
<b>26. Botanical Name:</b>	<b><i>Ephedra gerardiana Wall. ex C.A. Mey</i></b>
Voucher No:	111
Local Name:	Soom (shina)
Habit:	Shrub
Part used:	Stems, leaves, dried twigs
Medicinal uses:	It is used for acute rheumatism in powder form, controlling night wetting in children; it's also a useful remedy in treating several disorders like hay-fever, decoction and skin allergy. Root is used for anti-asthmatics, cardiac circulatory stimulant and hay fever.
Date of collection:	09 <sup>th</sup> July 2011
Place of collection:	Barmas

Elevation:	1510 m
Collectors:	GH. Abbas and Iftikhar Hussain
<b>27. Botanical Name:</b>	<b><i>Ephedra intermedia</i> Schrenk &amp; C.A. Mey</b>
Voucher No:	110
Local Name:	Sopat (shina)
Habit:	Herb
Part used:	Stems
Medicinal uses:	It is used for the treatment for asthma and upper respiratory infections, alleviation of sweating, lung and bronchial constriction, and water retention, coughing, shortness of breath, common cold, and fevers.
Date of collection:	29 <sup>th</sup> June 2011
Place of collection:	Barmas
Elevation:	1550 m
Collectors:	GH.Abbas and Iftikhar Hussain
<b>XIII. Family Name:</b>	<b>Fabaceae (Leguminosae)</b>
<b>28. Botanical Name:</b>	<b><i>Astragalus falconeri</i> Bunge.</b>
Voucher No:	120
Local Name:	Unknown
Habit:	Herb
Part used:	Roots
Medicinal uses:	It is used for treatment of Common cold, liver disease, diabetes, influenza and respiratory diseases.
Date of collection:	22 <sup>th</sup> July 2011
Place of collection:	Barmas
Elevation:	1580 m
Collectors:	GH.Abbas, Iftikhar Hussain, Qamar Abbas
<b>29. Botanical Name:</b>	<b><i>Glycyrrhiza glabra</i> L.</b>
Voucher No:	119
Local Name:	Shalako (shina)
Habit:	Herb
Part used:	Root, Whole herb
Medicinal uses:	Its root is used for treatment of fever, allergy, nasal, flu, swelling and cough.
Date of collection:	22 <sup>th</sup> July 2011
Place of collection:	Barmas
Elevation:	1590 m
Collectors:	GH.Abbas, Iftikhar Hussain, Qamar Abbas
<b>30. Botanical Name:</b>	<b><i>Medicago sativa</i> L.</b>
Voucher No:	125
Local Name:	Isfath (shina)
Habit:	Herb
Part used:	Whole herb
Medicinal uses:	It is used for anti-fungal, digestive disorder asthma, diabetes & fodder.
Date of collection:	16 <sup>th</sup> July 2011
Place of collection:	Nagral bala
Elevation:	1350 m
Collectors:	GH.Abbas and Iftikhar Hussain
<b>31. Botanical Name:</b>	<b><i>Sophora mollis</i> Royle.</b>
Voucher No:	118
Local Name:	Poshool (shina)
Habit:	Shrub
Part used:	Leaves
Medicinal uses:	The aerial parts are used for antiseptic for animals, in dry form as well as its leaves pastes are used for anti-inflammation.
Date of collection:	22 <sup>th</sup> July 2011
Place of collection:	Barmas
Elevation:	1610 m
Collectors:	GH.Abbas, Iftikhar Hussain, Qamar Abbas
<b>32. Botanical Name:</b>	<b><i>Trifolium pratense</i> L.</b>
Voucher No:	117
Local Name:	Shaftal shina



Habit:	Herb
Part used:	Leaves
Medicinal uses:	It is used for vegetable and fodder.
Date of collection:	16 <sup>th</sup> July 2011
Place of collection:	Nagral bala
Elevation:	1390 m
Collectors:	GH.Abbas and Iftikhar Hussain
<b>XIV. Family Name:</b>	<b>Juglandaceae</b>
<b>33. Botanical Name:</b>	<b><i>Juglans regia</i> L.</b>
Voucher No:	112
Local name:	Achoo (shina)
Habit:	A wild/cultivated large deciduous tree
Part used:	Nuts, bark, leaves, and wood
Medicinal uses:	It is used in standard furniture. Bark is used for cleaning teeth also used for the treatment of jaundice & intestinal worms.
Date of collection:	10 <sup>th</sup> July 2011
Place of collection:	Nagral bala
Elevation:	1380 m
Collectors:	GH.Abbas and Iftikhar Hussain
<b>XV. Family Name:</b>	<b>Lamiaceae</b>
<b>34. Botanical Name:</b>	<b><i>Mentha longifolia</i> (L.) Huds.</b>
Voucher No:	115
Local Name:	Fileel (shina)
Habit:	Herb
Part used:	Leaves
Medicinal uses:	After decoction it is used for the treatment of headaches, colds, Nasal catarrh, Fever. The leaves and flowers heads are used as a carminative and Stomachic, astringent and to treat whooping cough asthma and respiratory inflammation.
Date of collection:	16 <sup>th</sup> July 2011
Place of collection:	Nagral bala
Elevation:	1370 m
Collectors:	GH. Abbas and Iftikhar Hussain
<b>35. Botanical Name:</b>	<b><i>Thymus linearis</i> L.</b>
Voucher No:	114
Local Name:	Tomoroo (shina)
Habit:	Herb/flower
Part used:	Leaves
Medicinal uses:	The leaves and flower used for the treatment of asthma, digestion, reduces the Stomach gases, used for nasal, cough, and black cough, irritation of neck and uses for BP.
Date of collection:	15 <sup>th</sup> July 2011
Place of collection:	Barmas
Elevation:	1820 m
Collectors:	GH. Abbas and Iftikhar Hussain
<b>XVI. Family Name:</b>	<b>Linaceae</b>
<b>36. Botanical Name:</b>	<b><i>Linum usitatissimum</i> L.</b>
<b>Voucher No:</b>	123
Local Name:	Hooman (shina)
Habit:	Herb
Part used:	Seed
Medicinal uses:	Seeds are used for the urinary tract infection & constipation.
Date of collection:	16 <sup>th</sup> July 2011
Place of collection:	Barmas
Elevation:	1620 m
Collectors:	GH.Abbas and Iftikhar Hussain
<b>XVII. Family Name:</b>	<b>Moraceae</b>
<b>37. Botanical Name:</b>	<b><i>Ficus carica</i> L.</b>
Local Name:	Faag (shina)
Habit:	Tree

Part Used:	Fruit
Medicinal uses:	Its Fruits are used as tonic & cardiac troubles, abdominal problems, constipation and stem latex is used for skin problems.
Date of collection:	16 <sup>th</sup> July 2011
Place of collection:	Nagral bala
Elevation:	1310 m
Collectors:	GH.Abbas and Iftikhar Hussain
<b>XVIII. Family Name:</b>	<b>Plantaginaceae</b>
<b>38. Botanical Name:</b>	<b><i>Plantago major</i> L.</b>
Voucher No:	132
Local Name:	Shiltive (shina)
Habit:	Herb
Part used:	Leaves/Roots
Medicinal uses:	Its seed used for treatment of diarrhea and also used for wounds treatments and Constipation.
Date of collection:	28 <sup>th</sup> July 2011
Place of collection:	Nagral bala
Elevation:	1340 m
Collectors:	GH. Abbas, Iftikhar Hussain
<b>XIX. Family Name:</b>	<b>Poaceae</b>
<b>39. Botanical Name:</b>	<b><i>Hordeum murinum</i> L.</b>
Voucher No:	130
Local Name:	Shansher (shina)
Habit:	Herb
Part used:	Whole plant
Medicinal uses:	After decoction of the plant has been used in the treatment of bladder ailments.
Date of collection:	25 <sup>th</sup> July 2011
Place of collection:	Nagral bala
Elevation:	1300 m
Collectors:	GH. Abbas, Iftikhar Hussain
<b>XX. Family Name:</b>	<b>Polygonaceae</b>
<b>40. Botanical Name:</b>	<b><i>Rumex nepalensis</i> Spreng.</b>
Voucher No:	126
Local Name:	Obabal (shina)
Habit:	Herb
Part used:	Roots
Medicinal uses:	Roots are boiled in water and applied externally for swellings and joints pain.
Date of collection:	22 <sup>th</sup> July 2011
Place of collection:	Barmas
Elevation:	1650 m
Collectors:	GH. Abbas, Iftikhar Hussain, Qamar Abbas
<b>41. Botanical Name:</b>	<b><i>Rheum spiciforme</i> Royle</b>
Voucher No:	133
Local Name:	Chontal (shina)
Habit:	Herb
Part used:	stems, roots
Medicinal uses:	Its stems are used for the treatment of blood circulation, helminthes treat diarrhea, dysentery, liver diseases and jaundice while its root is used for treatment of constipation, fevers, infections, as well as stomach ulcers the plant is also known to fight Bacterial infections.
Date of collection:	22 <sup>th</sup> July 2011
Place of collection:	Barmas
Elevation:	1600 m
Collectors:	GH. Abbas, Iftikhar Hussain, Qamar Abbas
<b>XXI. Family Name:</b>	<b>Ranunculaceae</b>
<b>42. Botanical Name:</b>	<b><i>Delphinium vestitum</i> Wall. ex Royle</b>
Voucher No:	134
Local Name:	Makhooti (shina)
Habit:	Herb

Part used: roots, flower  
 Medicinal uses: Flower extract is used for eye redness and infections of eyes. Root decoction is used for heart problems, cough, typhoid, and malaria and pneumonia fever.  
 Date of collection: 28<sup>th</sup> July 2011  
 Place of collection: Nagral bala  
 Elevation: 1810 m  
 Collectors: GH. Abbas, Iftikhar Hussain

**XXII. Family Name: Rosaceae**

**43. Botanical Name: *Spiraea canescens* D. Don.**

Voucher No: 135  
 Local Name: Daarah (shina)  
 Habit: Tree  
 Part used: stem /flower  
 Medicinal uses: Stem is used for making handles of agricultural tools and walking stick. The oil of wood is used for skin problems and flowers are used for abortions.  
 Date of collection: 28<sup>th</sup> July 2011  
 Place of collection: Nagral bala  
 Elevation: 1720 m  
 Collectors: GH. Abbas, Iftikhar Hussain

**XXIII. Family Name: Salicaceae**

**44. Botanical Name: *Populus alba* L.**

Voucher No: 138  
 Local Name: Phalsee (shina)  
 Habit: Tree  
 Part used: Branches/ Stem /leaves/Bark  
 Medicinal uses: The stem barks after decoction used for fever, headache and paralysis and its leaves are externally used for itching and allergy.  
 Date of collection: 06<sup>th</sup> August 2011  
 Place of collection: Nagral bala  
 Elevation: 1320 m  
 Collectors: GH. Abbas, Iftikhar Hussain

**45. Botanical Name: *Salix alba* L.**

Local Name: Mori Bayao (shina)  
 Habit: Tree  
 Part used: Bark  
 Medicinal uses: The powdered of bark is mixed with other herbs to be used as an anti-periodic, tonic and astringent. The leaves and bark are used to treat diarrhea and dysentery.

Date of collection: 06<sup>th</sup> August 2011  
 Place of collection: Nagral bala  
 Elevation: 1330 m  
 Collectors: GH. Abbas, Iftikhar Hussain

**46. Botanical Name: *Salix tetrasperma* Roxb.**

Voucher No: 136  
 Local Name: Bayo (shina)  
 Habit: Tree  
 Part used: Bark  
 Medicinal uses: The bark is used for the treatment of febrifuge (reduce the fever).  
 Date of collection: 04<sup>th</sup> August 2011  
 Place of collection: Barmas  
 Elevation: 1410 m  
 Collectors: GH. Abbas, Iftikhar Hussain, Qamar Abbas

**XXIV. Family Name: Saxifragaceae**

**47. Botanical Name: *Bergenia stracheyi* Moench.**

Voucher No: 139  
 Local Name: Sanspur (shina)  
 Habit: Herb  
 Part used: Roots  
 Medicinal uses: Its roots are used for the treatment of fever; diarrhea and it also used to reduce the pain of women during pregnancy.

Date of collection:	12 <sup>th</sup> August 2011
Place of collection:	Barmas
Elevation:	1880 m
Collectors:	GH. Abbas, Iftikhar Hussain
<b>XXV. Family Name:</b>	<b>Scrophulariaceae</b>
<b>48. Botanical Name:</b>	<b><i>Verbascum thapsus</i> L.</b>
Voucher No:	140
Local Name:	Unknown
Habit:	Herb
Part used:	whole plants
Medicinal uses:	It is used for the treatment of diuretic, healing problems and also used for the treatment of antiseptic properties.
Date of collection:	12 <sup>th</sup> August 2011
Place of collection:	Barmas
Elevation:	1620 m
Collectors:	GH. Abbas, Iftikhar Hussain
<b>XXVI. Family Name:</b>	<b>Solanaceae</b>
<b>49. Botanical Name:</b>	<b><i>Datura stramonium</i> L.</b>
Voucher No:	143
Local Name:	Daturo (shina)
Habit:	Herb
Part used:	Seeds, Flower
Medicinal uses:	Its seeds are used to make different drugs and after decoction its flower is used for the treatment of ear and hair.
Date of collection:	16 <sup>th</sup> August 2011
Place of collection:	Nagral bala
Elevation:	1360 m
Collectors:	GH. Abbas, Iftikhar Hussain
<b>50. Botanical Name:</b>	<b><i>Solanum lycopersicum</i> L.</b>
Voucher No:	142
Local Name:	Balgon (shina)
Habit:	Herb
Part used:	Fruit
Medicinal uses:	It is used for the treatment of swelling and also used for cooking.
Date of collection:	12 <sup>th</sup> August 2011
Place of collection:	Barmas
Elevation:	1610 m
Collectors:	GH. Abbas, Iftikhar Hussain
<b>51. Botanical Name:</b>	<b><i>Solanum nigrum</i> L.</b>
Voucher No:	144
Local Name:	Gabellie (shina)
Habit:	Herb
Part used:	Fruit, leaves
Medicinal uses:	Its leaves are used for the treatment of digestive problems while its berries are consumed or prepared as a decoction to treated jaundice.
Date of collection:	16 <sup>th</sup> August 2011
Place of collection:	Nagral bala
Elevation:	1640 m
Collectors:	GH. Abbas, Iftikhar Hussain
<b>XXVII. Family Name:</b>	<b>Tamaricaceae</b>
<b>52. Botanical Name:</b>	<b><i>Myricaria germanica</i> L.</b>
Voucher No:	152
Local Name:	Hokroo (shina)
Habit:	Tree
Part used:	Wood
Medicinal uses:	Making tools and sticks.
Date of collection:	18 <sup>th</sup> August 2011
Place of collection:	Barmas
Elevation:	1670 m

Collectors:	GH. Abbas, Iftikhar Hussain
<b>XXVII. Family Name:</b>	<b>Urticaceae</b>
<b>53. Botanical Name:</b>	<b><i>Urtica dioica</i> L.</b>
Voucher No:	146
Local Name:	Jomiey (shina)
Habit:	Herb
Part used:	Seeds, leaves
Medicinal uses:	After decoction it is used for the treatment of urine treatment, it reduces sugar level, joint paints also used for the treatment of allergy, asthma and fever.
Date of collection:	18 <sup>th</sup> August 2011
Place of collection:	Barmas
Elevation:	1450 m
Collectors:	GH. Abbas, Iftikhar Hussain
<b>XXVII. Family Name:</b>	<b>Zygophyllaceae</b>
<b>54. Botanical Name:</b>	<b><i>Peganum harmala</i> L.</b>
Voucher No:	151
Local Name:	Ispandur (shina)
Habit:	Herb
Part used:	Whole plant, Seeds
Medicinal uses:	Its seeds are used for the treatment of fever, joint paint, worms and its seed oil is used for the treatment of ear problems.
Date of collection:	25 <sup>th</sup> August 2011
Place of collection:	Nagral bala
Elevation:	1490 m
Collectors:	GH. Abbas, Iftikhar Hussain

A decoction prepared from *Berberis lycium* (Ishkeen) was also recommended by the elderly respondents of this survey for the speedy healing of bone fractures. The decoction is recommended to be used with boiled and sweetened milk administered orally and for a certain period of time, depending on the age of the patient. This is a hectic experience for patients. In this study, it was found that people use *Ephedra gerardiana* (Soom) branch ash paste (in water or oil base) and in some cases a warm decoction or extract of other parts of the plant externally applied on the area of the bone fracture. This was said to heal the improperly healing fractured bone within a week. In our study area *Artemisia absinthium* (Khakmus) was found to be the most frequently used medicinal plant followed by *Artemisia maritima* (Zoon). Many plant species are used as purgatives and stomachache including *Amaranthus viridis*, *Mentha longifolia* and *Rumex hastatus*. Similar uses for these species were verified (with the exception of *Rumex hastatus*) from the work and reported in an early Ethnobotanical survey of Astore that some medicinal species are used in bronchial and lung diseases e.g. *Hippophae rhamnoides*. Both are reported for treatment of

gastrointestinal infections and helminthes problems in children. Uses of various *Artemisia* species as tonics and anthelmintic has also been reported. *Artemisia* species are also used to treat various types of fevers especially from malaria. This is interesting in light of recent reports [1,9]. Indicating that Quinine resistant malaria may be effectively treated by Artemisinin from *Artemisia annua*. In addition to these species we also found that *Cichorium intybus*, *Trifolium pratense* and *Thymus serpyllum* are used in asthma, whooping cough, lung complains and breathing problems related to higher altitude. This study has identified at least three species: *Ephedra gerardiana*, *Thymus serpyllum* and *Plantago major* that we feel should be locally cultivated because they have good adoptability to local climates and have high market values. These plants can be cultivated with little input for benefits to the community. It was found that some shrubs of medicinal value such as *Hippophae rhamnoides* and *Berberis lycium* are difficult to maintain. In Gilgit and its adjacent areas (stream areas) there are many plants species which are used by local inhabitants for different types of ailments.

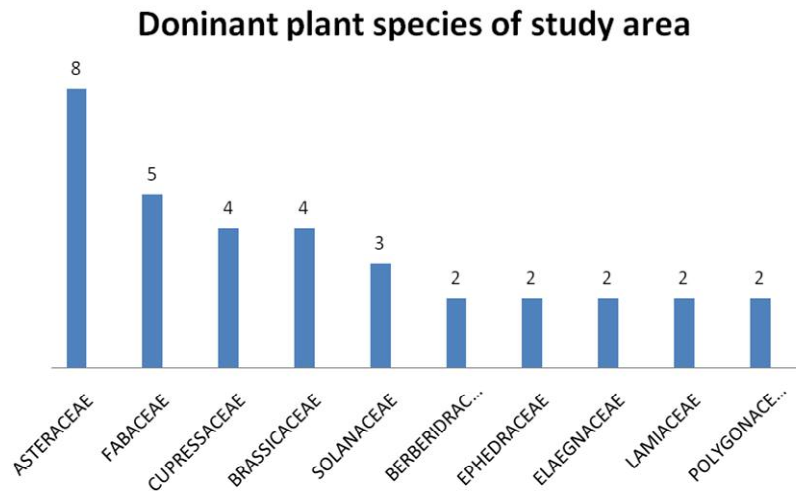


Fig. 1. The dominant plant families having maximum number of plant species.

Comparison of Age wise Traditional Knowledge infrom from the Inhabitants of Study Area

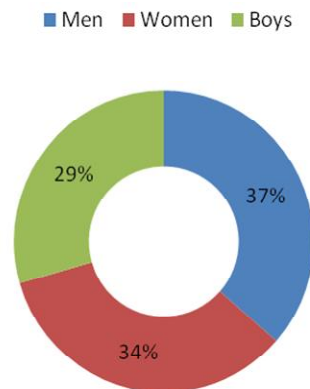


Fig. 2. Comparison among the number of respondents by the different age groups, gender and their traditional knowledge about the medicinal plants of Gilgit town and the adjacent Nallahs

## 6. CONSERVATION ISSUES

We observed that medicinal plants are indiscriminately collected from wild habitats for domestic and commercial uses without any strategies reported to conserve them. Similarly [3] noted that as overall diversity increases so medicinal plant species, reporting 345 medicinally used species from the biologically diverse Swat.

## 7. CONCLUSION AND RECOMMENDATION

The vast area, big pastures and suitable climatic conditions make it possible for a large number of

threatened medicinal plants and other useful species to grow in the study area. Local cultivation of medicinal plants and other economic species can play an important role in economic development of the area, in particular and Pakistan's economy in general, by earning valuable foreign exchange and meeting domestic requirements [6]. As every year a considerable amount of foreign exchange is spent for the import of drugs and other products, sustainable utilization of indigenous drug resources in local pharmaceutical and herbal industries will increase the importance of the plant resources of these areas. Utilization of indigenous drug resources will increase the importance of the local industry on one hand and minimize the

expenditure incurred on the purchase of foreign drugs on the other. It can also provide direct and indirect employment to a large number of people from trained collectors to local herb sellers mind also supports a good number of herb-based industries [9].

In view of the present study of medicinal plants (as well as other economic uses of plants), research and conservation efforts should be focused on these resources of the area. It is proposed to establish a comprehensive research project to improve the production of medicinal and other useful plants in this area. For sustainable and long term conservation of natural resources of the area, there is a need to actively involve the quiescence of local people in evaluation, planning, implementation and monitoring processes as they are the best judges of the area.

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#### COMPETING INTEREST

Authors have declared that no competing interests exist.

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