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Research Article

Floristic Diversity, Ethnobotany and Traditional Recipes of Medicinal Plants of Maruk Nallah, Haramosh Valley, District Gilgit, Gilgit Baltistan

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Abstract: Haramosh valley is one of the beautiful valleys located at 35°53'04" N latitude and 074°41'11" E longitude at elevation of 2500-5000 meters in district Gilgit. For the assessment of floristic diversity total 114 plant species were recorded at Maruk Nallah, out of which, 85 were herbs belonging to 34 families; 13 were shrubs belonging to 9 families; while 16 were trees belonging to 10 families. Results showed that, family Asteraceae was the most dominant family with 12 genera and 21 species while the genus Artemisia was the most dominant genera, with six species. Through semi structured questionnaire and interviews ethno botanical data was collected from the inhabitants of the area. Out of 114 plant species, People are habitual to use 65 plant species as a traditional medication for 45 different ailments. The plant parts used for medication include leaves (26%) followed by fruits (19.2%), seed and root 13.7%; aerial parts 12.3%; flower 5.48%, resin 4.11%; while the bulb contributes 2.74%. The inhabitants have a lot of cultural and mythical beliefs regarding some plant species. Some very important medicinal plants which have common use value as a local recipe include *Juniperus excelsa* M. Bieb, *Betula utilis* D. Don, *Delphinium brononianum* Royle., *Saussurea simpsoniana* Field & Garden, *Primula macrophyla* D. Don, *Pegnum harmala* L., *Geranium Pretense* L. *Saussurea simpsoniana* Field and Garden, and *Thymus linearis* Benth.. The natural resources are under pressure due to much grazing pressure, deforestation and over-exploitation need to conserve them for future generations.

Keywords: Ethnobotany, Floristic diversity, Maruk Nallah, Deforestation, Over-exploitation

1. INTRODUCTION

Gilgit-Baltistan (GB) is well known due to its unique natural beauty, snow covered mountains, pastures and dense forests patches. These northern mountainous regions of Pakistan located at 72°-75°East longitude and 35°-37° North latitude [1]. The junction of three great mountainous ranges located near to Gilgit city. Due to diverse topography, climate condition and different elevations, unique flora and fauna exist in these regions [2]. The three major mountainous regions contain about 10% of world flora and habitat of numerous medicinal plants [3]. GB is hub of medicinal and aromatic plants and people of the area have folk wisdom and dependent on their natural resources [4]. Approximately 3000 plant species have been reported in these areas, out of them about 200 plant species are used as medication among the inhabitants and nearly 80% flora of Pakistan is located in northern mountainous ranges [5, 6, and 7]. The population of GB is about 02 million with growth rate of 2.47% and hardly 1%

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of area is used for agriculture while the rest 99% is covered by mountains, rivers rangelands, glaciers and forest [6]. The native people of these areas have strong cultural and traditional values. Most of the people in the area are dependent on their natural resources for food, medication and shelter either partially or completely [8, 9]. Aboriginal people are environmentally friendly most of the time, but due to dependency on fodder and forage as well as much consumption of fire wood for severe winter cause over grazing and deforestation respectively [10]. These areas are spread in different elevation and human settlements in these hard areas have no proper source of availability of daily requirements. So the rural communities are getting their all basic requirements from the natural resources. Even they have no proper planning for their sustainable utilization may cause destruction [11]. Infect the rural communities have much folk wisdom and they are still treating patients through traditional methods. The natural vegetation has maximum pressure because most of the communities of the rural areas have more than 80% dependency on their medicinal plants [12].

1.1. Haramosh Valley

Haramosh valley is located at the bank of the Indus River, boarder valley of district Gilgit links with the Rundo valley which is the first valley of GB. This valley has a unique potential diversity of flora due to high alpine pastures, glacier deposits, snow covered mountains, forest patches and diverse climatic conditions. Human population settlements are mostly in twelve major villages and living above 1500 to 2500m elevations. Most of the vegetation diversity is observed in the alpine and subalpine regions of this valley [13]. This area is also known as fruit basket of Gilgit-Baltistan. People of this area possess unique customs and majority of them are into agriculture and livestock.

Marukh Nallah has unique biodiversity and dense forest patches located at the elevation of 2500 meter to 5000 meters. Most of the low altitude area is used for the agriculture purpose; while the upper area consists of alpine pasture, and forest patches. Winter is very harsh in these valleys due to heavy snow fall, while summer season is very pleasant. The people of these areas are like the seasonal nomads and depend on their natural resources for food, fodder, shelter and fuel. The current study was conducted in this potential area of Haramosh valley, to discover the floral wealth, and to record the folk wisdom of the inhabitants and list down the recipes common in these areas.

2. MATERIALS AND METHODS

2.1. Field Survey

Different field visits were organized during 2017-18 to evaluate the floristic diversity, collect plant specimens, and record the ethno botanical data through semi structured questionnaires and interviews.

2.2. Specimen Collection & Identification

During the continuous field visits from March to October, proper plant specimens were collected, pressed, dried and mounted on standard herbarium sheets. The data was collected by using semi-structured questionnaire informants, mostly from indigenous peoples. We have frequently visited the area for specimen collection during fruiting and flowering season of the plants. A semi structured questionnaire was used to gather the folk inform and traditional application of medicinal plants especially the recipes details. All collected plant specimens pressed, dried and mounted on standard herbarium sheets according to herbarium techniques. All these specimens were identified with the help of Flora of Pakistan [14, 15] and finally deposited in the Biological Science Department Herbarium, Karakoram International University Gilgit, Pakistan.

3. RESULTS

The present study was carried out to check the floral diversity, ethno botanical studies and record the folk recipes of Maruk nallah Haramosh valley, Gilgit Baltistan (GB) Fig. 1. A total of 114 plants species were reported belonging to 45 families and 90 genera. Most of the identified species belong to angiosperms (dicots) while a few plants species monocot and gymnosperms. Out of 114 plant species 21 species belonged to Family Asteraceae, 7 species belong to each Labiatae and Rosaceae, 6 species belonged to family Umbelliferae, 5 species to Polygonaceae, 4 species each to Scrophulariaceae

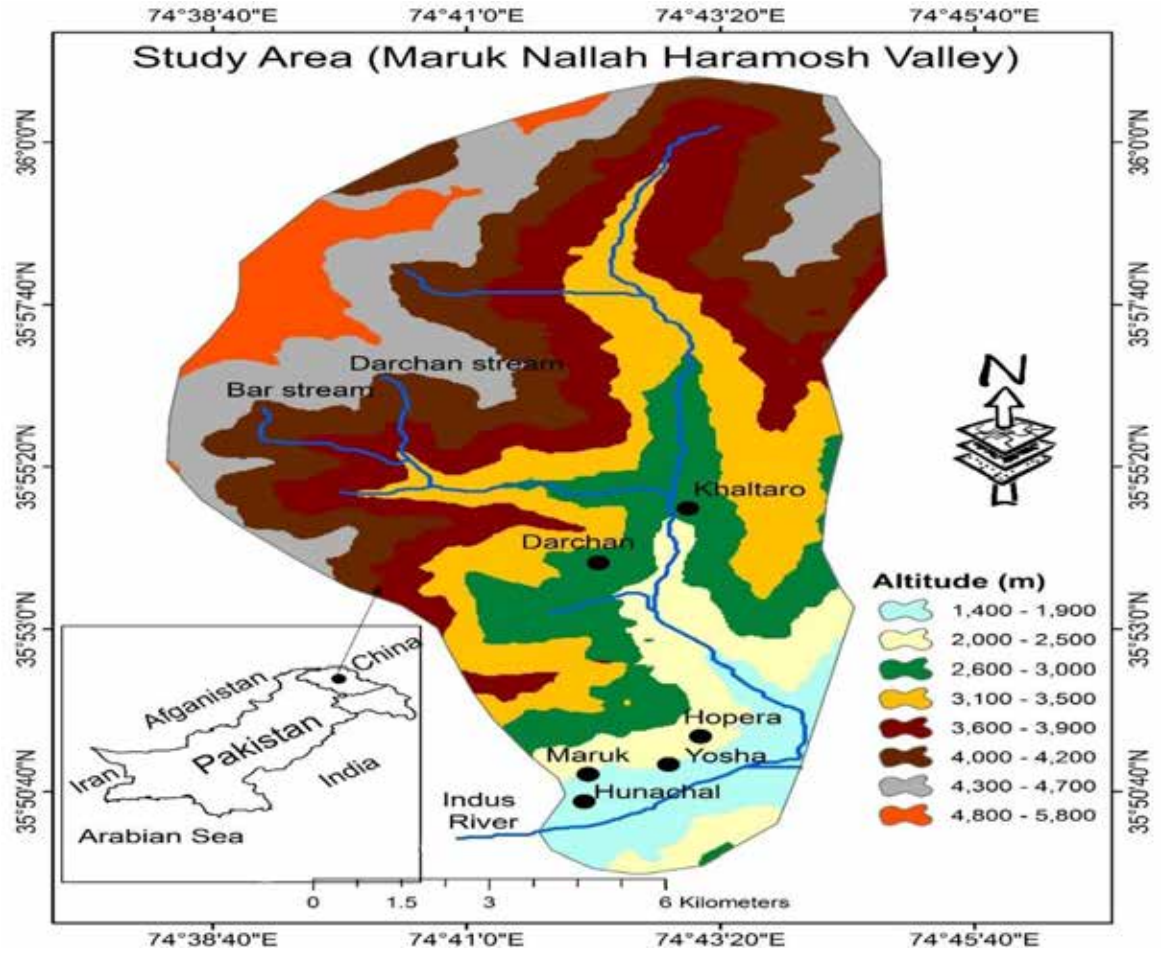

Fig. 1. Map of Maruk Nallah, Haramosh valley, District Gilgit

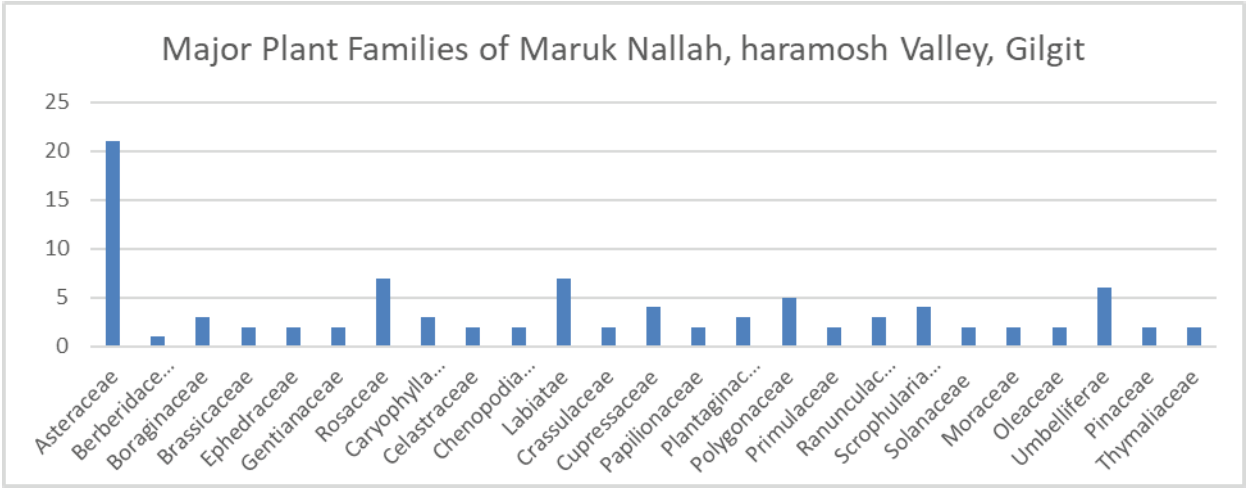

Fig. 2. Showing the major Plant Families of Maruk Nallah containing number of species

and Cupressaceae, while other families have less number of species (Table 1).

On the basis of habit, out of total 114 plant species 85 species were herbs, 13 species were shrubs while 16 species were trees. Results revealed that, the family Asteraceae is the most dominant family having 12 genera and 21 species while the genus *Artemisia* was the most dominant genus, contain six species (Fig 2).

Table 1. List of plant families and number of species reported from Maruk nallah, Haramosh valley, district Gilgit

S.No.	Family	No. of Species
1	*Asteraceae*	21
2	*Berberidaceae*	1
3	*Boraginaceae*	3
4	*Brassicaceae*	2
5	*Caryophyllaceae*	3
6	*Celastraceae*	2
7	*Chenopodiaceae*	2
8	*Crassulaceae*	2
9	*Cupressaceae*	4
10	*Ephedraceae*	2
11	*Gentianaceae*	2
12	*Labiatae*	7
13	*Moraceae*	2
14	*Oleaceae*	2
15	*Papilionaceae*	2
16	*Pinaceae*	2
17	*Plantaginaceae*	3
18	*Polygonaceae*	5
19	*Primulaceae*	2
20	*Ranunculaceae*	3
21	*Rosaceae*	7
22	*Scrophulariaceae*	4
23	*Solanaceae*	2
24	*Thymelaeaceae*	2
25	*Umbelliferae*	6

3.1. Ethno Botanical Studies

People of this valley have strong traditional and cultural values. Still they are much dependent on their natural resources. The results predicted that, about 65 plant species were commonly used for the cure of 45 different diseases. These 65 plant species were belonging to 37 families and 59 genera's, while on the basis of habit categories 43 species were herbs, 07 species were shrubs and only 15species were trees.

According to the use of plant parts for the treatment, most common used parts were the leaves (26%), followed by fruits (19.2%); seed and root were 13.7%; Arial part 12.3%; flower 5.48%; resin 4.11%; while the stem and bulb contribute 2.74% (Table 2). According to floristic diversity on the basis of habit category maximum identified flora of study area are herbs (66%) followed by the shrubs (11%), and tree (23%) as shown in fig. 3. The people of the area are very keen to use of medicinal plants for their medication (Table 3). Most common used part of plants is leaves, followed by fruits, seeds, roots, aerial parts (Fig. 4). According to the mode of use people are habitual to use direct method, either fresh of dry leaves intake are about 40.2 %, while second most common method of use is in powder form about 22% while decoction is about 27.3% (Table 4). Some plants species have more than one type of mode of use common among the inhabitants of the area.

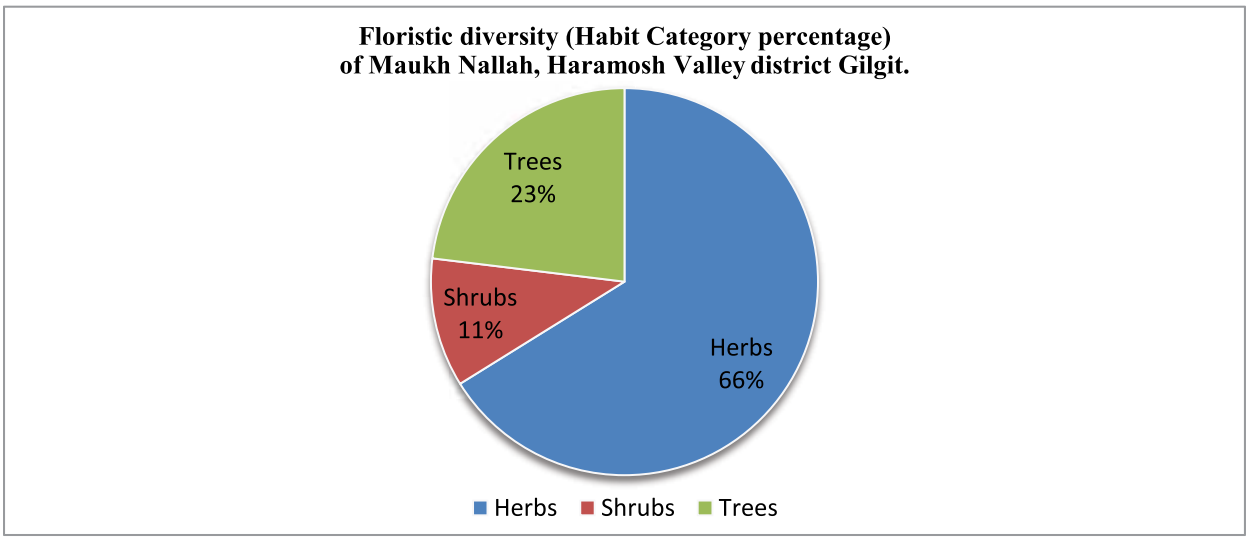

Fig. 3. Floristic diversity (Habit categorize percentage) of Maruk nallah, Haramosh valley, district Gilgit

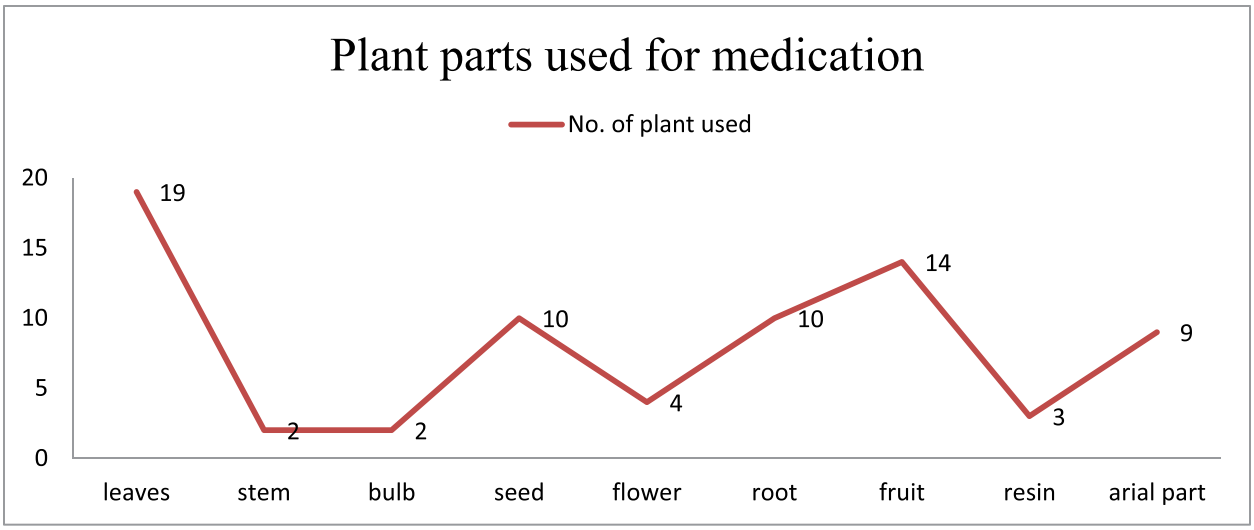

Fig. 4. Plant parts used for different ailments in Maruk nallah, Haramosh valley, district Gilgit

Table 2. List of plant parts used for the different ailments in Maruk nallah, Harmosh valley, district Gilgit.

Part used	No. of plant used	%age
Leaves	19	26
Stem	2	2.73
Bulb	2	2.74
Seed	10	13.7
Flower	4	5.5
Root	10	13.76
Fruit	14	19.2
Resin	3	4.5
Aerial parts	9	12.32

Table 3. Detailed list of medicinal plants common for medication in Maruk nallah, Haramosh valley, district Gilgit

S. No.	Family	Botanical Name	Vernacular Name	Habit	Part Used	Method of use	Purpose
1	Alliaceae	*Allium cepa* L.	Kashu	Herb	Bulb/ Seed	Remedy	The seed are taken for kidney problems while the bulb oil is used for cough and asthma
2	Alliaceae	*Allium sativum* L	Gokpah	Herb	Bulb	Direct	Used for Abdominal worms, dysentery and heart diseases. Also used as vegetable.
3	Anacardiaceae	*Pistacia khinjuk* Stocks	Khakawoo	Tree	Fruit	Direct	used for stomach problems, sour taste of mouth, vomiting and diabetes. The resin smoke is given for eye infection and as antiseptic. Plant parts smoke is used as mosquitoes repellent.
4	Asteraceae	*Saussurea simpsoniana* Field & Garden	Bushi Phunar	Herb	Flower	Decoction	Used for Pneumonia, Dysentery, joints pain, sore throat, fever, cough and Asthma.
5	Asteraceae	*Carthamus tinctorius* L.	Pong	Herb	Flower	Powder, decoction	The peoples make powder to give color to bread in traditional and cultural festivals. The decoction is used for cold fever, Pneumonia, vomiting and typhoid.

6	Asteriaceae	*Artemisia maritiama* L.	Paloyo Zoon	Herb	Aerial parts	Juice or Powder	The powder and juice is used for treatment of diabetes, cardiac problems, high blood pressure, dysentery, and to remove abdominal worms.
7	Asteraceae	*Artemisia absinthium* L.	Kakamoch	Herb	Leaves, Seed	Direct, decoction	The decoction of both leaves and seeds are used for diabetes, high blood pressure, stomach problems, dysentery, vomiting and to treat abdominal worms and pain also.
8	Asteraceae	*Datura stromonium* L.	Daturoo	Herb	Seed, Leaves	Direct, grind	The seed are used for retention of water in muscles (badi) while the fresh leaves paste is used for external injuries.
9	Asteraceae	*Lactuca sativa* L.	Salad	Herb	Leaves	Remedy	The fresh leaves are remedy of stomach acidity. The leaves are used as salad.
10	Asteraceae	*Cichorium intybus*	Ishinachii	Herb	Leaves	Remedy	Against weight loss and constipation
11	Berberidaceae	*Berberis orthobotrys* Bien ex Aitch.	Ishkeen	Shrub	Root	Decoction, Powder	The decoction/powder is used for backache, injuries, joint pain, infertility (females), weak uterus, jaundice and bone fractures.
12	Boraginaceae	*Myosotis alpestris* F.W. Schmidt	Heto Lelo	Herb	Flowers	Direct	It is used to treat throat problems and throat infection.
13	Boraginaceae	*Heliotropium dasycarpum* Ledeb.	Sabon Kach	Herb	Leaves	Decoction	The decoction is used for gastric problems.
14	Boraginaceae	*Onosma hispida* Wall.ex G. Don	Talcharong	Shrub	Leaves	Powder Decoction	The powder of leaves is mixed with oil which is used for long and silky hair. The decoction is given for fever, malaria, cough and heart problem.
15	Cannabaceae	*Cannabis sativa* L	Thunchi	Herb	Leaves Seed	Direct	The seeds are used to enhance milk in humans and animals. The leaves are used for Stomach problem, measles and chicken pox.
16	Chenopodiaceae	*Chenopodium foliosum* Asch., FI.	Shom Gurus	Herb	Berries	Direct	To remove the stain from skin.
17	Cucurbitaceae	*Cucurbita maxima* Duch, ex Lam.,	One	Herb	Fruit	Vegetable	Used for constipation and gastrointestinal problems.
18	Cucurbitaceae	*Cucmis sativus* L.	Law	Herb	Fruit, Leaves	Direct. paste.	The fruit is used for diabetes, stomach problem while the leaves are used for fever.
19	Capparidaceae	*Capparis spinosa* L.	Kavir	Herb	Seed, Roots	Decoction	The decoction of fruit seeds is used for obesity, cancer, joint pain and Ulcer. The decoction of roots is used for joint pain.
20	Cupressaceae	*Juniperus communis* L.	Mitthary	Shrub	Berries	Decoction	The decoction of berries is used for kidney stone and tuberculosis.
21	Cupressaceae	*Juniperus excelsa* M. Bieb	Chilee	Tree	Berries	Decoction	The decoction of berries is used for kidney stone and TB.
22	Euphorbiaceae	*Euphorbia cornigera* Boiss.,	Fotan	Herb	Aerial parts	Direct	The Aerial parts are used for constipation. Most in veterinary cases. (for Livestock)

23	Ephedraceae	*Ephedra intermedia* Schrenk & Meyer	Soom	Herb	Aerial parts	Decoction, grind Powder.	used for joint pain, for strong teeth and teeth pain. The fresh aerial parts are crushed well and used to stop bleeding during injuries. The powder is mixed with snuff for good taste. The decoction is used for bath which helpful in joint pain and backache.
24	Elaeagnaceae	*Elaeagnus angustifolia* L	Gunair	Tree	Fruit	Direct	The fruit is used for cough, dysentery and high blood pressure.
25	Ericaceae	*Rhododendron anthopogon* D. Don	Talachum	Shrub	Leaves	Decoction, Powder	The decoction used for Stomach problem, cough, and diabetes. The inhabitants used the leaves powder for silky-long hair and dandruff. Leaves are used in making tea, which helpful to maintain blood pressure and diabetes.
26	Geraniaceae	*Geranium pretense* L	Kuratkasho	Herb	Aerial parts	Powder crushed	The inhabitants used the powder to cure external injuries, urinary tract infection and the paste is also used to cure external injuries.
27	Grossulariaceae	*Ribes alpestre* Decne	Shumloo	Shrub	Fruit Root	Direct, Decoction	The fruit is best remedy for skin allergy (doosh) and hepatitis. The decoction of roots is used for backache.
28	Juglandaceae	*Juglan nigria* L.	Ashoo	Tree	Leaves, Root	Direct	Seed for used for high blood pressure and roots and root is applied for toothache. Use as miswak.
29	Labiatae	*Thymus linearis* Benth.	Tumuro	Herb	Aerial parts	Decoction	The decoction is used for abdominal pain, chest pain, weight loss and high blood pressure. The inhabitants also make tea which helpful to maintain blood pressure.
30	Labiatae	*Mentha royleana* Benth	Pheleel	Herb	Aerial parts	Direct, extract juice	This is best remedy for high BP, fever, dysentery stomach pain while the juice is used for abdominal pain and vomiting. Some people uses as salad as well.
31	Labiatae	*Mentha arvensis* L.	Pudina	Herb	Aerial parts	Juice	The juice is used for diabetes, diarrhea, dysentery, high blood pressure, stomach pain, vomiting, abdominal pain and abdominal worms. The leaves are also used as a salad.
32	Labiatae	*Isodon rugosus (Wall.ex Benth.)* Codd	Phaphus	Herb	Leaves	Powder	Powder of leaves are used for toothache.
33	Labiatae	*Salvia nubicola* Wall ex Sweet	Coropo	Herb	Leaves	Extract juice	The extract of leaves is given for treatment of asthma, cough and fever.
34	Malvaceae	*Abelmoschus esculentus* (L.) Moench,	Bindi	Herb	Fruit Root	Vegetable. Decoction	The decoction of fruit is used for diabetes and joint pain while the decoction of roots is used for kidney stone.
35	Moraceae	*Morus nigra* L.	Shatumaroch	Tree	Fruit	Juice	The juice is used for stomach problems, sore throat, constipation, ulcer and for weak bones.
36	Moraceae	*Morus alba* L.	Shaimaroch	Tree	Fruit	Direct	The fruit is used for stomach pain, constipation, anemia and weak bones.

37	Moraceae	*Ficus carica ssp. Carica* L.	Faag	Tree	Fruit	Remedy	The fruit is used against heart diseases and constipation.
38	Moraceae	*Ficus caria ssp. Rupestris* (Hausskn. Ex Boiss.).	Black Fig	Tree	Fruit	Decoction	The decoction of fruit is used for heart diseases.
39	Pinaceae	*Picea smithiana* Wall.	Cheenh	Tree	Resin	Direct, powder	The resin is used for blood clotting when cut.
40	Pinaceae	*Pinus wallichiana* A.B. Jacksn	Chachul	Tree	Resin	Direct	The resin is used for blood clotting when cut. Only external use.
41	Plantaginaceae	*Plantago major* L.	Khakhapai	Herb	Leaves	Powder, direct, Juice	The decoction of leaves is used for constipation, dysentery, blood pressure. The juice of leaves is given for dysentery.
42	Poaceae	*Hordium valgaris*	Joo	Serial	Grains	Make bread	The bread is used for heart, diabetes, high B.P and arthritis (joints).
43	Poaceae	*Zea mays* L.	Makai	Serial	Seed	Make bread	The bread is used for diabetes, dysentery and heart problems.
44	Polygonaceae	*Bistorta affinis* (D.Don) Green	Chumui	Herb	Seed	Direct	The fruit which contain large seeds are used for dysentery especially for infants.
45	Polygonaceae	*Rumex nepalensis* Spreng.	Obabal	Herb	Root	Decoction, powder	The decoction of roots is used for constipation while the powders of leaves are used for swelling and joint pain. The fresh roots are crushed to cure pimples (infection and pus)
46	Polygonaceae	*Rheum spiciforme* Royle.	Jaroo Chotal	Herb	Root	Powder,	The powder is used for joint pain and backache. The powder is also used for weak uterus.
47	Primulaceae	*Primula macrophyla* D.Don	Sujo Leloo	Herb	Leaves (Powder)	Use as dool	The lower side of the leaf contains a powder, which is used to eye infection and eye pain. This powder is also used to eye wash.
48	Punicaceae	*Punica granatum* L.	Danui	Tree	Fruit Cover	Powder, Direct, decoction	The decoction of fruit cover is used for cough, dysentery and pimples as well. The fruit is used for hepatitis and fruit cover is used to remove stains after injuries.
49	Ranunculaceae	*Delphinium brononianum* Royle.	Makhoti	Herb	Flower	Decoction	Decoction is used for heart diseases, high blood pressure, Pneumonia, cold fever and pain, dysentery, asthma and height.
50	Rosaceae	*Prunus armeniaca* L.	Juwi	Tree	Fruit	Juice	The fruit is used for heart problems, Stomach pain, Constipation, Diarrhea and anemia.
51	Rosaceae	*Prunas amygdalus* L.	Badam	Tree	Seed	Remedy	The seed oil or seed is used weak bones and against cold in winter.
52	Rosaceae	*Spiraea canesens* D.Don.	Dara	Shrub	Stem Oil	Heat the stem	When a dried stem is heated, oil is produced which is used for pimples, injuries infections and skin infection.
53	Rutaceae	*Haplophyllum gilesii* (Hemsl.) GC.	Sabon Char.	shrub	Leaves	Direct	Use as detergent. Used to wash hair and dandruff.
54	Salicaceae	*Salix denticulate* Andersson	Brauw	Tree	Leaves	Juice	Low blood pressure and fever

55	Saxifragaceae	*Bergenia stracheyti* Hook. & Thoms.	Safsar	Herb	Leaves, Root	Powder	The powder of roots is used for backache, asthma, and cough. The dry leaves are used for making tea.
56	Scrophulariaceae	Verbscum thapsis L.	Fundupal	Herb	Leaves	Decoction	The decoction of leaves is given for fever, constipation and cough.
57	Solanaceae	*Solanum nigrum* L.	Gabili	Herb	Berries, Leaves	Extract juice	The decoction of berries is used for Hepatitis and heart diseases. The leaves juice is given for fever.
58	Thymelaeaceae	*Daphne mucronata* Royle	Nirkoo	Shrub	Root	Decoction	The decoction of root is given for constipation.
59	Umbelliferae	*Ferula anthrax* Bioss.	Sab	Herb	Root	Powder	The powder of roots is used for serve cough and cold fever.
60	Umbelliferae	*Carum carvi* L.	Hayow	Herb	Seed	Direct	The seeds are used for abdominal worms, heart diseases, high blood pressure and pre-mature seed are used for dizziness.
61	Umbelliferae	*Pleurospermum candollei* (DG.) Clarke	Pucha Sing	Herb	Stem	Powder	The powder of stem is used for infertility (for both male and female), side pain and back pain as well.
62	Urticaceae	*Urtica dioca* L.	Jami	Herb	Aerial parts	Leaves extract	Young leaves used as vegetable and remedy for hepatitis, stomach problem and joint pain.
63	Vitaceae	*Vitis vinifera*	jach	Tree	Fruit	Direct	The fruit is used for fever and cough.
64	Zygophyllaceae	*Tribulus trestres* L.	Show Kono	Herb	Fruit	Decoction	The decoction of fruit is given for Cancer.
65	Zygophyllaceae	*Pegnum harmala* L.	Ispandur	Herb	Arial	Smoke	The smoke of leaves and seeds is given for eye pain and ear infection.

Table 4. Mode of utilization of Medicinal plants

Mode of utilization	No. of plant used	%age
Powder	17	22%
Remedy/Direct	31	40.2%
Decoction	21	27.3%
Juice	8	10.5%

Table 5. Mode of utilization of Medicinal plants

Diseases	No. of plants used	Diseases	No. of plants used	Diseases	No. of plants used.
Dysentery	12	Kidney Problems	4	Skin Problems	2
Stomach Problems	12	Eye Problem	4	Infertility	2
Constipation	11	Vomiting	4	T.B	2
Fever	11	Pneumonia	3	Typhoid	1
Heart Diseases	11	Eye Problem	3	Malaria	1
Blood Pressure	10	Hair Tonic/Dandruff	3	Chest Pain	1
Cough	9	Side Pain/ Kidney pain	3	Unary Tract Infection	1
Joint Pain	8	Sour Throat	3	Water retention in muscles.	1
Diabetes	8	Ulcer	2	Swelling	1
Abdominal Problems	7	Diarrhea	2	Urine problems	1
Backache	6	Weak Uterus	2	Bone Fracture/ Weak	1

Injuries	5	Jaundice	2	Arthritis	1
Asthma	5	Toothache	2	Ear Infection.	1
Pimples	5	Blood Clotting	2	Measles	1
Hepatitis	4	Anemia	2	Cancer	2

Medicinally important plants are used for the treatment of more than forty-five different disease types. In these areas most common diseases are digestive, respiratory, and heart diseases. The Table 5 shows that maximum numbers of plant species are applying for the treatment of these common diseases. Through the oral interviews and semi structured interviews a data gathered from the inhabitants of the Maruk Nallah, Haramosh Valley. About 59 respondents contributed the folk wisdom ranges in the age of 20 to 85. Respondents belongs both genders, and out of 59, 15 were females and 44 were males.

3.2. Traditional Recipes

People of the area are not only using the single plant species; they have some folk wisdom to make traditional recipes after mixing the more than two plant species and their parts for the treatment of different ailments (Table 6).

3.3. Cultural Myths and Believe

The people of these selected valleys have strong cultural belief and have unique myths as compare to other valleys of the area. Some special type

Table 6. Detail list of some important recipes commonly used in Haramosh valley district Gilgit

S. No	Family	Botanical name	Vernacular name	Part used	Method	Disease and Dose
1	Punicaceae	*Punica granatum* L.	Danu	Fruit husk	Each in equal quantity and extract juice	Juice is used for Diabetes and heart problems two tea spoon twice a day.
	Labiatae	*Mentha royleana*	Pudina	Arial part		
	Zingibraceae	*Zingiber officinalas*	Adrak,	Rhizome		
	Alliaceae	*Allium sativum* L.	Gokpah,	Leaves		
2	Ranunculaceae	*Delphinium brunonianum* Royle.	Makhoti	Flower	Decoction	Used for coldfever, cough, diabetes, heart, high BP, pneumonia two tea spoon twice a day.
	Compositae	*Saussurea simpsoniana* Field & Garden	Bushi phunar	Arial parts		
	Compositae	*Carthamus tinctorius* L.	Pong	Flower		
3	Labiatae	*Thymus linearis* Benth.	Tumuroo,	Arial parts	Juice	High Blood pressure, abdominal worms and abdominal pain a tea cup twice a day.
	Labiatae	*Mentha royleana* Benth	Pheleel	Arial parts		
4	Compositae	*Carthamus tinctorius* L.	Pong,	Flower	Decoction	Pneumonia, serve fever two tea spoon twice a day.
	Ranunculaceae	*Delphinium brononianum* Royle.	Makhoti	Flower		
5	Labiate	*Mentha royleana* L.	Pudina ,	Arial	Extract	Pneumonia, fever, abdominal pains two tea spoon twice a day.
	Alliaceae	*Allium sativum* L.	Gokpah	Leaves		
6	Alliaceae	*Allium cepa* L.	Kashoo	Leaves	Juice	Vomiting, dizziness, fever, dysentery a glass of Juice twice a day.
	Labiatae	*Mentha royleana* Benth	Pheleel,	Arial		
7	Polygonaceae	*Bergenia stracheyti* Hook. & Thoms.	Safsar	Root	Powder	Female (weak uterus) like a pill or capsule size twice a day.
	Polygonaceae	*Rheum spiciforme* Royle.	Jaroo chotal	Root		

8	Labiatae	*Mentha arvensis* L.	Pudina,	Arial	Extract juice	Dysentery, Diarrhea two tea spoon twice a day.
	Alliaceae	*Allium cepa* L.	Kashu	Leaves		
9	Labiatae	*Mentha arvensis* L.	Pudina ,	Arial	Juice	Dysentery, loosemotion, gastric issues, vomiting a glass of juice twice a day.
	Alliaceae	*Allium sativum* L.	Gokpah	Rhizome		
	Labiatae	*Mentha royleana* Benth	Pheleel,	Arial		
10	Polygonaceae	*Rheum spiciforme* Royle,	Jaro chotal	Root	Equal amount of all three plants and make smooth powder	Infertility like a pill, or capsule size twice a day.
	Umbelliferae	*Pleurospermum candollei (DG.)* Clarke	Pucha sing	Stem		
	Zygophyllaceae	*Tribulus terrestris* L.	Sow kono	Fruit		

of folk myths is, after burning the fresh leaves of *Juniperus* species smoke, when some special people called "Danyaln" (Shamans), inhale the smoke help Daylan to extract information about unforeseen things like diseases, evil deeds, and many other problems. The smoke of *Peganum harmala* L. and *Juniperus* species used for their cattle's sheds called "Dooban" reason behind this activity is actually myth to protect their cattle's and safe return to home. The inhabitants have great trust on some alpine plants as clean and effective for wealth and prosperity. These plants are *Betula utilis* D. Don, *Delphinium brunonianum* Royle, *Saussurea simpsoniana* Field & Garden, and *Primula macrophyla* D. Donare "Shujaa" (singular; Shujo) means sign of cleanliness. If anyone plucks them without any noble reason or either damage them they will suffer with any unknown disease of problem.

It is a common practice of villagers that they are not growing *Salix* species and *Juglans regia* in front of their resident/homes because they believe that the Salix species are symbol of sorrow while under the shed of the *Juglans regia*, the ghosts or evil spirits resides. While they believe that some Rosa species especially *Rosa webbiana*, and *Fragaria nubicola*, to cultivate in lawn and the fragrance of roses will bring happiness. *Peganum harmala* L. is common in used as an antiseptic and its smoke is called "Dooban" used to clean their houses and shops just prevent the evil deeds and diseases

4. DISCUSSION

It has been knowable that on earth there are about 0.3 million plants species, out of which 83% plants species have been studied [16,17]. There are about six thousand species of higher plants. It has reported that six hundred to seven hundred higher plants species are medicinally important [7]. Rural communities are mostly dependent on their natural resources, especially for the medication. Medicinal herbs are playing key role to control and treatment of many diseases [18, 19, 20, 21, 22].

The present study is also an effort to explore the hidden treasure floral wealth of an important area of Murruk nallah, Harmosh Valley, GB. Total 114 plants were reported from this area, belonging to 45 families. Maximum flora was reported included 85 herb species, 16 tree species trees, while 13 shrub species (Table 7). Floristic diversity of Pakistan's is due to its diverse climatic conditions, topography

Table 7. Detail List of the identified plant species from Murukh nallah, Haramosh valley, district Gilgit.

S. No	Botanical Name	Family	Habit
1	*Artemisia absinthium* L.	Asteraceae	Herb
2	*Artemisia brevifolium* Wall. ex DC.	Asteraceae	Herb
3	*Artemisia gmelini* Web.	Asteraceae	Herb
4	*Artemisia japonica* Thumb.	Asteraceae	Herb
5	*Artemisia santolinifolia* Turcz. Ex Krasch.	Asteraceae	Herb
6	*Artemisia scoparia* Waldst. & Kit.	Asteraceae	Herb

7	*Aster peduncularis* Wall.	Asteraceae	Herb
8	*Cirsium vulgaris* (Savi.)Ten.	Asteraceae	Herb
9	*Cremanthodium decaisnei* Clarke	Asteraceae	Herb
10	*Crepis flexuosa* (D.C.)Benth.	Asteraceae	Herb
11	*Erigeron alpinum* L.	Asteraceae	Herb
12	*Heteropappus altaicus* Willd.	Asteraceae	Herb
13	*Inula royleana* D.C	Asteraceae	Herb
14	*Leontopodium leontopodinum* (DC.) Hand. Mazz.	Asteraceae	Herb
15	*Ligularia thomsonii* (Clarke) Kitam	Asteraceae	Herb
16	*Saussurea condolleana* Clarke	Asteraceae	Herb
17	*Saussurea falconerii* Hook.f.	Asteraceae	Herb
18	*Saussurea simpsoniana* Field & Garden	Asteraceae	Herb
19	*Tanacetum falconeri* Hook.f.	Asteraceae	Herb
20	*Tanacetum falconeri* J.D. Hook,	Asteraceae	Herb
21	*Taraxacum officinale* F. H. Wiggers	Asteraceae	Herb
22	*Berberis orthobotrys* Bien. ex Aitch.	Berberidaceae	Shrub
23	*Eritichium canum* (Benth.)	Boraginaceae	Herb
24	*Heliotropum dasycarpum* Ledeb.	Boraginaceae	Herb
25	*Onosma hispida* Wall.ex G. Don	Boraginaceae	Herb
26	*Cardamine flexuosa* With.	Brassicaceae	Herb
27	*Sisymbrium orientale* L.	Brassicaceae	Herb
28	*Betula utilis* D. Don	Betulaceae	Tree
29	*Cannabis sativa* L.	Cannabaceae	Herb
30	*Silene moorcroftiana* Wall.	Caryophyllaceae	Herb
31	*Silene kanwarensis* Benth	Caryophyllaceae	Herb
32	*Silene vulgaris* (Moench) Garacke.	Caryophyllaceae	Herb
33	*Euonymus fimbriatus* Wall.	Celastraceae	Tree
34	*Euonymus hamiltonianus* Wall.	Celastraceae	Tree
35	*Chenopodium album* L.	Chenopodiaceae	Herb
36	*Chenopodium foliosum* L.	Chenopodiaceae	Herb
37	*Codonopsis clematidea* (Schrenk) C.B.	Campanulaceae	Herb
38	*Rhodiola heterodonta* Hook.f.thom	Crassulaceae	Herb
39	*Rhodiola wallichiana* (Hook.f) S.H.Fu	Crassulaceae	Herb
40	*Juniperus communis* L.	Cupressaceae	Shrub
41	*Juniperus excelsa* M. Bieb	Cupressaceae	Tree
42	*Juniperus macropoda*	Cupressaceae	Tree
43	*Juniperus turkestanica* Komarov	Cupressaceae	Tree
44	*Carex divisa* Hudson	Cypraceae	Herb
45	*Hippophae rhamnoides* L.	Elaeagnaceae	Shrub
46	*Ephedra gerardiana* Wall. ex stapf.	Ephedraceae	Shrub
47	*Ephedra intermedia* Schrenk& Meyer	Ephedraceae	Shrub
48	*Equisetum arvensis* L.	Equacetaceae	Herb
49	*Rhodondendron anthopogon* D.Don	Ericaceae	Shrub
50	*Euphorbia cornigera* Boiss.	Euphorbiaceae	Herb
51	*Corydalis govaniana* Wall.	Fumariaceae	Herb

52	*Gentianoides tianschanica* Ruper ex Kusn.	Gentianaceae	Herb
53	*Swertia petiolata* D. Don	Gentianaceae	Herb
54	*Geranium pratense* L.	Geraniaceae	Herb
55	*Ribes alpestre* Decne.	Grossulariaceae	Shrub
56	*Juncus compressus* Jacq.	Juncaceae	Herb
57	*Juglans regia* L.	Juglandaceae	Tree
58	*Isodon regusus* (Wall.ex Benth) Codd.	Labiatae	Herb
59	*Mentha longifolia* Benth.	Labiatae	Herb
60	*Mentha royleana* Benth	Labiatae	Herb
61	*Nepeta discolor* Royle ex Benth.	Labiatae	Herb
62	*Salvia nubicola* Wall ex Sweet	Labiatae	Herb
63	*Stachys tibetica* Vatke.	Labiatae	herb
64	*Thymus linearis* Benth.	Labiatae	Herb
65	*Morus alba* L.	Moraceae	Tree
66	*Morus nigra* L.	Moraceae	Tree
67	*Fraxinus hookeri* Wenzing	Oleaceae	Tree
68	*Olea ferruginea* Royle	Oleaceae	Tree
69	*Epilobium angustifolium* L.	Onagraceae	Herb
70	*Colutea nepalensis* Sims	Papilionaceae	Shrub
71	*Medicago sativa* L.	Papilionaceae	Herb
72	*Trifolium repens* L.	Papilionaceae	Herb
73	*Picea smithiana* Wall.	Pinaceae	Tree
74	*Pinus wallichiana* A.B. Jacksn	Pinaceae	Tree
75	*Plantago depressa* Willd.	Plantaginaceae	Herb
76	*Plantago lanceolata* L.	Plantaginaceae	Herb
77	*Plantago major* L.	Plantaginaceae	Herb
78	*Aconogonon alpinum* var. Stewartii S.P.Hong	Polygonaceae	Herb
79	*Bistorta affinis* (D.Don) Green	Polygonaceae	Herb
80	*Rheum spiciforme* Royle.	Polygonaceae	Herb
81	*Rheum webbianum* Royle	Polygonaceae	Herb
82	*Rumex nepalensis* Spreng.	Polygonaceae	Herb
83	*Primula denticulata* Smith.	Primulaceae	Herb
84	*Primula macrophylla* D.Don	Primulaceae	Herb
85	*Pyrola rotundifolia* L.	Pyrolaceae	Herb
86	*Aconitum violaceum* Jack. Ex stapf	Ranunculaceae	Herb
87	*Delphinium brunonianum* Royle.	Ranunculaceae	Herb
88	*Pulsatilla wallichiana* (Royle) Ulbr.	Ranunculaceae	Herb
89	*Cotoneaster integerrima* Medik	Rosaceae	Shrub
90	*Fragaria nubicola* Lind.ex Land.ex Lancaita	Rosacacae	Herb
91	*Patentilla anserina* L.	Rosaceae	Herb
92	*Prunus armeniaca* L.	Rosaceae	Tree
93	*Rosa webbiana* Wall.ex Royle	Rosaceae	Shrub
94	*Sorbus tianshanica* Rupr.	Rosaceae	Shrub
95	*Spiraea canesens* D.Don.	Rosaceae	Shrub
96	*Gallium verum* L.	Rubiaceae	Herb

97	*Haplophyllum gilesii* Hemsl.	Rutaceae	shrub
98	*Salix iliensis* Regel	Salicaceae	Tree
99	*Bergenia stracheyi* Hook. & Thoms.	Saxifragaceae	Herb
100	*Eupharasia platyphlla* Penn.	Scrophulariaceae	Herb
101	*Pedicularis bicornuta* Klotzsch.	Scrophulariaceae	Herb
102	*Scrophularia nudata* Penn.	Scrophulariaceae	Herb
103	*Verbascum thapsus* L.	Scrophulariaceae	Herb
104	*Physochlaina praealta* Decne.	Solanaceae	Herb
105	*Solanum nigrum* L.	Solanaceae	Herb
106	*Daphne mucronata* Royle	Thymelaeaceae	Tree
107	*Carum Carvi* L.	Umbelliferae	Herb
108	*Ferula nathrax* Boiss.	Umbelliferae	Herb
109	*Haracleum candicans* Wall. Ex. DC	Umbelliferae	Herb
110	*Playtitiana lasiocarpa* (Boiss.) Rech.f. & Riedl	Umbelliferae	Herb
111	*Pleurospermum candollei* (DG.) Clarke	Umbelliferae	Herb
112	*Pleurospermum hookeri* Clarke var. thomsani	Umbelliferae	Herb
113	*Urtica dioica* L.	Utricaceae	Herb
114	*Pegnum harmala* L.	Zygophyllaceae	Herb

and variation of altitudinal variations. It is observed that more than 5700 plants species are exist in Pakistan, out of these 400 plant species are endemic [23, 28].

It is fact that, rural communities are most dependent on their natural vegetation for medication after food and fodder [4]. Some most important plants of study area used for traditional medicines are; *Saussurea simpsoniana* Field & Garden, *Cicerbita gilgitensis*, *Berberis orthobotrys* Bien. ex Aitch, *Onosma hispida* Wall. ex G. Don, *Betula utilis* D. Don, *Chenopodium foliasum* L, *Geranium pratense* L, *Thymus linearis* Benth, *Primula macrophyla* D.Don, *Rheum spiciforme* Royle, *Pulsatilla wallichiana (*Royle) Ulbr, *Delphinium brononianum* Royle, *Aconitum violaceum* Jack. Ex stapf, *Spiraea canesens* D.Don, *Sorbus tianchanica* Rupr, *Bergenia stracheyti* Hook & Thoms, *Rhodendron anthopogon*, *Pleurospermum candollei* (DG.) Clarke, *Carum Carvi* L, *Ferula nathrax* Boiss, *Urtica dioica* L. and *Pegnum harmala* L.

All natural vegetation's either timber forests and non-timber flora are under pressure due to fast urbanization, over grazing, and deforestation need to address them as early as possible [24, 25, 26, 27]. The present study has given a pavement for the young researcher to conserve these species for future generations. Phytochemical compounds can be isolated from these herbal plants to synthesize herbal drugs which can create great improvement in herbal industries and can lead to new innovative herbal drugs.

5. CONCLUSION

Northern Pakistan is full of natural treasure especially in the sense of natural vegetation. Reported 114 plants, belong to rare and precious species. Communities have no proper acknowledgment about them. Even they have no any idea for their sustainable utilization, and proper harvesting methods. This will cause the eradication of some important species very soon.

6. RECOMMENDATIONS

On the basis of our research, the few recommendations are:

- ✓ Deforestation, random collection and over exploitation of medicinal plants are great threat should aware the communities about importance the natural resources of the valley.
- ✓ The participatory action, and proper training is needed for local communities how to support conservation practices and sustainable

utilization.

- ✓ Overgrazing can be controlled by rotational grazing methods, which is major threat for the endangered flora.
- ✓ Special training is required for the sustainable utilization of these plants for medications, and even for commercial utilization.

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