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Original Research article

**ETHNO-BOTANICAL STUDIES OF SOME SELETED PLANTS IN MASTUJ,
CHITRAL VALLEY, KHYBER PAKHTUNKHAW**

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ABSTRACT:

This study was carried in Mastuj valley; it is based on the results of ethno-botanical study of some plants in Mastuj valley.

My research study contains 20 plants belonging to 14 families including, 1 monocot, 1 gymnosperm and 18 dicots. Family Alliaceae contain (1spp) F. Salicaceae (1 spp) F. Asteraceae (3 Spp) F. Poaceae (1 spp) F. Papilionaceae (2 spp) ,F.Cucurbitaceae (1 spp) ,F.Mimosaceae (1 spp),F.Solanaceae (2 spp) ,F.Polygonaceae (1 spp),F.Capparidaceae (1 spp) ,F.Lamiaceae (3 spp) ,F.Ephidraceae (1 spp), F.Apiaceae (1 spp) and F.Papaveraceae (1 spp). The ethno-botanical study show that about 19 spp were used as a fodder ,16 as a medicinal ,5 for fire wood ,4 vegetable ,4 ornamental ,2 timber production ,1 plant is used in basketry ,1 plant is a source of building material ,1 used in musical instrument ,2 plant are source of paint production ,1 specie is used for paper production and 1 for soap production .11 plants are cultivated and 9 are wild plants.

Keywords: Ethno-Botanical Studies, Mastuj, Chitral Valley,

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INTRODUCTION

Chitral is a diverse habitat of natural plant. Mastuj is one of the largest valleys in area of Chitral. It is about 7 km length and 5 km in width; the temperature may reach -2 to 30 C. It is surrounded by huge range of big mountains. This valley covered by snow mostly from November to March in the lower reaches but in the upper mountains the snow remain throughout years which are visible in the pictures. The climate of this valley is drained by River Yarkhun and River Laspur. It is also drained by myriad streams. It has a population of more than 50, 000 individual distributed over more than 6,000 houses about 80% of people depend up on forest and livestock.

Mastuj valley provides a diverse habitat of important ethno-medicinal plants. The medicinal plants still are the main source of the treatment of many illnesses. Local traditional Hakeem solely based there way of treatment on these plants. Some of the important traditional resources evaluations of many plants of this valley are studied by S. Mukaram Shah and some study of Ethano-botany of high altitude mountain ecosystem has reported by Khan in 2000, Husain et al. in 2004 and Badshah et al. in 2006.

MATERIAL AND METHOD

The research has been conducted in summer 2011 to 2012 in Mastuj valley. Plants were collected and there local name , traditional and medicinal uses obtained from the local people through an open ended questionnaire and interviewing and the results was confirmed by interviewing many people and compare with the existing literature.

The scientific names of plants were identified with the help S. Mukaram Shah. The identification was conformed in the herbarium, Department of sciences in Qaudi-i-Azam University, Islamabad.

RESULTS AND DISCUSSION

The study revealed that these 20 plants belonging to 14 different families, 1 is monocot belong to the family Alliaceae, 18 are dicots belonging to the family Salicaceae, Asteraceae, Poaceae, Papilionaceae, lamiaceae, Cucurbitaceae, Mimosaceae, Solanaceae, Polygonaceae, Capparidaceae, Apiaceae, Papaveraceae and one species except family Asteraceae contain (3spp) family Papilionaceae contain (2 ssp) family Solanaceae contain (2 spp) and family lamiaceae contain (3 spp). Out of these 20 species 19 species were used as fodder, 16 as medicinal, 5 as firewood, 4 as vegetable 4 as ornamental, 2 used in timber production, 1 used in basketry, 1 used musical instruments, 2 are source of paint production and 1 is used for paper production and 1 for soap production. 11 species are cultivated and 9 are wild plants. The area is highly degraded and disturbed due to biotic factor. People use vegetation for fuel and overgrazing by livestock most of the medicinal plants are also use a fodder and firewood every house hold depend upon plants for feeding livestock and for heating in every season. However the ruthless use deforestation of these plants resources will results in the loss of valuable flora and fauna.

Monocotyledon

1.

| Family | Scientific name | Local Name |
|-----------|-----------------|------------|
| Alliaceae | Allium Cepa | Thrashtu |

Habitat

Cultivated, annual herb

Morphology:

Stem: Herbaceous and erect underground bulb, stem are branched which are modified into leaf like structure.

Root: Adventitious and fibrous root

Local uses

Onion is used in every dish due to its good taste and also use as a salad. Onion oil are used to cure fever, the bulb are slightly warmed and placed over a inflame part of body for healing. Onion also served a best medicine they contain anticancer, antioxidant, anti-cholesterol properties and are also use to cure common cold to heart diseases and diabetes.

Dicotyledon

1.

| Family | Scientific Name | Local Name |
|------------|-----------------|------------|
| Salicaceae | Populus nigra | Tareek |

Habitat

Cultivated plant, present in tropical and temperature climate, deciduous plant, shed their leaves in every autumn. A large number of tall Populus Nigra are shown in this picture of Mastuj valley.



Fig. 1 Picture of tall Populus Nigra in July

Morphology

Stem: Stem long, woody, strong plant body, monopodial stem with side branches.

Leaves: Leaves are simple, broad leaves with reticulate venation and are spirally arranged around the side branches.

Root: Deep rooted trees.

Local uses

Stem are sources of fire wood and timber which are used as a food for cattle in fresh as well as in dry form. The wood is also used to making tools due to its light nature. In fresh form the bark are uses as fodder and for making baskets, which is consider increasing milk production and fattening the cattle.

2.

| Family | Scientific Name | Local Name |
|------------|----------------------|-------------|
| Asteraceae | Artemisia Perviflora | Khorkhalich |

Habitat

Annual, wild herb, present in dry land and some time may found in wetland. Mesophytic plant.

Morphology

Annual herb and having small yellow flower, small tap root plants; having secondary and tertiary branches.

Local uses

The leaves and seeds are dried and grind into power and boil in water which is used in lower blood pressure and blood cholesterol level.

It is also use to cure abdominal pain and joint pain.

Serve as a fodder for cattle.

3.

| Family | Scientific Name | Local Name |
|---------|-----------------|------------|
| Poaceae | | Juari |

Habitat

Present in tropical and temperature climate, cultivated plant. In the following picture we illustrated the *Zea mays* L in there early stage.

Morphology:

Annual plant about 60-80cm in height, also ever green.

Stem: They have stout erect stem with many nodes.

Leaves: Leaves are like broad flag, spirally arranged around the stem, arise from inter nodes.

Roots: Roots are many small taproots and poorly developed.

Flower: Flower occur as spike arising from the axils of lower leaves.



Fig 2. *Zea mays* L in the early stage in my Mastuj

Local uses

The seed of maize are used as sources of food. The bread which is made from maze is important for abdominal pain. The leaves and stem are use as a fodder for cattle.

In dried form the stem are used for fire.

4.

| Family | Scientific name | Local name |
|---------------|-----------------------|------------|
| Papilionaceae | Trifolium resupenatum | Shaftal |

Habitat

Annual herb, cultivated herb occurs in wet land. In natural condition occur in non-wetland. These are cultivated in October and start growth in April.

Morphology:**Leaves:**

Trifoliate leaves are spirally arranged around the herbaceous stem.

Stem:

Hollow herbaceous stem.

Roots:

Rhizoids are presents.

Flower:

Flowers are pinkish in color but in some species flowers are purple in colour.

Local uses

They are cultivated especially as a food for cattle. It is prefer to increase the milk production. The leaves and shoot are used as source of vegetable.



Fig 3. Look over Trifolium Resupenatum of Mastuj in summer.

5.

| Family | Scientific name | Local Name |
|---------------|------------------|------------|
| Cucurbitaceae | Cucurbita maxima | Alok |

Habitat: Annual herb; present both in tropical and temperature region they are cultivated herb. They are mesophytic plants.

Morphology:

Juicy sap in their leaves and stem.

Leaves: Leaves are alternate broad, usually simple leaves but mostly lobed.

Stem: stem are herbaceous, hollow and climbed by mean of tendrils. Leaves and stem are hairy.

Roots: Tap root with small rhizoids.

Local uses

The fruits are uses as a source of vegetable. Some are uses as a source of medicine. Seed are roasted, grounded and make a soup which is orally taken to treatment of tapeworm and to control cough. The hard cover is use for manufacturing musical instruments.

6.

| Family | Scientific name | Local name |
|-----------|-----------------|------------|
| Solanacea | Solanum nigrum | Permilik |

Habitat: Wild and small annual herb, these are plant of mesophytic area.

Morphology:

Stem: Stem is herbaceous, erect and branches.

Leaves: leaves are simple, broad and alternatively arranged around the stem.

Root: Roots are adventitious.

Local uses

Leaves and shoot are source of food for cattle. Many people use the leaves as a salad leaves are paste and extract juice which is mix with milk to convert it yoghurt. Juice of fresh herb is used to control fever. The fruits have been used for diabetes skin infection and dental problem and serve as antiseptic. The ripe fruit of solanum are applied to the skin to remove pimples.

7.

| Family | Scientific name | Local name |
|--------------|---------------------|------------|
| Polygonaceae | Polygonum dumetorum | Pindormish |

Habitat

Annual cultivated weed present in mesophytic area, mostly present in tropical region.

Morphology:

Stem: Herbaceous stem, climber.

Leaves: Simple broad thin leaves spirally arranged around the climber stem in remorse form.

Root: Adventitious root.

Local uses

It is used as a fodder and in juvenile formed used as a vegetable.



Fig 4. Glaciers in the mountain in summer causes to flow canals being habitat for myriad medicinal plants

8.

| Family | Scientific name | Local name |
|------------|-------------------|------------|
| Asteraceae | Cichorium Intybus | Khasti |

Habitat: Wild plant which are present in mesophytic area and having woody perennial herb

Morphology: Stem are branched with bright blue flowers, herbaceous stems contain in resin.

Stem: the stem is used as fodder in fresh form and in dried form they are used as fire wood.

Leaves: Leaves are stalked, lanceolate and unlobed some small leaves are present in the axil of branches.

Root: Roots are tap roots.

Local uses

The roots are collected in boiled in water to make tea, which is orally taken to cured lungs diseases, typhoid and decrease cholesterol level in blood, which is important to cured heat attacked. Roots are used as coffee. They roots are also used to eliminate intestinal worm, it contain inulin which may help to lose weight, improving body function in general health.

9.

| Family | Scientific name | Local name |
|---------------|--------------------|------------|
| Papilionaceae | Glycyrrhiza glabra | Moyou |

Habitat

Wild, herbaceous and perennial plants, present in mysophytic area.

Morphology

Stem: Stem are the erect, hard and branched, flower are present at the stem.

Leaves: leaves are pinnate leaves and alternatively arranged, sweet sticky resin is present in the leaves.

Roots: Tape roots with secondary and tertiary branches, sweet flavor can be extracted from the root.

Local uses

It is used a fodder in dried form, it is preferred in winter to fatten the cattle. The roots are boiled in water and are given to children to eliminate liver worth and other intestinal worm.

It might lower the amount of free testosterone. The compound present in it may effects the body endocrine system. It may be used to increase blood pressure.

10.

| Family | Scientific name | Local name |
|---------------|-----------------|------------|
| Capparidaceae | capris spinosa | Kaveer |

Habitat

Found in dry heat and intense of sunlight, plant grow in crake and crevices of rock, almost present in hilly areas. Mostly present in temperate region

Morphology

Ever green, wild annual shrub

Stem: Long postrate stem, expended to the surface of the soil.

Leaves: Simple thick leaves arranged around the short stem , buds are present at the tip of short stems which arise from the axel of leaves.

Local uses

Leaves are used as fodder, the fresh bud use to face cosmetic, skin diseases and to cure red eyes. The buds are collected and mixed with water and placed in the sun light for many days then it is extracted from water and dried. This is used for the treatment o f fever and typhoid. It is also used to enhance the taste and flavor of many dishes.

11.

| Family | Scientific name | Local name |
|-----------|--------------------------|------------|
| Lamiaceae | <i>Mentha longifolia</i> | Bane |

Habitat

Wild and fast growing perennial herb having good flavor, present in tropical region and also found in mysophytic area.



Fig 5. Bane are grown up near river and small canals

Morphology:

Stem: Herbaceous and hairy stem, erect plant body.

Leaves: Soft hairy leaves formed pair opposite to each other along the square stems. Colour of leaves is light green.

Root: Tap roots.

Flower: The perish flower are crowded into spike at the tip of stem.

Local uses

Roots are boiled in water and these herbal teas are used to cure fever and indigestion and heart diseases. Fresh leaves are used as salad. To control the high temperature and unconsciousness the fresh leaves are placed on the forehead and feet of the patients.

12.

| Family | Scientific name | Local name |
|-----------|-----------------|------------|
| Lamiaceae | mentha spicata | Podina |

Habitat

Cultivated, perennial herb found in mysophytic area, fast growing herb.

Morphology:

Stem: Stems are herbaceous creeping stems. The young shoots are quadrangular.

Leaves: Leaves are soft lenceolate and arranged in decussate opposite pair.

Roots: Usually tap root.

Uses

Used as salad, used to lower the blood pressure. Leaves are boiled in water make a tea which is taken to control cough, cold stomach pain, asthma, indigestion and headache. Leaves are paste, mixed with yoghurt and orally taken to treat diarrhea. It is also used as a local chatni. Due to its strong smell and taste use in kitchen.

13.

| Family | Scientific name | Local name |
|------------|------------------|----------------|
| Asteraceae | Halianthus annus | Yourmokh korak |

Habitat

Cultivated annual shrub, mesophytic plant

Morphology:

Stem: Sun flower have long shrubby stem with axillary branches and sometime monopodial stem

Leaves: Leaves are simple, broad and thick leaves spirally arranged around the stem.

Flowers: Flowers are present at the tip of stem .Flower are round and yellow in colour .

Roots: Roots are tap root with secondary and tertiary branches.

Seeds: Seeds are black n colour and rich in oil.

Local uses

Used as a source of food. Seeds are used as a source of medicine and edible oil. The seed are roasted and give to the hens to enhance egg production. Seeds are also used for the treatment of round worm and insecticide.

The yellow colour flowers are source of yellow dye.
Stem contain fibers which is used in paper production.
The plants are also cultivated for ornamental purposes.

14.

| Family | Scientific name | Local name |
|----------|--------------------|------------|
| Apiaceae | Foeniculum valgare | Budioung |

Habitat

Mediterranean region, wet land, cultivated in perennial herb, required full sunlight.

Morphology:

Stem: Tall and hard stem.

Leaves: Feathery leaves, soft green almost hairs like foliage.

Flower: yellow flower in the form of umbel at the tip of the stem.

Roots: Elongated in the form of carrot.



Fig 6. The favorable region for growth of Foeniculum Valgare in the valley

Local uses

It is highly aromatic and flavor-full herb use in every dish to enhance taste. Used as a medicine. Seeds and leaves are used to control over-weight, stomach cramp, and problem in digestion. The herbal tea can be taken for bad breath, constipation, cold flue and as a diuretic. Leaves are used as salad. Cultivate for ornamental purpose.

15.

| Family | Scientific name | Local name |
|-----------|-----------------|------------|
| Lamiaceae | Nepata cataria | Mutrich |

Habitat

Herbaceous, perennial plant. Some are annual wild plant present in dry places; prefer light, required well-drained soil.

Morphology:

Stem: sturdy stems.

Leaves: heart shape green leaves.

Flower: white or pink and occur in several cluster toward the tip of stem which are tubular and spotted with tiny purple dots.

Local uses

Leaves are used as salad and in making herbal tea which is taken to treat digestive system. It stimulate sweating and useful in reducing fever. The herbal tea is also used to decrease sugar level and to relieve the pain of aching teeth and gums. It also used to wash eyes to relieve inflammation and swelling due to allergies of flu and cold. About 70% people used this plant.

16.

| Family | Scientific name | Local name |
|--------------|--------------------|------------|
| Papaveraceae | Papaver somniferum | Afyoun |

Habitat

Annual or biennial herb, found in mediterian region, hot and warm region, moderately moist soil. It is cultivated plant.

Morphology:

Stem: Tall erect stem, slightly branched stems.

Leaves: Erect long leaves, un-branch fleshy leaves, light green in color.

Flower: Pinkish flower, in the center of flower grow a bulb like structure which produce milky latex called opium.

Local uses

Seeds are good source of energy, source of dry oil and use in manufacture of paints, varnish and soup. The tea made from the seeds and capsules are used to treat cough. Opium is used for smoking and as drugs. It is also used as a medicine, used as pain-killer, treatment of cancer, diariah, cold and headache. It is a good fodder for cattle. It grows as an ornamental plant.

17.

| Family | Scientific name | Local name |
|------------|-------------------|------------|
| Solanaceae | Nicotiana rustica | Tamako |

Habitat

Perennial herb and shrub, present in cold temperate region.

Morphology:

Stem: Mostly shrubby stem, erect and sometime branched.

Leaves: It has large fleshy leaves and numerous sticky hairs.

Roots: Branch root system.

Flower: Sweet scented flower vary white to purple.

Local uses

Herb and ash are used to make snuff. It is also used to treat parasitic worm. Used to cure teeth ache and lock jaws and black yellow diseases. Containing high concentration of nicotine in their leaves, which made it useful for preparing organic pesticides.

Used for smoking.

18.

| Family | Scientific name | Local name |
|------------|-----------------|------------|
| Mimosaceae | Acacia Arabica | Kikar |

Habitat

The plant are called throne tree because of having large number of throne on it; it is difficult to touch with hand without wearing anything. Most are wild plant; some are grown to control soil erosion which is elucidated in the following figure.



Fig 7. Kikar which are mostly used to protect from soil erosion and flood in the valley

Morphology

Stem: Stem is woody, solid and branched thorny stem.

Leaves: Leaves are bipinnate, dark green and are alternatively arranged.

Root: Root are branched and deep rooted in the soil.

Local uses

The wood of this plant are source of fire wood and timber .The bark is used as a source of dye from which tannin are produced.

20.

| Family | Scientific name | Local name |
|-------------|---------------------|------------|
| Ephedraceae | Ephedra gerardina 2 | Somani |

Habitat

Wild ever green shrub, present in sandy and well-drained soil and in rocky slope .Prefer sunlight and not grow in shady places .Almost present in temperate region and tolerate drought.

Morphology

Stem Erect shrubby stem, smooth branchlet and light green in color, direct upward and bearing nodes.

Leaves Small opposite leaves.

Fruit The fruits are red in color and very sweet fruits, arise from the nodes of stem.

Local uses

People use the plant for many medicinal purposes .Fruits are used for the treatment of fever,Asthma, common cold .Stem and roots are source of fuel .Ash are mixed with tobacco to make snuff (Naswar).

In past people use this ash to make soap .The aqueous extract from boiled shoot is used for the treatment of ophthalmic diseases.

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