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The Traditional Knowledge of Some Phenorogames of Molkhow - Valley District Chitral

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Abstract: *The present study deals with the documentation of traditional knowledge of some Phenorogames in Mulkhow valley, District Chitral. A total of 60 taxa were documented as being used by ethic group for different purposes. Out of these, 39 species were herbs, 12 shrubs and 9 trees. Maximum taxa are belonging to Asteraceae 11(18.33%), Papilionaceae, Apiacae, and Solanaceae come to next with 5(8.33%) species in each, followed by Lamiaceae 3(5%), leguminaceae, Irridaceae and Plantaginaceae 2(3.33%) species in each, the remaining families contain 1 species in each. The taxa are used for different purposes such as medicine, traditional food, fodder, fuel, timber, thatching etc. Out of the total, 34 species were used as medicinal purposes, 6 species were used as traditional food, and 6 species were used as fodder. The remaining species were used for fencing, timber, fire wood, harvesting material etc. Majority of plant parts were used in the form of decoction and were used orally. Unsustainable utilization of taxa, soil erosion, over grazing, and poor harvesting method seem to be potential threats for the flora.*

***Keywords**: Chitral, Mulkhow Valley, Flora, Traditional uses*

INTRODUCTION

Plants use for the purposes of mankind is dated back to the origin of life on the earth. In the beginning, plants existed with great potential from many aspects that have been used traditionally and economically for welfare of human being. The dependency on wild plants increased both direct and indirectly (Ali *et al.*, 2003; Ali, 2003; Ali & Qaiser, 2009). The wild taxa are rapidly disappearing due to extra ordinary increase in human population, urbanization, habitat destruction, and utilization of resources in unsustainable way (Western, 2001; Woodruff, 2001; Ali, 2009).

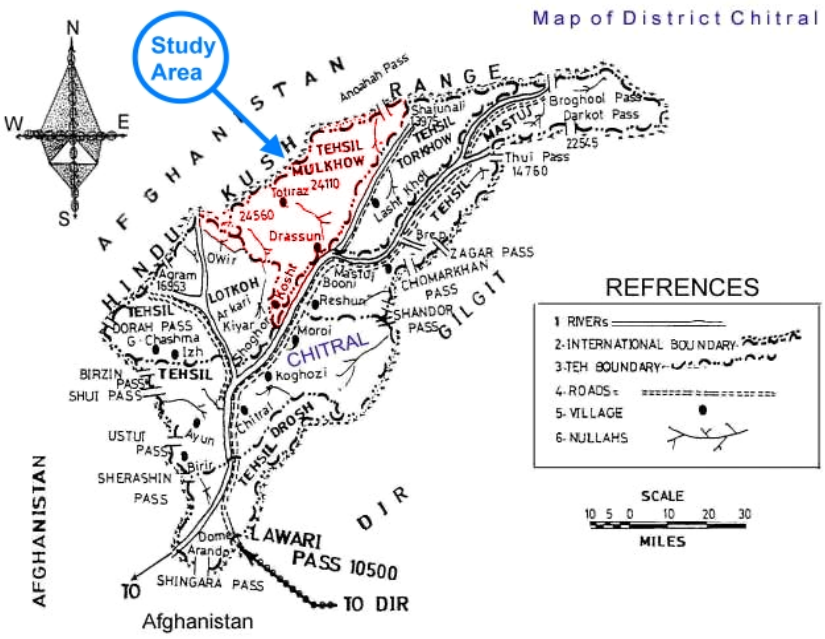
Moreover, these plants constitute main component of an ecosystem and ensure stability and sustainability of that ecosystem. All animals are depending on food, shelter and other requirements necessary for their survival (Alonson *et al.*, 2001). It is estimated that there are 35,000 to 70,000 medicinal plants, used as folk medicinal in worldwide (Liwington, 1990; Farnsworth & Soyarto, 1991). About 70-80% of the world population depend on medicinal plants for curing their illness and the allelopathic medicine is expressed with high expense in cost (Fransworth & Soejarto, 1991) such as Germany (40-45%), USA (42%), Australia (48%) and France with 49% (Titz, 2004; Ali & Qaiser, 2009). For Pakistan, 5521 species of flowering plants have been documented (Ali, 2008). Furthermore, most of them are reported from mountainous area of the Pakistan (Ali & Qaiser, 1986). Of these, only 1500 (27.16%) taxa of flowering plants are found in Chitral and total with 67

(1.21% of flora of Pakistan) endemic taxa (Ali, 2008; Shinwari & Qaiser, 2011). Majority of plants are documented as ancient plants for medicinal purposes in Chitral (Khan, 1996).

In Chitral, various types of documentation carried out in different valleys, recently 11 research paper have been available, researchers visited the valley in different times and made the collection of medicinal plants, such as Rashid awan et al., 2001, collected 35 medicinal plants from Chitral; Siraj et al., 2006 collected 75 medicinal plants from booni Valley; Farukh et al., 2007 from mastuj valley (111 taxa); Ali and Qaiser, 2009, (83) plant taxa; Khan et al., 2011, (31) plant taxa from chitral gole national park; Mukarram Rauf et al.,2012 (82) medicinal plants from Mastuj valley; Aftab et al., 2013, (40) medicinal plant from Chitral; Zahida et al., 2013, (20) medicinal plants from Booni valley; Asad et al., 2014 (62) taxa from Bumborate valley chitral ; Hadi et al., 2014 (31) weed plants from Rech valley district chitral at last Hadi & Ibrar, 2014 (9) plant species from Bumborate valley District Chitral. The sum of these taxa is 579 but the same species were checked out thus the original figure is 264 (17.6%) of the flora of Chitral and (4.78%) of Flora of Pakistan.

Study area

Chitral is located in the extreme northern part of khyber pukhtoonkhwa province, Pakistan. Administratively chitral has been divided into two sub division i.e sub division Chitral and sub division Mastuj. In sub division Mastuj, the Mulkhow valley situated with the driest climatic condition and covered approximately 1250 km², at the distance of 84 km from lower Chitral (Headquater). Cultivated area in the valley is 20%. It lies between 36˚ 17.613 north & 72 ˚12.643 east. The study area is bordered with Torkhow in east, in southward Qaqlasht and Booni are situated, in northwest with Afghanistan and west of the valley is attached with Garum Chashma (Rauf et al, 2012). Topographically, the study area is highly mountainous and its elevation is from Barum over to Terichmir (5029 to 7500m). July and August are considered the hottest months, temperature above 37˚C and December to February as the coldest, temperature is some cases reaching below -18˚C (Rauf et al, 2012). Some high peaks of Pakistan are located here i.e Terichmir (25500ft.), Istornal (more than 24500ft.) and Nooshaq (more than 24500ft.) (Rauf et al, 2012).



Source: http: //www.pakimage.com /files/2010/12/ chitral-map.

Fig. 1. Location map of sudy area (Mulkhow valley District Chitral)

MATERIAL AND METHODS

After complete literature review, the plant collection and data regarding to traditional uses in the Mulkhow valley, district Chitral have been done according to the blooming period in various area. Number of old age people have been personally interviewed, especially the aged women who are well familiar about traditional uses of plants and their local name, for this purposes a questionnaire was used as modified by Croom (1983) and Lipp (1989) (Appendix-1). The specimens were collected along field notes, habit, habitat, life form, phonological status, abundance, GPS value, altitude, etc. At last, properly all the information was received in order to carry out research work. The Flora of Pakistan (Nasir & Ali 1970_ 1989, (Nos. 1_190); Ali and Y. Nasir 1989_1991, (Nos 191_193); Ali and Qaiser 1993_2007, Nos. 194 _ 214) and documented check list of the flowering plants of West Pakistan by Qaiser *et al.*, 1988 were consulted to point out the check list of the Chitral flora. Then at last the specimen processed and properly identified and deposit in the Herbarium of Hazara University, Mansehra.

APPENDIX NO 1

DOCUMENTATION OF OBSERVATION DURING FIELD TRIPS

Bot. Name: .....

Local name: .....

Family: .....

Locality : .....

District : ..... Altitude; .....

Habitat: .....

Longitude : ..... Latitude: .....

Habit : ..... Lifeform: .....

Abundance : ..... Grid: .....

Flower color : ..... Height: .....

Collector: (s) .....

C.No : ..... Date :.....

Other Remarks (if any):.....

.....

APPENDIX - 2

QUESTIONNAIR

General Ethno botanical survey

(a) Information about informant

(1) Name .....

(2) Locality .....

(3) Age .....

(4) Sex .....

(5) Occupation .....

(6) Qualification (if any) .....

(b) Information about plant species used

(1) Local name of plant..... (2) Source area .....

(3) Part use .....

(4) Use (Medicinal/Fuel/Fooder/Other.....

(5) Method of use .....

(6) Season of collection.....

RESULTS

The medicinal taxa were surveyed according to the flowering period and collected information related to taxa with various indigenous uses, especially medicinal plants of Mulkhow valley, District Chitral. A total of 60 taxa were documented as being used by ethic group for different purposes. Out of these, 39 species were herbs, 12 shrubs and trees with 9 species. Maximum taxa are belonging to Asteraceae 11(18.33%), Papilionaceae, Apiacae, and Solanaceae come to next with 5(8.33%) species in each, followed by Lamiaceae 3(5%), leguminaceae, Irridaceae and Plantaginaceae 2(3.33%) species in each, the remaining families contain 1 species in each. The taxa use for different purposes such as 42 as medicine, 10 taxa use as traditional food, 10 taxa fodder, 10 taxa fire wood, 4 species use as timber, 7 species are considered as habitual plants, 2 species use against evil eye, 2 poisonous taxa and 2 species are considered as source of income etc. Of these, some taxa were used for number of purposes and our result suggested that maximum used parts is aerial parts. About 37 collected medicinal plants are considered wild while 23 species are reported as cultivated. 43 (7166%) taxa are recently introduced in the area and 17 taxa 1st time included in the list of medicinal for Chitral. The flora is going to decline in number, this removal of flora may be caused due to deforestation, soil erosion, over grazing, poor harvesting method and purity. *Artemisia maritima* exploitation is a best occupation in the area the inhabitant of the area confronting on this species during the month of April-May for fire purpose also collect for winter. *Serephedium chitralensis* is only endemic taxa reported from the valley, which is been exploiting due to unsustainable utilization and soil erosion. After field survey, it is estimated that about 60% of the people in Mulkhow valley depends on medicinal plants for their treatment of various ailment, till from ancient time. Thus the loss of these plants resources will not affect only health care system but will also affect the ecosystem. Therefore, conservation of plant resources especially medicinal plants in the concern area is urgently needed. The species' details are given as follow (Table1).

Table. 1 List of medicinal plants of Mulkhow Valley, District Chitral

S.No	Family	Botanical name	Vernicular name Warijun Vernacular	Altitude	Part used	Uses
1.	Alliaceae	*Allium cepa* L.	Theshtoo	Whol plants	2055 m	Freshly eaten by people as Salad, also use for cough,cool, ear problem in child.

2.	Apiaceae	*Sisymbrium irio* L.	Khelikheli	Seeds	2200 m	Against stabbing pain. The past is also mixed with soup and dishes against bloody stool and keep children body warm during winter.
3.	Asteraceae	*Artimisia maritima* L.	Droon	Flower, leaves	2045 m	Increase the quality of naswar. Used against stomachich pain, abdominal pain, tonic, intestinal worm and antihelmintic, dysentery purposes, given to typhoid patient. Also used as fuel.
4.	Asteraceae	*Artimisia scoperia* L.	Zhaa	Whole	2000 m	The plant use as stomachich pain, abdominal pain, tonic, intestinal worm and antihelmintic.
5.	Asteraceae	*Anthemis cutula* L.	Shirisht	Flowe/ whole Plant	3063 m	Flower dried and extraction of leaves use for abdominal pain as well as against problem of backache.
6.	Asteraceae	*Artimisia perviflora* Roxb.	Kharkhalich	flower head & Leaves	2141 m	Dry as well as fresh leaves, directly boiled & used against stomach pain, abdominal pain & also use for Blood Pressure reduction.
7.	Asteraceae	*Centaurea calcitrapa* L.	Ishparo zokhoo	Aerial parts	2070 m	The smoke used against evil eye in children when they weep without any known reason.
8.	Asteraceae	*Carthamus tinctorius* L.	Poam	Flower head	2043 m	Flower collected and used in traditional food (Sanabahi), it makes the food colorous and delicious. The leaves directly used as traditional dish (shakh).
9.	Asteraceae	*Cichorium intybus* L.	Khasti	whole plant.	2032 m	Flowers & leaves used against typhoid, high

						fever, diarrhea & malaria. Also used to promote digestion.
10.	Asteraceae	*Helianthus annuus* L.	Yorotmokhnokorak	Seed	2047 m	Oil of seed used for cooking purposes, hair restorer. Seed are used as bronchitis problem, cough and cool and also given to hen for the purpose of egg.
11.	Asteraceae	*Koelpinia linearis* Pallus.	Qafjoshoo	Whole plants	2189 m	Local people use the smoke against the weeping of children due to evil eye.
12.	Asteraceae	*Tagetus minota* L.	Gulsamber	Flower	1900 m	Flower is used in ophthalmic, ulcer, piles and to purify blood. Used as ornamental plants.
13.	Asteraceae	*Seriphidium chitralense* (Podiech) Y.R.Ling	Droon	Whole plant	2005 m	Used as worm repellent, abdominal pain, stomach pain also used sweeping the floor.
14.	Berberidaceae	*Berberis lyceum* Royle	Chowenj	Roots, leaves & fruits	2340 m	Used against typhoid, remove worm in human, mostly leaves are eaten by children as well as girl. The fruits are eaten for jaundice problem. Roots use against chronic diarrhea as well as for miswak formation.
15.	Boraginaceae	*Arnebia euchroma* (Royle) I.M.Johnsston	Phosook	Roots	3168 m	Used as anti-dandruff. Gridded, mixed with hair oil and used for making then hair bright and shiny. also used for colouringthe woolen clothes.
16.	Canabanaceae	*Cannabis sativa* L.	Bong	Whole plants	2009 m	Smoked with sigerate as mind exciting, given to cattle when their intestine blocked. Used as Narcotic drugs, sedative and analgesic and also sexual stimulant.

17.	Capparaceae	*Cappris spinosa* L	kaveer	Flower	2125 m	Flower used with vegetable, diuretic, tonic, rheumatism. Normally as traditional diet formed locally (Kaviroogh), used in case of typhoid malaria and as blood purification and also as worm repellent.
18.	Caprifoliaceae	*Lunicera asperifolia* (Decne.) Hook.f. & Thoms	Ishpain	Ripe fruit	2312 m	The juice used for skin problem, when skin fracture, fuel purposes, the branch used for sweeping purposes and used as ploughing stick.
19.	Caryophyllaceae	*Silene conoidea* L.	Apupar	Whole plants	2047 m	The plant is used as sun blocker and also used as formation of traditionally food (shakh).
20.	Chenopodiaceae	*Chenopodium album* L.	Chirkoonzo	Leaves	2055 m	Fresh as well as dried leaves used as abdominal cleaner , worm repellent, Seed used as colic anti hepatic (Inflammation of liver) and vegetable.
21.	Cupressaceae	*Juniperus excels* M. Bieb	Sarooz/ gondolik	Stem, leaves	3439 m	Stem used as fuel and leaves dried and burn, thus the ashes used for formation of best quality of naswar.
22.	Cyperaceae	*Cyperus stononiferus* Reftz.	Nool	Whole plants	1990 m	Given to cattle and used for Hut (shake down) formation during Summer. In winters the people used in their house as well as in Mosque floor.
23.	Elaeagnaceae	*Hippopheae rhamnoides* **L. *ssp.turkistanica*** Rousi in Ann.Bot.Fenn	Mirgheez	Stem, juice	2000 m	Stacked along the boundary of field to protect from Livestock and used as fuel purposes. The juice is used against lungs problem and stomach pain, also relieve the problem of split heel.

24.	Eleaegnaceae	*Eleaegnus angustifolia* L. var.a*ngustifolia*	Shinjoor	Fruit	1995 m	The extraction made from the fruits used against cough, cool and worm repellent. Fresh fruit is also eaten by people. Wood used as fuel and timber, leaves collect and used as fodder for cattle.
25.	Ephedraceae	*Ephedra gerardiana* Wall ex stapf.	Soomani	Juice, leaves	1996 m	Plants dried, burnt and the ashes mix with tobacco for snuff preparation which is narcotic, also used to improve the quality of naswar. The juice is used against the problem of asthma, anthelmintic. Ashes also used against skin disease and skin protector (Poroo) by local people.
26.	Iridaceae	*Iris songarica* L.	Krichmaa	Roots	2164 m	The dried crushed roots are placed as medicine over the inflamed body parts for healing.
27.	Iridaceae	*Iris germinica* L.	Soosan	Rhizome	2010 m	Roots boil and used as diuretic, the boiled water is given to live stock when the intestine block.
28.	Labiatae	*Eremurus stenophylus* (Boiss & Bushe) Baker subsp. *aurantiacus* (Balur)Wandalbo.	Shoi	Stem & leaves	2245 m	Fresh as well as dried leaves, collected and used for making use precious and delicious foods, locally known as Shooi shakh.
29.	Lamiaceae	*Mentha arvensis* L.	podina	Whole plants	2040 m	Reduce the Blood pressure. Used with rice as Salad. Also mixed with curd by making it delicious. Used as treatment of jaundice

						problem.
30.	Lamiaceae	*Mentha longifolia*(L.)	bain	Whole plants	2034 m	Used in dry condition against Jaundice problem. Green leaves collect and eaten with rice, by making rice very delicious.
31.	Linacaea	*Linium usitatissimum* L.	Shentheeki	Seed	2018 m	After grind it used for formation of traditional food locally known as (Sanabachi, Halwa , Ghazhaghazhi etc). The oil is used against spot in face or skin.
32.	Malvaceae	*Alcea rosea* L.	Lain	Flower & leave	2044 m	Used against inflammation, throught problem. Grinded or crushed form it used against pus, ulcer and bile lossing problem (locally Kuchai).
33.	Moraceae	*Morus alba* L.	Mrach	Stem & fruits	2033 m	Stem used as fuel, fresh and dried fruit boil for long time then squeezed the extract used as James. Also used against asthma, worm repellent. Hibitual people used it as Tara for amusing and mental excitment. Dry fruit is sold in market as best source of income of the valley.
34.	Papavaraceae	*Papaver soniferum* L	Afyun	Fruit	2020 m	Directly eaten by people for mind excitement when tired after heavy work. Old people used the extraction of fruit, habitually.
35.	Papilionaceae	*Astragalus candolleanus* Royle ex Benth.	Cheruni	Aerial part	2141 m	The xophytic plant used for milk fiteration and also collected for fuel purposes.
36.	Papilionacea	*Robinia pseudo*	Kiker	Stem	2012	Used as fuel.

	e	*acacia* L.			m	
37.	Papilionaceae	*Sophora mollis* (Royle) Baker subsp. *Graffiti* (Stocks) Ali	Beshoo	Wood fruits & seed	2297 m	Fruits and the extract oil used for skin protector, cleanliness of facial spots. Stem used as fuel.
38.	Pappilionaceae	*Glycyrrhiza glabra* L.	Moyoo	Leves & stem	2290 m	Dried stem used as fuel and leaves given to cow for stimulant to milk production.
39.	Pappilionaceae	*Trifolium graffithi* L.	Angrazi shakhtal	Whole plants	2330 m	Fodder for cattle and also collect for winter which enhance milk production.
40.	Plantaginaceae	Plantago major L	ispagoool	Seed, leaves	2044 m	Seed are generally known as sat used against intestinal blockage, abdominal pain. Areal parts **collect** and used as fodder for cattle.
41.	Plantaginaceae	*Platanus orientalis* ***L***	Chinnar	Stem/ Leaves	2032 m	The stem used for formation of different material such as furniture, ploughing material, timber and also used as fuel. The leaves when fallen down,will collect and used as fodder.
42.	Polygonaceae	*Rheum emodi* L.	Ishpar	Stem	3439 m	Eaten by young very likely, the nature of plant is acidic. Used against asthma and other fever.
43.	Portulacaceae	*Portulaca quadrifida* L.	Pecheeli	Whole plant	2021 m	Used as fooder and enhance production of milk.
44.	Rosaceae	*Cotoneaster acuminate* Lindl.	Ishkorelik	Stem	2927 m	Hard wood used for different purposes such as handle for different instrument, walking stick and plough stick. Also dried and used as fuel.

45.	Rosaceae	*Prunus amygdalus* Bcill Batsch.	Badaam	Seed	2047 m	The seeds are eaten by people for mind fresh, memory strong and given to children for memory improvement.
46.	Rosaceae	*Rosa indica* L.	Gulab	Petals	2186 m	Flower bud are astringent tonic, aperients, prapear GULQAND which is used as laxatives.
47.	Rosaceae	*Pyrus malus* L.	Palough	Fruits	2100 m	Are delicious and nutritious fruits, dried fruits (Palaghushto) are source of income and locally used in making jams.
48.	Rosaceae	*Prunus armanica* L	Zhooli	Stem,flower & fruits	2947 m	Stem used for fuel purposes, fruit is use as important source of nutrient also dried for winter used. The flower collected and used skin protector against sun. Fruit is also used as Laxative.
49.	Salicaceae	*Salix babylonica* L.	Teeli	Stem	2060 m	Used as fuel purposes, young stem used for making different instrument locally as (Shakarai, ingot, Basket, Chay) which are locally used for different purposes. Branches are used as ploughing stick.
50.	Scropholariaceae	*Verbescum thapsus* L.	Gordogh karoo	Whole plants	2032 m	Collected dried, grinded and given to cow for milk production.
51.	Solanaceae	*Datura stramonium* L.	zhaar joshoo	Whol plants	2044 m	Plantis very poisonous in nature.The leaves collect, dried and use as fodder. In case of mistakenly use in fresh condition the person become mad.
52.	Solanaceae	*Solanum nigrum* L.var. *nigrum*	Pirmilik	Fruits, leaves	2044 m	The riped fruit used for skin protection in

						summer, fresh leaves for high temperature.
53.	Solanaceae	*Hayocymus niger* L.	Pohrol	leaves, seed e	2487 m	Because of its poisonous nature it used in medical supervision as sedative, anti-asthmatic, anodyne and anti-spasmodic, large dose - may cause death and smaller dose will cause varying symptoms like thirst, impaired vision, flushed skin leading to convulsion and coma.
54.	Solanaceae	*Solinum nigram* L.	Prrmilic	Whole part	2022 m	Used as seedative, diaphoretic, diuretic, expectorant and laxative, it is recommended for treatment of leprosy,heart diseases, enlargment of spleen,liver and rheumatism.
55.	Solanaceae	*Solanum tuberosum* L.	Alo	Tuber	2048 m	Best source of protein, cultivated and eaten by local people throughout study area.
56.	Umbelliferae	*Bupleurum longicaule* Wall.ex DC.	Hujoj/ Zeera	Seed	2213 m	Boil in water and used against Joundice problem, stomach pain, liver disorder, wormed up the body.
57.	Umbelliferae	*Daucus carrota* L.	Khezhgoom	Stem/Tuber	2144 m	Freshly eaten by people, eaten with rice and used for making traditional food (Halwa & Shakh). Rich source of vitamin. It purifies the blood and improves the eye sight.
58.	Umbelliferae	*Foeniculum vulgare* L	Bodyoung	Leaves & fruits	2359 m	Leaves used against diuretic problem, bronchitis and used against throat infection, stomach pain and also eaten due to its taste. The oil from seeds is used as aromatic,stomachic, colic

						and the fruit is used to improve eye sight.
59.	Umbelliferae	*Vicatia coniifolia* DC.	Danu	Whole plants	2144 m	The plants dried and boiled in water and used as worm the body, stimulate sweat secretion thus release of every type of fever problem also used as digestive ailment.
60.	Vitaceae	*Vitis vinifera* L.	Droch	Fruits	2045 m	Ripen fruit is very delicious. The fruit squeezed and its juice is used as wine which is worm repellent. Young people use Tara as mind excitement and insomnia.

Discussion

The ethno botanically plant assortment is an old phenomena as old as man himself. From the time of ancient, the different medicinal plants were used for various purposes (Lana et al., 2002; Partel et al., 2005). In indo-pak, the 1st medicinal plant is recorded by Rigveda (4500-1600 BC) and Ayurveda (2500- 600 BC) (Ahmed, 2002; H. Ali, 2010). Still the people of advance countries depend on traditional system of healthcare, in the present day of science and technology because of less side effect and low price as compared to allopathic expensive medicine (Khan et al., 2003).

Chitral is the land, lack of complete check list on its Flora and vegetation. For the1st time, Chitral (1884-1885) plant was collected by British medical officer G.M.J.Gile, Younghusband (1894). The land of Chitral is covered about 1500 (27.16%) taxa of flowering plants with 67 endemic taxa (H. Ali, 2009). Recent available medicinal plant in Chitral are 264 (chalked out) which are distributed into 11 Research paper, these are 17.6% of flora of Chitral and 4.78% of Flora of Pakistan. These species distributed in 85 families, 114 genera, of these 216 wild taxa and 58 taxa were locally cultivated in the valley. In present, the Mulkhow valley was surveyed and a collection of 60 plants taxa were made, having 54 genus belonging to 29 families, out of these 38(63.33%) herbs, 16(57.14%), Perennial herb, 12(42.85%) annual herb, 10 (16.66%) shrubs and 12 (20%) are trees. Asteraceae is considered the largest family with maximum number of 11 (18.33%) taxa, followed by Papilionaceae, Apiaceae, Solanaceae, Rosaceae with maximum number of 5(8.33%) in each Umbelliferae 4(8%), Lamiaceae contain 3(6%) taxa, three families contain 2(3.33%) taxa in each and 21 families contain 1(1.66%) in each. Total of 42 taxa are used as medicine, 10 taxa as traditional food, 10 taxa as fodder, 10 taxa as fire wood, 4 species as timber, 7 species as prohibiting of people, 2 species as evil eye, 1 species as source of income, endemic species (Seriphidium chitralensis) was also observed from the area. It was the first time that these 18 species were documented as medicinal plants for Chitral. The local people of the valley are directly depended on plant resources to fulfill their daily needs and also use these resources as source of income.

The people lack the knowledge about importance of these plants at global level. They uproot whole plants and extra collection at daily base, mostly the collectors are often children, herders, shepherds or other poor illiterate villagers. They do not know proper method, proper time, they lack the knowledge on how the collection was made. Due to these reasons, their collection is useless. Thus urgently need to pay special

attention in future on conservation of plant resources in the area. Settlements of majority of the population are subject to the seasonal changes in the valley. In winter, they come down to the bottoms of the valley due to the unavailability of fodder for their cattle and at the onset of summer as the snow melts and new plants start sprouting, they move towards the higher altitudes. The old people know the beneficial plants, their utility and preparation of raw drugs through personal experience. The costly allopathic medicines are out of reach of foreign people. It is a remote area and remains bound in heavy snow for three months of a year and most part of the area remain cut off from central Chitral due to heavy snow fall.

Plant destruction in the area is observed which are mainly caused due to over grazing, habitat destruction, soil erosion and anthropogenic activities. These practices are needed to be controlled to ensure for the survival and conservation of plant resources. It is recommended that the local community should be educated concerning the importance, pre and post-harvest methods. They should also be trained regarding the agriculture of these highly valuable medicinal plants on commercial basis and there after their trade and marketing. This will eventually create extra sources of income and will reduce pressure on the removal of these valuable medicinal plants. On the other hand, they are ignorant about the drying, storing or preserving techniques which ultimately leads to wastage of plant resource. During our expedition in Qaqlasht, it was observed that about 90% of the *Artimisia meritima* plants were destroyed. In spring, the people uproot the plants in excess amount for the purpose of winter fire. Additionally, the population *Ephedra gerardiana* is also reducing due to these practice. Thus, all these destructive practices should be stopped immediately, in order to ensure the survival of these valuable plant resources.

Conclusion

After this research, the sketched out conclusion are;

- The valley is lack of any type of forest due to dry climatic condition, less monsoon rain and over anthropogenic activities. The valley is needed to be upgraded by practicing of plantation properly and developing awareness among people, about the role of plants.
- The threatened species as well as medicinal plants should be properly introduced in the form of nurseries.
- Monitoring program needed to be developed.
- Socio economically, the valley should be upgraded by providing life resources and the people should be aware about the significance of plant taxa.
- Water is available but the water table is beyond to the reach of plants. Thus water channel is urgently needed in the valley for sustaining vegetation.

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