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# Floristic biodiversity and traditional uses of medicinal plants of Haramosh Valley Central Karakoram National Park of Gilgit district, Gilgit-Baltistan, Pakistan

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**Abstract**

The aim of present study was to explore the floristic inventory and record the indiginious knowledge about medicinal plants of the Haramosh valley, Central karakoram national Park.For this purpose, surveys were carried out during March, 2013 to July, 2014. Haramosh valley is located at the northern side of the river Indus, started from junction of three great mountainous ranges i.e. Karakoram, Himalaya, and Hindukush. The detailed information about the flora and the indeginous knowledge was gathered through detail interviews and semi structured questionnares.Global Positioning System (GPS) was used to record coordinates of the 41 different localities and their distribution map is designed using ArcGis 10.2 (Fig. 1). The total 111 plant species are reported , out of these 28 species are endengered, rareand endemicflora of this valley as compare to other valleys of Central Karakoram national park. The 83 medicinally important plant species are reported from this valley belonging to 73 genera and 40 families were collected and recoded their ethnobotanical data from the different areas and inhabitants of Haramosh valley. Out of the 28 unique flora of the valley, threeareendemic species *Taraxacum qaiseri, Hieracium sherwalii*and *Sorbus gilgitana*while five are rare species *Aquilegia nivalis, Chenopodium foliosum, Haplophyllum gilesii, Podophyllum hexandrum* and *Primula inayatii* . The most of the important medicinal plants of the study area are belonging to these families Asteraceae, followed by Papillionacea, Rosaceae, Polygonaceae, Labiateae, and Chenopodiaceae, while other familes have less species.Due to the weak economical conditions, less education, villages territorial conficts and ignore the existing customary laws of the area the natural ecosystem is declining at rapid pace. The overgrazing, deforestation and un-sustainable management of flora causing threat to natural biodiversity and need a comprehensive plan to protect the natural resources.

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## Introduction

The Gilgit-Baltistan of Pakistan lies at the extreme North of Pakistan, comprising of seven districts i.e. Gilgit, Ghizer, Skardu, Diamer, Ghanche and Astor. These Areas are known as the axis of Asia. It lies between 35°-37° N and 72°-75° E, where it borders Xingiang province of China. It is surrounded by Chitral in west; Kalam, Kohistan and Kaghan valleys in the south, whereas the newly independent Republic of Tajikistan is only a handshake away and to the East lies the occupied territories of Ladakh and Kashmir, the place where the three major parts of Asia i.e. Southern Asia, Central Asia, and South east Asia converge. It spreads over an area of 72496 $Km^2$ along with the population of about one and half million, at the density of 10 persons/ $Km^2$. The per capita land holding is 0.124 hectares, which is decreasing day by day due to the fragmentation in the families and urbanization. Out of the total area, only 69,480 hectares (0.96%) are under cultivation whereas, about 60,000 hectares of cultivable land lies barren and rest of the area comprises rangeland, mountains, forests, lakes/rivers etc. (IUCN, 2003).

The Northern Area of Pakistan (Gilgit-Baltistan) with unique biodiversity due to the presence of Himalayas, Karakorum's and Hundu-kush mountain ranges are under tremendous pressure from locals because of illicit cutting of valuable plants, poor collection and storage methods of medicinal plants, smuggling of timber wood, over grazing, corrupt forest officials, illiterate population with no sense or lust for conservation and above all passive and non practical policies of Government as well as NGO's working in the area ( Hamayun *et al.*, 2003).

Haramosh valley located 40km away from the Gilgit city on the way of Gilgit to Skardu Baltistan. İt consist of 12 villages and nearly 1000 households. This valley is consisit of several snow covered mountains, glaciers, dense forest patches, shrub landsand alpine meadows.According to phtogeographical distribution this area located in the Eastern Irano-Turanian sub region.this valley has unique vegetation due to its diversefied topography. The valley consisit of four ecological zones, Alpine zone, Sub alpine zone, dry Temperate Mountain zone and Sub Tropical desert area. (Khan and Khatoon 2007-8)

Most of the people depend upon the traditional medicines living in developing countries and it has been estimated that 60-80% of people world widely rely mainly on the traditional herbal medicines to meet their primary healthcare needs. It is reported that a quarter of all medications from the communities in world still dependent on the plant extracts directly (Rehman and Choudhary, 2001).

Ethnobotany is widely accepted as science of human interactions with plants and its ecosystem. Ethnobotany is a multi-disciplinary science of botany, ecology and anthropology. Thus, ethnobotany is more than simply a study of plants useful to people. It is also a devoted to understand the limitation and behavioral consequences of human population action on their plant environment. One of the objective of the ethnobotany is to record the indigenous knowledge about plants (Bhatti *et al.* 2001).

The main aim and Objectives of this study was

1. To explore the floristic biodiversity of the study area

2. To record the indeginious knowledge about the medicinal plants of the study area.

3. Through Global Positioning System (GPS) record the distribution of flora from the different localities and altitudes.

## Materials and methods

*Field study*

The study area and adjacent nallahs were visited to collact the plant specimens. The indeginious knowledge was obtained from the local inhabitants, elders, hakeems of the area through the oral interviews and designed questionners.

*Data collection and Identification*

Plant specimens were collected from the different vegetative patches of each nallahs and through GIS coordinates data are also collected. The whole area was surveyed and maximum number of plant specimens were collected during 2013-2014. All collected plant specimens were identified with the help of Flora of West pakistan Ali SI, Qaiser M. 1993-1995 and 2000-2008.

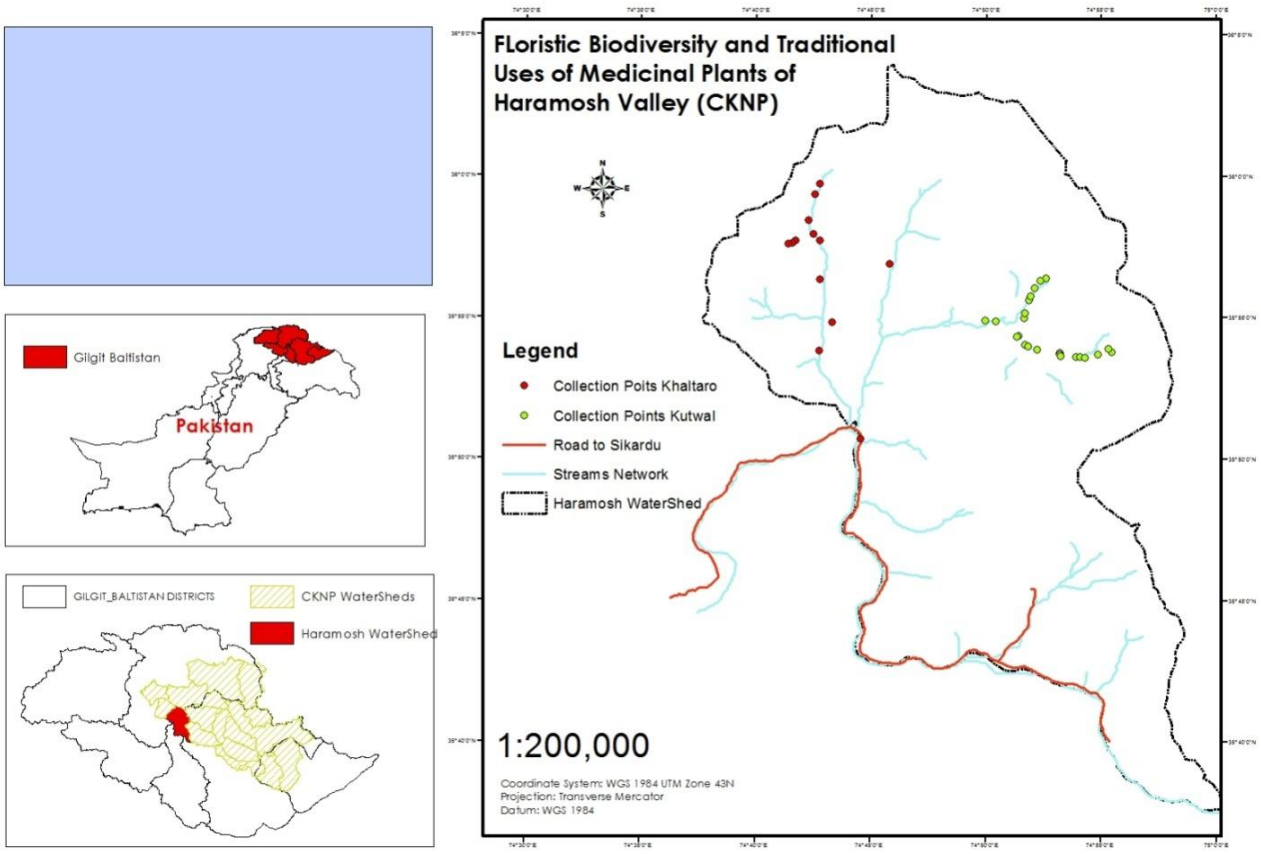


**Fig. 1.** Floristic Biodiversity and Traditional Uses of Medicinal Plants of Haramosh Valley (CKNP) Gilgit-Baltistan, Pakistan.

**Results**

In total 111 plant species are repoted out of this 83 are medicinally plant species belonging to 73 genera and 40 families and 28 unique floral species were reported from this valley as compare to other valleys of Central Karakoram national park check list. These plant species are collected recoded their ethnobotanical data and identified from the different villages of Haramosh valley up to 4000m. These nallahs and villages pastures of Sassi, Hanochal, Dassu, Barchi, Kutwal, Horban, Shahtoot and Khaltarowere first time properly surveyed and gathered the specimens and indigenous knowledge from the native inhabitants of the area. Global Positioning System (GPS) was used to record coordinates of the 41 different localities and their distribution map is designed using ArcGis 10.2 (Fig.1). The most common medicinal herbs found in the region belongs to the families Asteraceae,followed byPapillionacea, Rosaceae, Polygonaceae, Labiateae , and Chenopodiaceae, while other familes have less species.

The folk traditional knowledge about these medicinal plants were examined and found that older people especially women were more informative and habitual

to use these medicinal plants for treatment different ailments.

The detail List of unique flora andmedicinally important plants used for different ailments recorded from Haramosh Valley, Central Karakoram National Park, district Gilgit,Gilgit-Baltistan of Pakistan are represented in table 1,2 and table 3, throgh graphical repsentation in Fig 2 and 3.

Global Positioning System (GPS) was used to record coordinates of the 41 different localities and their distribution map is designed using ArcGis 10.2. The two major nallahs of the haramosh valley and different sample collection area are visible on the Fig.1.

**Table 1.** The unique flora reported from the different ecological zones of Haramosh Valley, Central Karakoram National Park of Pakistan.

| S. No. | Family Name | Name of Specie / Voucher Sp. No. | Alpine | Sub Alpine | Temperate | Sub Tropical |
|---|---|---|---|---|---|---|
| 1. | Boraginaceae | *Draba lanceolata* | + | - | - | - |
| 2. | Brassicaceae | *Thlaspi andersonii* | + | - | - | - |
| 3. | Caprifoliaceae | *Lonicera semenovii* | + | + | - | - |
| 4. | Caryophyllaceae | *Silene indica* | + | + | - | - |
| 5. | Chenopodiaceae | *Chenopodium foliosum* | - | + | - | - |
| 6. | Compositae | *Allardia nivea* | + | - | - | - |
| 7. | Compositae | *Taraxacum qaiseri* | - | - | + | - |
| 8. | Compositae | *Filago hurdwarica* | - | - | + | + |
| 9. | Compositae | *Hieracium sherwalii* | - | + | - | - |
| 10. | Compositae | *Leontopodium nanum* | - | + | - | - |
| 11. | Compositae | *Sassurea ceratocarpa* | + | + | - | - |
| 12. | Compositae | *Senecio glaucus* | - | + | + | - |
| 13. | Euphorbiaceae | *Euphorbia osyridea* | - | - | - | + |
| 14. | Gentianaceae | *Comastoma pulmonarium* | + | + | - | - |
| 15. | Geraniaceae | *Geranium pamiricum* | - | + | - | - |
| 16. | Labiatae | *Phlomis bracteosa* | + | - | - | - |
| 17. | Onagraceae | *Epilobium leiophyllum* | + | + | - | - |
| 18. | Orobanchaceae | *Orbanche vulgaris* | - | + | + | - |
| 19. | Podophyllaceae | *Podophyllum hexandrum* | - | + | - | - |
| 20. | Primulaceae | *Primula inayatii* | - | - | + | - |
| 21. | Ranunculaceae | *Aquilegia nivalis* | - | + | - | - |
| 22. | Ranunculaceae | *Ranunculus stewartii* | + | - | - | - |
| 23. | Rosaceae | *Cotoneaster uniflora* | + | - | - | - |
| 24. | Rosaceae | *Potentilla dryadanthoides* | + | + | - | - |
| 25. | Rosaceae | *Sorbus gilgitana* | - | + | - | - |
| 26. | Rutaceae | *Haplophyllum gilesii* | + | - | - | - |
| 27. | Scrophulariaceae | *Pedicularis pectinata* | + | + | - | - |
| 28. | Solinaceae | *Withania coagulans* | - | - | + | + |
| | | | 14 | 16 | 6 | 4 |

These are the unique flowering plant species reported from the Haramosh valley are mostly rare, endemic and endangered.Out of the 28 unique flora of the valley, three are endemic species *Taraxacum qaiseri,Hieracium sherwalii*and *Sorbus gilgitana* while five are rare species *Aquilegia nivalis, Chenopodium foliosum, Haplophyllum gilesii, Podophyllum hexandrum* and *Primula inayatii* . On the ecological distribution they are mostly found from the alpine and sub alpine regions and few of them belongs to the temperate and sub tropical regions of the study area. These twenty eight species belonging to the twenty eight genra and ninteen families. The people of the area are known these species but they have no any common name, and no any usage for medicinal purpose. They repoted that mostly these species are fed by their cattles.

The eighty three medicinally impotant plant species belonging to seventy two genera and forty families. All of these plant species are used for the treatment of

different ailments. Some species are also used for more than one ailment.

Some medicinal plant species have multiple usage while some species and their recepies were also repoted first time for the treatment of some major ailments.

The most common medicinal plants of the study area are belonging to these families Asteraceae, followed by Papillionacea, Rosaceae, Polygonaceae, Labiateae, and Chenopodiaceae, while other familes have less species.

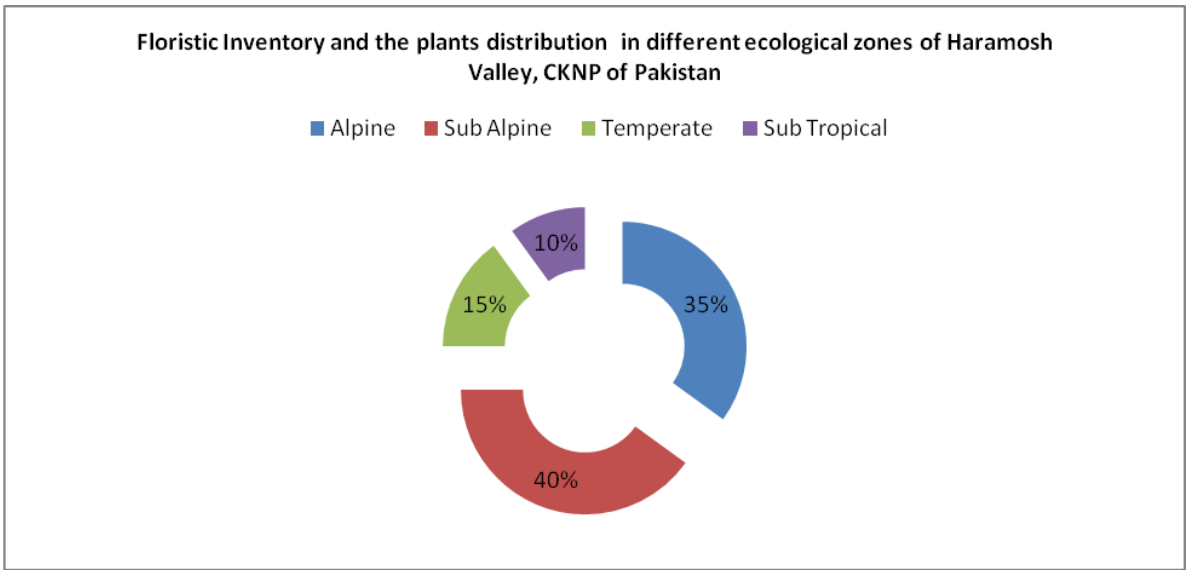


**Fig. 2.** Showing Floristic Inventory and the plants distribution their percentage in different ecological zones of Haramosh Valley, Central Karakoram National Park of Pakistan.

**Table 2.** Detail List ofmedicinally important plants uses for different ailments recorded from Haramosh Valley, Central Karakoram National Park, district Gilgit,Gilgit-Baltistan of Pakistan.

| S. No. | Family Name | Botanical Name/ Voucher Specimen no. | Local Name | Habit | Parts Used | Method of Use | Medicinal Uses |
|---|---|---|---|---|---|---|---|
| 1. | Allieaceae | *Allium cepa* L. (H 11) | Kashu | Herb | Bulb | Decoction | Used in salaad as well as in cooking. Its oil after heating used for asthma, cough and other respiratory problems. |
| 2. | Allieaceae | *Allium sativum* L. (H15) | Gopkah | Herb | Bulb | Decoction | Used for cooking ingridient, heart diseases and gastrointestinal diseases. |
| 3. | Amaranthaceae | *Amaranthus viridis* L. (H 21) | Ghanari | Herb | Arial Parts | Decoction | After decoction it is used for gastrointestinal diseases, and Urinary tract infections |
| 4. | Asteraceae | *Artemisia maritima* L. (H 35) | Zoon | Herb | Aerial Parts | Decoction | The decoction of aerial parts is given in fever, cough and to expel abdominal worms, and gastrointestinal diseases. |
| 5. | Asteraceae | *Artemisia absinthium* L. (H 26) | Khakamosh | Herb | Aerial Part | Decoction | The powder/decoction of aerial parts of the plant is used in diabetes. The same recipe is given to expel abdominal worms and other gastrointestinal diseases. |
| 6. | Asteraceae | *Artemisia gymelinii* Web.ex Stechm. (H 13) | Khakhamos | Herb | Arial | Decoction | The decoction of aerial parts of the plant is used for diabetic patients. Also used for removal of abdominal worms and gastrointestinal diseases. |
| 7. | Asteraceae | *Carthamus tinctorius* L. (H 23) | Pong | Herb | Flower | Decoction | The flower petals used for color of bread especially in festivals and medicinally used after decoction for fever, cough, respiratory problems, skin problems and typhoid. |
| 8. | Asteraceae | *Cichorium intybus* | Ishkanac | Herb | Arial | Decoction | The decoction of aerial parts is given in |

| S. No. | Family Name | Botanical Name/ Voucher Specimen no. | Local Name | Habit | Parts Used | Method of Use | Medicinal Uses |
|---|---|---|---|---|---|---|---|
| | | L. (H 28) | hi | | Parts | | jaundice/ hepatitis, constipation and other digestive problems. |
| 9. | Asteraceae | *Echinops echinatus* Roxb. (H 3) | Jacheer | Herb | Leaves | Decoction | The young fresh leavesboiledand used asa diuretic, urinary tract infections, and carminative. |
| 10. | Asteraceae | *Lactuca sativa* L. (H 12) | Salad | Herb | Leaves | Fresh leaves | Fresh leaves are used as a salad and skin fairness, acidity of stomach and and other digestive problems. |
| 11. | Asteraceae | *Saussurea simpsoniana* Field &Garden. (H 30) | Booshi phunar | Herb | Aerial Parts | Decoction | Decoction of plant is orally used for respiratory diseases like asthma, cough, and pneumonia, etc. |
| 12. | Asteraceae | *Tanacetum artemisioides* Schultz-Bip.ex Hook.f.(H 19) | Khakham os | Herb | Aerial Part | Decoction | After decoction it is used for treating digestive problems, diabetes and blood pressure. |
| 13. | Asteraceae | *Taraxacum officinale* Weber (H 5) | Ishkinagi i | Herb | Leaves | Decoction | The decoction of dried leaves are used for the treatment of jaundice/ hepatitis and pneumonia. |
| 14. | Berberidaceae | *Berberis orthobotrys* Bien. ex Atich. (H 10) | Ishkeen | Shrub | Stem bark & roots | Powder or decoction | The roots and stem bark is used in powder form, as well as in pills condition used for treating Sore throat, bleedings, Injuries, fractures, joint pains/ back ache,gastrointestinal diseases,and stomach ulcer. |
| 15. | Berberidaceae | *Berberies brandisiana* Ahrendt (H 32) | Ishkeen | Shrub | root and stem bark | decoction or in powder form | After decoction or in powder form or pills conditions, root and stem bark is used in external and internal wound healings, Fractures, Leucorrhea, joint pains/ back ache, Kidney stone and urinary tract infections. |
| 16. | Betulaceae | *Betula utilis* D.Don (H 12) | Stem bark | Tree | Bark paper | Extract and smoke | In decoction form of stem bark is used for ear pains, and rheumatism. |
| 17. | Boraginaceae | *Heliotropium dasycarpum* Ledeb. (H 123) | SabonKa ch | Herb | Leaves | Decoction | Freash leaves are used after dicoction for gastrointestinal diseases , especially gas troubles. |
| 18. | Boraginaceae | *Onosma hispida* Wall.exG.Don (H 14) | Tul Charung | Herb | Leaves & Flower | Decoction | An aerial part specially leaves and flowers in powdered form are used for fever, cough, respiratory diseases and heart problems. |
| 19. | Brassicaceae | *Capsella bursa-pastoris* L (H 44) | Bordbord hi | Herb | Seeds | Decoction | Dry seeds are used for curing stomach troubles, gastrointestinal diseases, fever, Cough, respiratory diseases, blood pressure, pneumonia, and jaundice. |
| 20 | Brassicaceae | *Brassica rapa subsp.Compestris* (L.) Cephalum (H 22) | Pino shaw | Herb | Aerial Part | Decoction | Used as salaad, as vegetable and good remedy for gastrointestinal diseases. |
| 21. | Brassicaceae | *Sissymbrium irio* L. (H 99) | Donger | Herb | Leaves | Decoction | Fresh leaves are used as salad, vegetable and as a source of aphrodisiac and carminative. |
| 22. | Cannabaceae | *Cannabis sativa* L (H 20) | Thonchi | Herb | Leaves & Seeds | Decoction | Leaves paste for skin allergies and decoction of leaves used for stomach diseases, gastrointestinal diseases, carminative, while seeds are used as a laxative, and nervous diseases. |
| 23. | Capparidaceae | *Capparis spinosa* L (H 29) | Kavir | Herb | Flower and seeds | Decoction and paste | Fruit is used for treating Jaundice, and root bark after decoction is effective remedy for asthma, cough and nerves disorders. Seed oil is used for Physiotherapy for joint pains and muscular pains. |
| 24. | Caryophyllaceae | *Arenaria serphyllifolia* L. (H 129) | Not known | herb | Leaves | Powder | The powder of leaves used for the inflammations, joint pains and skin allergies. |
| 25. | Caryophyllaceae | *Silene vulgaris* (Moench) Garacke. (H 81) | Poshi phonar | herb | Leaves/ flower | Decoction | After the decoction leaves and flowers is used as laxative, cough and Asthma and other respiratory problems. |
| 26. | Chenopodiaceae. | *Atriplex crossifolia* C.A.Mey (H 31) | Not known | Herb | Leaves | Powder | The powder of leaves used for the inflammations, joint pains and skin |

| S. No. | Family Name | Botanical Name/ Voucher Specimen no. | Local Name | Habit | Parts Used | Method of Use | Medicinal Uses |
|---|---|---|---|---|---|---|---|
| | | | | | | | allergies. |
| 27. | Chenopodiaceae | *Chenopodium album* L. (H 38) | Khunnah | Herb | Arial parts | Decoction | Fresh leaves directly or dry leaves after decoction used for the stomach diseases and gastrointestinal diseases. |
| 28. | Chenopodiaceae | *Chenopodium botyris* L. (H 125) | Hamaghe e | Herb | Aerial parts | Decoction | Fresh leaves directly or dry leaves after decoction used for the stomach diseases, gastrointestinal diseases and Urinary tract infections. |
| 29. | Cucurbitaceae | *Cucmis sativus* L. (H 10) | Law | Herb | Fresh fruit | Fruit | Fresh fruit is used as salad and good remedy for the constipation and other gastrointestinal diseases. |
| 30. | Cucurbitaceae | *Cucurbita mzxima* Duch .ex Lam. (H 18) | One | Herb | Fruit | Decoction | Its fruit is used as source of vegetables, making pickles and good remedy for the constipation and other gastrointestinal diseases. |
| 31. | Cupressaceae | *Juniperus communis* L. (H 33) | Mitthary | Shrub | Berries | Decoction | The powder of berries is given to remove Kidney stone, to treat leucorrhoea and tuberculosis. |
| 32. | Cupressaceae | *Juniperus excelsa* M. Bieb. (H 85) | Chilli | Tree | Berries | Decoction | The powder of berries is given to remove Kidney stone, to treat leucorrhoea and tuberculosis. |
| 33. | Elaeagnaceae | *Elaeagnus angustifolia* L. (H 34) | Ghonair | Tree | Fruits | Decoction | The fruits are edible and used for the treatment of dysentery, respiratory problems and jaundice/ Hepatitis. Roots in powder form used for the hepatitis A, B and C, and also for gastrointestinal diseases. |
| 34. | Elaeagnaceae | *Hippophae rhamnoides* L. (H 124) | Buroh | Shrub | Fruits, leaves , | Fruit Juice | Fruits and seed are used as anti-cancer drug, mostly used in the form of jam and juices. Fruits also used for the stomach ulcer, and other digestive problems. Roots in powder form used for tooth ach. |
| 35. | Ephidraceae | *Ephidra gerardiana* Wall.ex Stapf (H 49) | Soom | Herb | Arial parts | Decoction | Decoction of branches is given to cure asthma, cough and other respiratory diseases. |
| *36.* | Geraniaceae | *Geranium pratense* L. (H 75) | Kurat kashoo | Herb | Aerial part | Powder | In powder form it is used for treating inflammations, tumors, uterus and urinary tract infections. |
| *37.* | Grossulariaceae | *Ribes alpestre* Decne (H 43) | Shumloo | Shrub | Roots & Fruit | Powder Form | Roots in powder form are used for the backache pain, joint pain and its fruit are best remedy for the Jaundice/ hepatitis. . |
| *38.* | Juglandaceae | *Juglan regia* L. (H 46) | Ashoo | Tree | Seeds, Leaves & Stem bark. | Seed Oil | Seed oil is used for the heart disease, Blood pressure and nervous disorders as well as hair tonic. Stem bark and leaves are very effective for tooth diseases and also used as a tooth cleaner. |
| *39.* | Labiateae | *Mentha longifolia* L. (H 17) | Pheelel | Herb | Leaves | Powder | In powder form used for tea making, headache, cough, Influenza, blood pressure, vomiting, carminative and gastrointestinal diseases. |
| *40.* | Labiateae | *Mentha royleana* Benth. (H 77) | Pheelel | Herb | Aerial Part | Powder | In powder form used for tea making, headache, cough, Influenza, blood pressure, vomiting, carminative, rheumatic, gastrointestinal diseases, and asthma. |
| 41. | Labiateae | *Salvia nubicola* Wall ex Sweet (H 95) | Koropoo | herb | Leaves | Decoction | In decoction form it is used to cure cough, fever, asthma and other respiratory issues. |
| *42.* | Labiateae | *Thymus linearis* Benth. (H 60) | Tumuro | Herb | Arial parts | Decoction | In decoction aerial parts are used as an effective remedy for headache, fever, blood pressure, obesity, cough, asthma, gastrointestinal diseases and making tea. |
| *43.* | Malvaceae | *Malva neglecta* Wallr. (H 65) | Shanisha h | Herb | Aerial Parts | Decoction | The decoction form is used to treat constipation and other digestive problems. |
| 44. | Moraceae | *Ficus scarica* L. | Faag | Tree | Fruit | Fruit (Both | Fruits are tasty, much energetic, used to |

| S. No. | Family Name | Botanical Name/ Voucher Specimen no. | Local Name | Habit | Parts Used | Method of Use | Medicinal Uses |
|---|---|---|---|---|---|---|---|
| | | (H 56) | | | | fresh and dry) | treat constipation and other digestive problems. |
| *45.* | Moraceae | *Morus alba* L. (H 34) | Marooch | Tree | Fruits | Fruit (Both fresh and dry) | Fruit is used for sore throat, cough, asthma and urinary tract infections, while roots are used for diabetic patients. |
| *46.* | Moraceae | *Morus nigra* L. (H37) | Shatoo Marooch | Tree | Fruits | Fruit (Both fresh and dry) | Fruit is used for sore throat, cough, asthma and urinary tract infections. |
| *47.* | Oleaceae | *Fraxinum hookrii* Wenzing(H 93) | Kasunar | Tree | Stem bark | Decoction | The powder form of stem bark is used to cure the fevers especially typhoid and pneumonia . |
| *48.* | Onagraceae | *Epilobium hirsutum* L. (H 27) | Not known | Herb | Aerial Part | Powder | The powder of leaves used for the inflammations, joint pains and skin allergies. |
| 49. | Papillionacea | *Caragana brevifolia* Komarov. (H 93) | Hapooch o | herb | Roots | Powder or Decoction | Roots in powder form and after decoction used as a good remedy for pneumonia, fever, cough and blood pressure. |
| *50.* | Papillionacea | *Medicago sativa* L. (H 51) | Ishfit | Herb | Aerial parts | Decoction | The decoction of leaves is used for the Blood pressure, constipation and other gastrointestinal diseases. |
| *51.* | Papillionacea | *Glycyrrhiza glabra* L. (H 58) | Shalakoo | Shrub | Roots | Powder | Roots in powder form used for fever, cough, asthma and gastrointestinal diseases. |
| 52. | Papillionacea | *Robinia pseudo-acacia* L. (H 14) | Kekar | Tree | Stem resin | Decoction | Resin is used for the treatment of backache and aphrodisiac. |
| *53.* | Papillionacea | *Sophora mollis* (Royle) Baker ssp. Mollis (H 26) | Poshool | Shrub | Leaves | Paste | The paste or powder form of dry leaves and young braches are used externally for skin allergies and as antiseptic material. |
| 54. | Papillionacea | *Vigna Unguiculate ssp Sesquipedalis*(L.)V rdc. (H 26) | Rabong | Herb | Beans with pods | Decoction | Used as a vegetable and good remedy for gastro-intestinal diseases. |
| 55. | Pinaceae | *Picea smithiana* Wall. (H 131) | Kachull | Tree | Stem resin | Powder | The powder of stem resin is orally given with water to treatment of heart diseases, blood pressure and used for wounds healing. |
| 56. | Pinaceae | *Pinus wallichiana* A.B. Jacksn (H 101) | Cheenh | Tree | Stem resin | Powder | The stem resin is orally given with water to treatment of heart diseases, wound healing and Blood pressure. |
| *57.* | Poaceae | *Saccharm bengalensis* Retz. (H 50) | Phoroo | Shrub | Root | Decoction & Powder | Roots in powder or in decoction form are used as a diuretic, urinary tract infections and rheumatic by old peoples. |
| *58.* | Plantaginaceae | *Plantago major* L. (H47) | Kanh Khapay | Herb | Leaves | Powder | In powder form of leaves are used an effective remedy for constipation, blood pressure and other digestive problems. |
| *59.* | Plantaginaceae | *Plantago lanceolata* L. (H 81) | Sheliti | Herb | Leaves | Powder | Leaves powder is used as an effective pain killer. It's also used for digestive problems and constipation. |
| *60.* | Polygonaceae | *Bistorta affinis* (D. Don) Green (H 93) | Chumoi | Herb | Aerial parts & Seeds | Powder | Used in powder form for curing inflammation and joint pains. While seeds are used for dysentery and urinary tract infection. |
| *61.* | Polygonaceae | *Oxyria digyna* L. (H 109) | Churkii | Herb | Aerial Parts | Decoction | Leaves are used as a blood purifier, Heart diseases, good remedy for the constipation, Carminative and digestive problems. |
| *62.* | Polygonaceae | *Rheum spiciforme* Royle. (H 111) | Jaro chontal | Herb | Root | Powder | Roots in powder form use for Backache, all type of pains, and bone fractures. |
| *63.* | Polygonaceae | *Rumex hastatus* D Don. (H 66) | Chrkii | Herb | Leaves | Leaves | Leaves are used as carminative, purgative.and good for gastrointestinal diseases. |
| *64.* | Polygonaceae | *Rumex nepalensis* Spreng.(H 84) | Obabal | Herb | Roots and leaves | Decoction & pastes | After decoction used for hepatitis/ jaundice, while paste is use for external swellings, and joint pains |
| *65.* | Primulaceae | *Primula* | Lilo | Herb | Flower | Flower | The outer margins of flower develop a |

| S. No. | Family Name | Botanical Name/ Voucher Specimen no. | Local Name | Habit | Parts Used | Method of Use | Medicinal Uses |
|---|---|---|---|---|---|---|---|
| | | *macrophylla* D.Don (H 211) | | | | farina | powdery mass called farina, which is a best treatment of Ophthalmic diseases. |
| 66. | Punicaceae | *Punica granatum* L. (H 37) | Danooh | Shrub | Roots, fruit, and fruit rinds | Decoction | Decoction of roots used for diarrhea and ring worms. Fruit is best source of energy and used for cough, blood enhancement and hepatitis/ jaundice. Fruit rinds used for seminal leakages, urinary tract infections, inflammations, and bone fractures. |
| 67. | Rananculaceae | *Clematis orientalis* L. (H 219) | Murghushii | Shrub | Leaves and flowers | Powder form | Both leaves and flowers in powdered form are used as a paste for skin gel for the pimples, joint pains, antiseptic and burns. |
| 68. | Rananculaceae | *Delphinium brunonianum* Royle (H 155) | Makhoti | Herb | Whole plant | Decoction | Decoction of leaves and flower is used for curing pneumonia, asthma, fever, flue, cough poor blood circulation and for piles. |
| 69. | Rosaceae | *Cotoneaster integerrima* Medik (H 140) | Chimardany | Shrub | Stem/ root bark | Powder | Stem and root bark is used in powdered form is used for healing urinary tract infections and as a diuretic agent. |
| 70. | Rosaceae | *Prunus armeniaca* L. (H 197) | Joyeen | Tree | Fruit and seeds | Fruit & Seed oil | Fruit is very effective for controlling blood pressure, curing heart diseases and liver infections. Seed oil is good for hair tonic. |
| 71. | Rosaceae | *Rubus irritans* Focke. (H 163) | Icheejeh | Shrub | Fruits and Leaves | Fruit | Fruits are used for blood purification, blood formation, Blood pressure, digestive diseases and heart diseases. Leaves are used specially for female infertility. |
| 72. | Rosaceae | *Spiraea canesens* D.Don. (H 289) | Darah | Shrub | Flowers and wood | Wood oil | After burning the stem, its oil is extracted this is used for skin allergies, gouts and as antiseptic. |
| 73. | Rosaceae | *Rosa webbiana* Wall.ex Royle(H 258) | Shighaye | Shrub | Stem bark and fruits | Decoction | Decoction of stem bark is used for making herbal tea and remedy for fever, cough and sour throat, gastrointestinal diseases and fruit is also used as a carminative. |
| 74. | Salicaceae | *Salix alba* L. (H 162) | Mushoor | Tree | Leaves | Decoction | Leaves and young branches are used in decoction form for treating skin allergies and itching. Root bark is used for fever especially pneumonia, joint pains and inflamations. |
| 75. | Salicaceae | *Salix denticulate* Andersson (H 311) | Bayoow | Tree | Stem and Root bark | Decoction | Stem and root bark is used for after decoction, for fever, headache, typhoid and pneumonia. |
| 76. | Saxifragaceae | *Bergenia stracheyi* Hook. & Thoms. (H 320) | Sapsar | Herb | Leaves and root | Powder form | In powder form of aerial parts and roots are used for fever, cough, asthma, pneumonia, lungh cancer, respiratory problems and typhoid. |
| 77. | Solanaceae | *Datura stramonium* L. (H 199) | Daturoo | Herb | Flowers, fruits, and seeds | Oil | Flower Juice is used for curing earaches, while fruit Juice and seed oil is used as hair tonic. Leaves extract externally used as a pain killer. |
| 78. | Solanaceae | *Hyoscymus nigar* L. (H 188) | Bazarbang | Herb | Aerial Parts | Powder | Used in powder form as a carminative, and as a remedy for fever, cough and asthma. |
| 79. | Solanaceae | *Solanum nigrum* L. (H 282) | Gabili | Herb | Berries and leaves | Berries extract | Berries are used after decoction to treat, hepatitis/ jaundice, heart diseases and fever. Fresh berries are also affective for hepatitis. |
| 80. | Tamaricaceae | *Myricaria germanica* L (H 355) | Hokaroo | Shrub | Flowers and leaves | Powder | Flower and leaves are used in powder form as an antiseptic and good remedy for skin allergies. |
| 81. | Thymelaeaceae | *Daphne mucronata* Royle (H 297) | Nirko | Shrub | Fruit, and leaves | Fruit and powder form of leaves | Fruit is very effective for eyesight, and dry leaves in powder form are good source of antiseptic agent. |

| S. No. | Family Name | Botanical Name/ Voucher Specimen no. | Local Name | Habit | Parts Used | Method of Use | Medicinal Uses |
|---|---|---|---|---|---|---|---|
| *82.* | Urticaceae | *Urtica dioca* L. (H 233) | Jomi | Herb | Whole plant | Decoction | Leaves are used in decoction form for stomach ulcers, constipation and joint pains. Roots are used for brest cancer, rheumatism, as well as tonic. |
| *83.* | Zygophylaceae | *Tribulus teriestris* (L.) R.Br. (H 149) | Saow kono | Herb | Seeds | Decoction | In powder form of leaves are used for dysentery and other digestive problems, while flower and fruits are used as a sexual tonic. |

The eighty three medicinally important plant species are used by the inhabitants of study area especially for ten major ailments (1.Kidney stone, 2.Urinary Tract Infection, 3.Hepatitis/ Jaundice, 4.Gastrointestinal diseases, 5.Pneumonia, 6.Respiratory Problems, 7. Heart diseases 8. Sexual problems, 9. Blood pressure 10. Joint Pains/ Back ach ) while few species are also used for other than these ailments.

**Table 3.** Showing the medicinally important Plants of Haramosh Valley, CKNP region used for different ailments and their percentage.

| S. No | Name of Ailments | Number of Plants Used | Perce-ntage |
|---|---|---|---|
| 1. | Kidney stone removal | 5 | 4.15% |
| 2. | Urinary Tract Infection | 12 | 9.96% |
| 3. | Hepatitis/ Joundice | 10 | 8.3% |
| 4. | Gastrointestinaldiseases | 33 | 27.39% |
| 5. | Pneumonia | 8 | 6.64% |
| 6. | Respiratory Problems | 16 | 13.28% |
| 7. | Heart diseases | 9 | 7.47% |
| 8. | Sexual problems | 7 | 5.81% |
| 9. | Blood pressure | 13 | 10.79% |
| 10. | Joint Pains/ Back ach | 15 | 12.45% |

**Discussion**

Pakistan has a unique postion in the developing countries due to its diversified climatic conditions. Nearly 6000 different flowering plants are reported in Pakistan. Out of these a large number of medicinal plants are found in northern and northwestern parts of country (Ali & Qaiser 1986).

The florestic diversity and ethnobotany of 39 invasive plant species of Khadimnagar National Park and Rema KalengaWildlife Santuries of Northeastern Bangladash. These 39 plant species belonging to 29 families, and used for the ailment of 37 diseases (Khan *et al.,* 2011).

The present study explained that, various plant species are still effectively used in the study area especially for digestive problems, abdominal worms removal, cough, asthama, and fever. These common species are *Artemisia* species, *Thymus linearis, Mentha longifolia, Morus alba* and *Hippophae rhamnoides*etc. The ethnobotanical discipline is not virgin in Pakistan and various papers have been reported from different corners of the country. reported ethnobotany of 141 plants from Nalter valley, most of them are medicinally importtant. The study explained that under tremendous pressure from locals because of poor collection and storage methods of medicinal plants, over grazing, and anthropogenic activities are the major threads for the vegetation of the area Abbas *et al.,* (2013).

The detail survey was conducted on the ethnobotanical study on plant resources of Shawar valley, district Swat. The study revealed 88 species of 82 genera belonging to 58 families, which are traditionally used as medicinal plants Khan *et al.*, (2007).

The present endeavor was to explore the area, document the plant species with their ethnobotanical

importance. The plants were identied and recoded that some plants are useful for a specific disease while some other species have multiple uses.

There is a single study reported from Gilgit town about the " Ethnobotanical Studies of medicinal plants of giglit district and surrounding area. The 27 medicinal important plants are reported for different diseases Qureshi *et al.*, (2006). The major source of food and remedy are the plants. They can provide us a source of important drug compounds, as plant derived medicines have made significant contribution for the human healthShinwari, (2010).

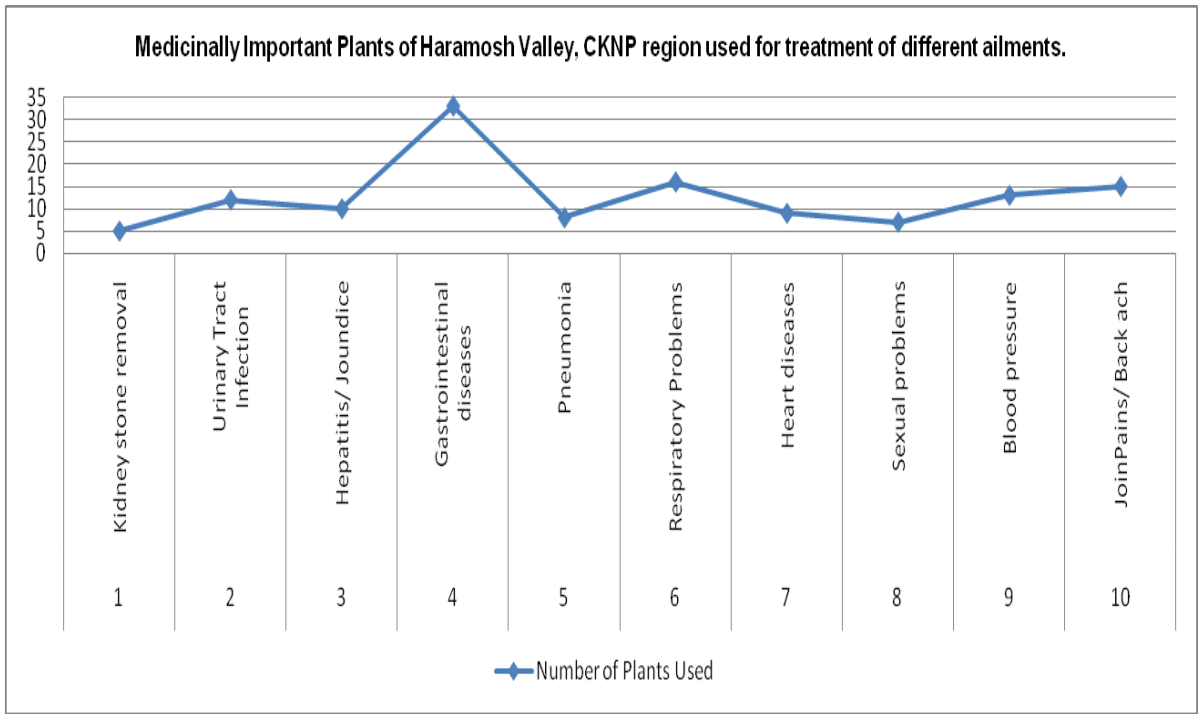


**Fig. 3.** Showing the medicinally important Plants of Haramosh Valley, CKNP region used for treatment of different ailments.

Therefore, the present study was designed to discover the folk wisdom of plants of the proposed area. Out of 111 plant species reported during this studty the 83 medicinally important plants were identified and five new species also reported from the study area.

**Conclusion and recommendations**

Haramosh Valley due to its unique landscape is consist of big pastures, hilly areas, , streams, lacks, glaciers, good forest cover and snow covered mountains. It was observed that medicinal plants from their habitat are indiscriminately collected for the domestic and commercial useswith out and conservation policy. The population pressure, human settelments, over grazing and deforestation may cause the depletion of natural habitats. There is great need to creat awareness among the indigenous communities about the importance of flora especially the economically and medicinally important plants.

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