

TRADITIONNAL RESOURCE EVALUATION OF SOME PLANTS OF MASTUJ, DISTRICT CHITRAL, PAKISTAN

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Abstract

The resource evaluation indicated that there were 111 species of 46 families including 39 Dicot (98 spp), 5 monocot (11 spp) and 2 gymnosperms (2 spp.). Family Asteraceae (11 spp.), Papilionaceae (10 spp.) and Rosaceae (9 spp.) were important families in number of species. The traditional uses revealed that there were 90 fodder, 52 medicinal, 40 firewood, 19 vegetable, 15 thatching/fencing, 13 timber and 9 fruit species. Two species including *Haloxylon griffithii* and *Vaccaria pyramidata* are used for making soap; while 4 species are used in basketry, 4 species are preferred furniture wood species and some 8 species are used for making agricultural implements. Further study is required to quantify the availability of traditionally important medicinally and forage plants and to suggest the possible management of the natural resources.

Introduction

Mastuj valley lies in between latitudes 30°-2' to 36°-57' N and longitudes 72°-0' to 37°-58' E. It has a population of more than 34000 individuals distributed in more than 4500 houses. About 85% of the population depends upon forests and rangeland resources including herding of livestock. It is drained by Yarkhun (Mastuj) and Laspur rivers. The climate of the area is arid temperate to alpine in the upper reaches with mild summers and snowy cold winters. The valley is snowbound from November to March in the lower reaches while upper parts are covered by snow till June. The scanty rainfall is mostly received from December to March along with snow. This botanically unexplored valley is rich in traditional knowledge. Some study on the ethnobotany of high altitude mountain ecosystems has been reported (Hussain & Mustafa, 1995; Khan, 2000; Sher *et al.*, 2004; Hussain *et al.*, 2004 a, 2005a,b; 2006; Badshah *et al.*, 2006; Durrani & Hussain, 2005). Studies on the flora and ethnobotany of Chitral have been made (Ajab, 1992; Jan, 1997; Hussain *et al.*, 1994, 2004b, Hussain & Murad, 2004; Shah *et al.*, 2006).

Materials and Methods

The local names and traditional uses of plants, with emphasis on medicinal uses, were documented through an open ended questionnaire and interviewing the local elderly knowledgeable persons including local herbal practitioner (hakims). Information was considered authentic when confirmed from at least 10 interviewees. Plants were collected during July-August from different parts of Mastuj valley. They were dried, preserved and identified with the help of Flora of Pakistan (Nasir & Ali, 1971-1995; Ali & Qaisar, 1995-2005). The identification was confirmed in the herbaria, Department of Botany, University of Peshawar and National Herbarium, NARC, Islamabad, Pakistan.

Results and Discussion

The study revealed that there were 111 species distributed among 46 families. They included 39 Dicot families, 5 monocot. families (Alliaceae, Iridaceae, Juncaceae, Poaceae and Typhaceae) and two gymnosperms (Cupressaceae and Ephedraceae) families. Asteraceae (11 spp.); Papilionaceae (10 spp.); Rosaceae (9 spp.); Brassicaceae and Polygonaceae (5 spp. each); Chenopodiaceae, Lamiaceae, Salicaceae and Solanaceae (each with 4 spp.), Alliaceae, Apiaceae and Poaceae (each with 3 spp.) were the leading families in terms of number of species. The remaining families had less than 3 species. The traditional uses showed that 90 species were used as fodder, 52 as medicinal, 40 as firewood, 19 as vegetables, 15 as thatching/fencing, 12 as timber wood, 9 as fruits, while 8 species are used for making agricultural implements. Four species are used in basketry, 4 as furniture wood and two for making soap. Some other uses included dye yielding, condiments, rope making and edible oil.

The area is under heavy biotic pressure due to deforestation for fuel and overgrazing by livestock, which has promoted soil erosion. Many species, such as Juniper, have drastically reduced over the past few years. Most of the medicinal plants are also used as fodder and firewood. It therefore, seems appropriate to provide fuel energy facilities and to manage the grazing system. Every household has to depend on local plant resources for winter heating and livestock feeding. Being a remote area no effective measures have yet been taken by the government agencies for the conservation. However, it should be the moral and ethnic duty of the inhabitant to save the plant and other natural resources. There is almost no ecological or ethnobotanical data from this remote area bordering Afghanistan and Central Asian states. Since this is the first hand information, therefore there is need to study further to provide quantitative base line data for any conservation project in future.

Traditional uses

A. Gymnospermae

1. *Ephedra gerardiana* Wall ex Stapf. (Family Ephedraceae; Local Name Somane)

The aqueous extract from boiled shoots is called Gholja, which is a treatment for various ophthalmic diseases. The fruits are edible. Woody parts are used as firewood. The ash after burning is mixed with tobacco leaves to make snuff. The plant is unpalatable. Collector: Men.

2. *Juniperus excelsa* M.B. (Family Cupressaceae: Local Name Sawrooz)

The aqueous extract from crushed fruits is anthelmintic. It is considered as one of the best timber woods of the area due to its durability. About 95% of the houses are constructed from its wood. It is also used in making beams, beam lets, pole and door fixtures. It is one of the best firewoods of the area due to its high heat value and smokeless flames. Bark is used for thatching purpose. The trunk is used in making Bethalo. Collector: Men.

The plant has drastically been cut down for timber and fuel purposes. Some 20-30 years back, it used to be very common. The locals now have to travel 15 to 20 Km for its collection. Recently in some of the villages complete ban on its cutting has been imposed for rehabilitation.

B. Monocotyledonae

1. *Allium carolinanum* DC. (Family Alliaceae; Local Name Latruk)

The cooked shoots and bulbs are used as vegetable and to treat lumbago. Collector: Men.

2. *Allium cepa* L. (Family Alliaceae; Local Name Thrashto)

Bulb is slightly warmed and placed over inflamed parts of the body for healing. Besides condiment, it is used as an ingredient of many other medicinal preparations. Collector: Women.

3. *Allium sativum* L. (Family Alliaceae; Local Name Varashnu)

It is used as vegetable and treatment for flatulence and hypertension. Collector: Women.

4. *Aristida cyanantha* Nees ex Steud. (Family Poaceae; Local Name Ishpur)

It is a fodder for cattle especially in dry condition. Collector: Men.

5. *Iris ensata* Thunb. (Family Iridaceae; Local Name Karyzma)

It is a fodder for goat and sheep especially in dry condition for winter-feeding. The leaves are used for fastening sheaves of *Trifolium resupinatum* and *Medicago sativa*. The fruits of *Prunus armeniaca* are placed over its leaves for drying. Collector: Men.

6. *Iris germanica* L. (Family Iridaceae; Local Name Sosun)

The dried crushed roots are placed as poultice over the inflamed body parts for healing. The syrup obtained by boiling roots in water with some sugar is taken to treat body pain. Collector: Women.

7. *Juncus articulatus* L. (Family Juncaceae)

It is used as fresh and dry fodder for cattle. Collector: Men.

8. *Juncus himalensis* Kl. & Gracke. (Family Juncaceae)

It is a fodder. Collector: Men.

9. *Phragmites karka* (Retz.) Trin.ex.Steud. (Family Poaceae; Local Name Noal)

It is a fodder for cattle especially in dry form, but more commonly used for thatching purposes. Collector: Men.

10. *Saccharum spontaneum* L. (Family Poaceae; Local Name Shoal)

Generally used for thatching purposes. In young stage it may be used as fodder. Mature culms are used in making baskets and writing pens for school children. It also serves as firewood. Collector: Men.

11. *Typha angustata* Borry & Chaub. (Family Typhaceae; Local Name Karich)

It is generally used for thatching purposes. The leaves are used as fodder especially in dry condition. Collector: Men.

C. Dicotyledonae

1. *Acantholimon longiscapum* Bokhari (Family Plumbaginaceae; Local Name Khalavthaspuk)

It is generally used as firewood. In young condition it serves as fodder for sheep and goat. Silkworms are kept on it. Collector: Men.

2. *Atraphaxis pyrifolia* Bunge. (Family Polygonaceae; Local Name Ishpen)

Leaves serve as fodder. The stem and branches are used as firewood, and in making handles of agricultural tools, axes and spinning wheel. The shoots are used in making brooms. Collector: Men.

3. *Amaranthus viridis* L. (Family Amaranthaceae)

It is mostly used as fodder for cattle. A weed of wheat and maize field. Collector: Women.

4. *Arnebia hispidissima* (Lehm.) D.C. (Family Boraginaceae; Local Name Phosook)

The dried powdered roots are sprayed over umbilical cord of newborn infant as an antiseptic agent. The roots are mixed with mustard oil that turns bright red, which is used to prevent hair loss and baldness. It is also used as fodder. Collector: Women.

5. *Artemisia brevifolia* Wall.ex DC. (Family Asteraceae; Local Name Thaspuk)

It is as good firewood and fresh fodder. Collector: Men.

6. *Artemisia parviflora* Roxb. (Family Asteraceae; Local Name Kharkalich)

One teaspoonful of powdered seeds is taken with a glass of water to cure abdominal pain. Collector: Women.

7. *Artemisia scoparia* Waldst. & Kit. (Family Asteraceae; Local Name Zaw)

Aqueous extract from flowering shoots, called Zawough, is drunk to treat malaria and also used as antihelminthic agent in human and livestock. The fresh plants are unpalatable; however, when dried it becomes palatable. It is used in making Winower, which is used in threshing straws from grains. It is considered as a sacred plant. Collector: Men.

8. *Astragalus psilocentros* Fisch. (Family Papilionaceae; Local Name Garmenzu)

The gummy resin obtained from stems and shoots are edible. It is mostly used as firewood, as a fodder after burning of the spines. The root is used as dandasa. Collector: Men.

9. *Berberis lycium* Royle. (Family Berberidaceae; Local Name Chouch)

The dried fruits are cooked with wheat flour to prepare Chouchough, which is febrifuge. The syrup from fresh fruits is given orally to anaemic patients as blood enriching tonic. The extract from boiled roots is orally administered to treat internal wounds. The plants are used as firewood, fodder and for fencing purpose. Collector: Men.

10. *Beta vulgaris* L. (Family Chenopodiaceae; Local Name Lablabo)

Sugar beet is cultivated as vegetable; fresh and dry leaves are used as fodder. Collector: Women.

11. *Betula utilis* D. Don. (Family Betulaceae; Local Name Bulee)

The waterproof thin papery bark was once used as paper for writing and as storage and wrapping material. The branches and stems serve as firewood and timber wood and in making agricultural tools. The leaves are used as fodder. Birch is generally the timberline tree that has also drastically reduced in population and form due to deforestation and overgrazing. It now mostly occurs as deformed shrub with open canopy. Collector: Men.

12. *Brassica campestris* L. (Family Brassicaceae; Local Name Sarsoon)

Mustard is cultivated as vegetable and oil seed crop. Seeds yield edible oil. Fresh and dry leaves serve as fodder. Collector: Women.

13. *Brassica oleracea* L. (Family Brassicaceae; Local Name Ghobi)

Cabbage is cultivated as vegetable. Fresh leaves serve as fodder. Collector: Women.

14. *Capsella bursa-pastoris* (L.) Medic. (Family Brassicaceae; Local Name Umjoash)

It is a nutritious fodder for livestock.

15. *Carthamus tinctorius* L. (Family Asteraceae; Local Name Poam)

Herbal tea made from seeds cures cough. The powdered flowers, mixed with milk cure itching of body rashes. The dried plant is used as firewood. Collector: Women.

16. *Cichorium intybus* L. (Family Asteraceae; Local Name Khasti)

Aqueous extract from crushed roots is placed in open for a night. One cup of this extract is taken orally before breakfast to treat cardiac problems. The young leaves serve as vegetable; while whole plant is used as fodder. It is sold @ 12 per sheaf. Collector: Men.

17. *Cannabis sativa* L. (Family Cannabinaceae; Local Name Boung)

The dried powdered leaves, called Gharda, are mixed with wheat flour and given to cattle to treat flatulence and abdominal pain. Previously cooking oil was obtained from its seeds. Slightly warmed seeds are fed to hen to enhance egg laying. It is also used as firewood. Fibre is obtained from stem, which is spun and woven into ropes. The plant is narcotic and also used in the preparation of hashish (charse). Collector: Men.

18. *Capparis spinosa* L. (Family Capparidaceae; Local Name Kaveer)

The floral buds meshed with wheat flour are cooked to prepare Kaveerough, which is taken orally to cure typhoid fever. The aqueous extract from floral buds also cures typhoid. The leaves are used as fodder. The fleshy fruits are applied as face cosmetics. Collector: Boys and Girls.

19. *Carbenia benedicta* (L.) Bth. & Hk. (Family Asteraceae; Local Name Khorzoakh)

It is a weed. The plant after harvest loses turgidity and then is used as fodder, which is said to thicken the milk. Collector: Men.

20. *Chenopodium album* L. (Family Chenopodiaceae; Local Name Darkonakh)

The leaves serve as vegetable, as laxative and fresh plant is used as fodder. It is a weed of maize. Collector: Women.

21. *Chenopodium botrys* L. (Family Chenopodiaceae; Local Name Khoudur)

It is a weed and fresh fodder. Collector: Men.

22. *Cicer macracanthum* M. Popov. (Family Papilionaceae; Local Name Kharashik)

It is a good fodder especially in dry condition. Collector: Men.

23. *Clematis orientalis* L. (Family Ranunculaceae; Local Name Chountrouk)

It is mostly used as fodder and firewood. Being a climber it overshadows supporting plant. Collector: Men.

24. *Convolvulus arvensis* L. (Family Convolvulaceae; Local Name Mish)

It is a weed of maize; and also fodder for cattle. Collector: Women.

25. *Cotoneaster nummularia* Fisch & Mey. (Family Rosaceae; Local Name Mekin)

The edible fruits and seeds are blood purifier. Stems and branches are used as firewood; leaves as fodder and shoots as fencing material. Collector: Men.

26. *Crataegus songarica* C. Koch. (Family Rosaceae; Local Name Ghonii)

The extract from boiled bark is called Ghoniough. One glass of ghoniough is given to the woman at the time of childbirth to reduce labour pain. It is timber wood, firewood and leaves serve as fodder. Collector: Men.

27. *Cucurbita maxima* Duch. ex Lam. (Family Cucurbitaceae; Local Name Alok)

Pumpkins are cultivated. Herbal tea made from seeds cures cough. The leaves are used as fodder. Collector: Women.

28. *Cuscuta approximata* Bab. (Family Cuscutaceae; Local Name Umbool)

It is used as fodder for cattle and is parasitic on clover and alfalfa. Collector: Men.

29. *Cuscuta reflexa* Roxb. (Family Cuscutaceae; Local Name Umbool)

It is used as fodder for cattle and parasitic on various plants including clover. Collector: Men.

30. *Datura stramonium* L. (Family Solanaceae; Local Name Porol)

The peels from dried stems and branches, called Khaf, are placed over affected parts of body and burnt to treat rheumatic diseases. The seeds are poisonous. It is used as firewood.

31. *Daucus carota* L. (Family Apiaceae; Local Name Khachgoom)

Carrot is cultivated as vegetable and said to improve eyesight. Herbal tea, made from seeds, cures abdominal pain. Collector: Women.

32. *Echinops echinatus* Roxb. (Family Asteraceae; Local Name Ishparuzoakh)

Leaves are harvested and after losing turgidity it is used as fodder. It is also used as firewood. Collector: Men.

33. *Elaeagnus angustifolia* L. (Family Elaeagnaceae; Local Name Shounjur)

The edible fruits cure cough. The gummy resins obtained from stems and branches is dried and powdered, which is used as hair wash. It is a good fire and timber wood; while leaves are good fodder. Three varieties including Bowshounjur with large size fruits,

Kalashano with medium size fruits and Keteme with small fruits are common in the area.
Collector: Men

34. *Epilobium angustifolium* L. (Family Onagraceae; Local Name Kharkat)

It is used as fodder. Collector: Men.

35. *Ferula jaeschkeana* Vatke. (Family Apiaceae; Local Name Row)

The latex is used as an antidote for gastric problems. The floral scape is edible. The leaves are used as fodder especially in dry condition. Collector: Men.

36. *Fraxinus xanthoxyloides* (Wall. ex G.Don) DC. (Family Oleaceae; Local Name Toor)

The aqueous extract from boiled bark is given orally to pregnant woman to deliver pre mature baby provided where it is feared that the infant has died within the foetus of mother. Stems and branches are used as firewood, in making agricultural tools and as thatching purposes; while leaves serve as fodder. Collector: Men.

37. *Foeniculum vulgare* Miller. (Family Apiaceae; Local Name Bodioung)

Mostly used as spice and condiment. Collector: Women.

38. *Glycyrrhiza glabra* L. (Family Papilionaceae; Local Name Moyou)

The aqueous extract from boiled roots is called Moyouough, which is taken orally to treat abdominal pain. The preparation is also administrated to livestock as stomachic. It is a preferred fodder in dry condition and occasionally sold @ Rs.12 per sheaf. Collector: Men.

39. *Haloxylon griffithii* (Moq.) Bunge. ex. Boiss. ((Family Chenopodiaceae; Local Name Pach)

Previously soap was prepared by burning the shoots to ashes, which is mixed with cattle's ghee and boiled for an hour. The preparation was called Ashqor. Plant is mostly used as firewood and fresh fodder for sheep and goat. Collector: Men.

40. *Hippophae rhamnoides* L. (Family Elaeagnaceae; Local Name Mirghinz)

The berries are eaten as antihelminthic. The fruit juice is used for various ophthalmic diseases. It is among the best firewood. The leaves and young twigs serve as fodder for goat. Branches are used as thatching material and for making brushwood dams in lakes, streams and nals. It is good for fencing field's borders. The litter is good organic fertilizer in fields. Collector: Men.

41. *Hippuris vulgaris* L. (Family Hippurdiaceae)

Generally used as fodder for cattle.

42. *Juglans regia* L. (Family Juglandaceae; Local Name Bermough)

Walnuts are cultivated for its delicious and nutrition nuts. The leaves and bark from roots and stems (used as Dandasa) are insecticide and antihelminthic and used in dental health care; and as lip cosmetics. Seeds yield cooking oil, which is nutritious and health tonic. The dried inflorescence, called Pushi, mixed with fleshy fruit bark are boiled to get deep red coloured extract, which is used for dyeing of woollen threads used in making woollen garments. The wood is excellent for making furniture and wooden handicrafts. Water wheels for watermills for grinding grains and agricultural tools are made from its wood. Winower (Thrasher), which is used to separate grains from straws, spinning wheel known as Chakur (Charkha) used for spinning threads and Owndoor (Pestle & mortar) are made from its wood. Leaf litter serves as green manure while dried leaves are used as fodder. The shoots are used to sprinkle curd milk or milk on wheat crop during a festival called Phindeek to enhance crop yield. Collector: Men.

43. *Lactuca sativa* L. (Family Asteraceae; Local Name Keleem)

It is mostly used as salad and fodder. Collector: Women.

44. *Matricaria chamomilla* L (Family Asteraceae; Local Name Shrisht)

Herbal tea, called Shrishtough, made from dried flowers is a treatment for abdominal pain. In dried state the plant is a fodder. Collector: Women.

45. *Nasturtium officinale* R. Br. (Family Brassicaceae; Local Name Shiakoshak)

The leaves are used as salad, and vegetable and treatment for dyspepsia. It is a good fodder. Collector: Men.

46. *Linum usitatissimum* L (Family Linaceae; Local Name Shentak)

The seeds are gently warmed till oil oozes, which are cooked with wheat flour. The preparation, called Ghazaze, is eaten to treat lumbago. Shoots also serve as fodder. Collector: Women

47. *Lotus corniculatus* L. (Family Papilionaceae; Local Name Rub)

It is a good fodder that fattens the cattle.

48. *Mentha longifolia* (L.) Huds. (Family Lamiaceae; Local Name Ben)

Herbal tea, made from roots, is called Benough, which cures fever and indigestion. The fresh and dried leaves are also eaten as digestive and as stomachic agent. The fresh leaves are placed on forehead of patient to recover from unconsciousness. Fresh leaves are used as salad. It is a fodder in dried condition. Collector: Women

49. *Medicago sativa* L. (Family Papilionaceae)

The tender shoots and leaves serve as vegetable. Whole plant in fresh and dried condition is a fodder, which fattens the cattle. It is mostly parasitised by *Cuscuta approximata*. Collector: Men.

50. *Melilotus officinalis* (L.) Desr. (Family Papilionaceae; Local Name Zarwak)

Fresh flowers are directly rubbed over inflamed mammary glands of cattle to relieve the inflammation or alternatively flowers crushed in water are also used to wash the affected mammary glands. The floral shoots are used as antihelminthic. It is non palatable to livestock in fresh condition as it causes abdominal swelling. However, in dry condition it becomes palatable. It is a weed of cultivated fields. Collector: Women.

51. *Morus alba* L. (Family Moraceae; Local Name Mirch)

Fresh and dried fruits are edible. The leaves are used as fodder that fattens the cattle and also believed to increase the milking capacity. The wood is hard and used as furniture, timber and firewood. The main trunks are used for making waterwheel for watermills. Bedana, Lakashar and Doke are the cultivated varieties in the area. Collector: Men.

52. *Morus nigra* L. (Family Moraceae; Local Name Shahtoot)

Syrup made from fruits is used to treat dyspepsia and typhoid fever. The leaves are used as fodder. The fresh leaves are fed to silk worms. Other uses are similar to *M. alba*. Collector: Men.

53. *Myricaria elegans* Royle. (Family Tamaricaceae; Local Name Phaphaki)

Generally used as firewood while leaves are used as fodder. Collector: Men.

54. *Nepeta cataria* L. (Family Lamiaceae; Local Name Mutrich)

It is a weed of cultivation and fodder for cattle. Collector: Men.

55. *Nicotiana rustica* L (Family Solanaceae; Local Name Tamako)

Both fresh and dried leaves are used as antihelminthic agent. The dried leaves are used in making snuff. Collector: Women.

56. *Ocimum sanctum* L. (Family Lamiaceae; Local Name Suspru)

The leaves, meshed with wheat flour, are cooked to prepare Suspruough, which is eaten as febrifuge. The herbal tea from leaves is antipyretic. It is used as salad and condiment. Collector: Women.

57. *Otostegia limbata* (Bth.) Boiss. (Family Lamiaceae; Local Name Blanseer)

Dried leaves are used as fodder, which fattens cattle. Collector: Men.

58. *Papaver somniferum* L. (Family Papaveraceae; Local Name Afyoun)

The capsule is boiled in water to prepare herbal tea, which is drunk to treat cough. It is also strong narcotic plant. Latex from the capsule, which is called opium or affune, is taken as sedative. Collector: Women.

59. *Pistacia integerrima* Stewart ex Brandis. (Family Anacardaceae; Local Name Thoak)

The resinous substance obtained from stems is used to cure wounds. It is regarded as one of the best firewood. The coal is used in cleaning of clothes. Blacksmith use the coal for making agricultural iron tools and axes. The leaves are used as fodder. The branches and stems are used as building material in alpine pasture for making temporary houses and shelters. The coal has high heat value and often praised in local poetry. Collector: Men.

60. *Plantago lanceolata* L. (Family Plantaginaceae; Local Name Boeikolegeni)

Whole plant is used as vegetable and fodder for livestock. Collector: Women.

61. *Plantago major* Aitch. (Family Plantaginaceae; Local Name Ustanbash)

The seeds soaked in water with some sugar are orally taken to treat diarrhoea. The fresh leaves are used as vegetable and fodder for livestock. Collector: Women.

62. *Platanus orientalis* L. (Family Platanaceae; Local Name Cheenar)

Main stems and braches are used as firewood and timber wood; while leaves serve as fodder. The shoots and branches are used for thatching purpose. It is a shade plant. Collector: Men.

63. *Polygonum dumetorum* L. (Family Polygonaceae; Local Name Pindoromish)

A weed of cultivation, used as fodder and vegetable. Collector: Men.

64. *Polygonum glabrum* Willd. (Family Polygonaceae; Local Name Basirjoush)

Peels from stems, called Khaff, are placed and burnt over affected parts of the body to treat rheumatism. It is mostly used as fodder especially in dry condition. Collector: Men.

65. *Polygonum persicaria* L. (Family Polygonaceae)

Generally used as fodder. Collector: Men.

66. *Populus nigra* L. (Family Salicaceae; Local Name Trareek)

It is a good timber wood due to its light nature and easy to works with saw. It is used for making beams, beam-lets, pillars, door parts and windows. The bark, young shoots and fresh and dried leaves are used as fodder, which is considered to fatten the cattle. It is one of the best firewood as it catches fire instantly. The bark peels are used in basketry. It

is one of the common trees, which is frequently used in making wooden bridges. Normally two poles are placed side by sides, approximately 1 metre apart, over rivers, stream and nalas to prepare a bridge. It is sold locally @ Rs.300/pole. Collector: Men.

67. *Populus alba* L. (Family Salicaceae; Local Name Romeno)

It is used as timber wood and firewood but is inferior to *Populus nigra*. It is used to make water channel in water mills. The leaves are used as fodder. Collector: Men.

68. *Primula denticulata* Sm. (Family Primulaceae; Local Name Khor Konaspru)

It is a ritual plant and presented to the people as a sign of affection and brotherhood during spring. It is used as fodder. Collector: Men, Women.

69. *Prunus amygdalus* Batsch. (Family Rosaceae; Local Name Badam)

The almond is grown for its delicious and nutritious dry fruits. The leaves serve as fodder. Pruned branches serve as firewood. Collector: Men.

70. *Prunus armeniaca* L. (Family Rosaceae; Local Name Zule)

Fresh fruit and seeds of apricot are edible. The gum obtained from stem is called Zulecheck, which is eaten to cure lumbago. The dried powdered gum, mixed with milk, is used as tonic. The dried fruits, called Chambore, are soaked in water for 1 to 2 days to prepare Chamborough, which is drunk before breakfast as stomachic and health tonic. The leaves are used as fodder. The wood is good firewood, timber wood and also used in making water wheel for water mills. There are five local varieties including Ishpareki, Mekin, Mirzabeghe, Troukhzule and Shout. Collector: Men and Women.

71. *Prunus domestica* L. (Family Rosaceae; Local Name Alocha)

Plum fruits are edible. The leaves are used as fodder. Pruned branches are used firewood. Collector: Men.

72. *Prunus persica* (L.) Batsch. (Family Rosaceae; Local Name Gherwalogh)

Fruits are edible. The powdered seeds, mixed with water, are usually applied on hands as vulnerary during winters. The leaves serve as fodder and stem as firewood. Collector: Men.

73. *Psylliostachys suworowii* (Regel.) Roshk. (Family Plumbaginaceae; Local Name Ushqarbash)

It is used as vegetable and fodder. Collector: Men.

74. *Pyrus communis* L. (Family Rosaceae; Local Name Toung)

Pear is grown for its edible fruits. The leaves are used as fodder and pruned branches as firewood. There two varieties viz., Lomano and Shougherican. Collector: Men.

75. *Pyrus malus* L. (Family Rosaceae; Local Name Palough)

Apples are grown for delicious and nutritious fruits. The fruits are also dried, which are called Palavushto and are used during winters. The fresh fruits are locally used in making jams. The fruits are sold locally @ Rs.10/kg. The leaves are used as fodder. Pruned branches serve as firewood. There are four varieties in the area: 1.Basotti, larger and sweet. 2. Isdoab, sweet and juicy, 3.Shout, sour and 4.Shokorpalough, sweetest and smallest. Collector: Men.

76. *Raphanus sativus* L. (Family Brassicaceae; Local Name Troup)

Radish is cultivated as vegetable. Fresh and dried leaves are used as fodder. Collector: Women.

77. *Ranunculus lobatus* Jacq ex. Cam. (Family Ranunculaceae; Local Name Margas)

It is used as fodder. It is a weed of cultivation.

78. *Ribes orientale* Desf. (Family Saxifragaceae; Local Name Chelazhum)

Branches are mostly used as firewood and as thatching material for making temporary houses and shelters in alpine pastures. The leaves are used as fodder. Collector: Men.

79. *Rheum emodi* Wall ex Meissn. (Family Polygonaceae; Local Name Ishpar)

The floral scape is edible as salad, which is also treatment for cough and flu. The dried leaves are used as fodder. The mature dried plant is used as firewood. Collector: Men.

80. *Rumex longifolius* DC. (Family Polygonaceae; Local Name Cherkonzur)

Fresh leaves are used as vegetable, laxative and as fodder. Collector: Women.

81. *Rosa webbiana* Wall ex. Royle. (Family Rosaceae; Local Name Throny)

Stems and branches are mostly used as firewood and as fencing material around cattle sheds and fields. The leaves and fruits are used as fodder. Collector: Men.

82. *Salix acmophylla* Boiss. (Family Salicaceae; Local Name Chekar)

The aqueous extract from fresh leaves is orally taken to regulate menses. The young twigs and leaves are used as fodder. It is mostly used as firewood. The shoots are used in basketry and as thatching material for houses. Collector: Men.

83. *Salix tetrasperma* Roxb. (Family Salicaceae; Local Name Dourtalik)

It is used as timber and firewood. The young twigs and leaves are used as fodder. The trunk is used in making grain container in water mill. The stem bark and branches are used in basketry and as thatching material for houses. Collector: Men.

84. *Silene conoidea* L. (Family Caryophyllaceae; Local Name Apopar)

Fresh leaves are used as vegetable. It is a weed of wheat and is mostly used as fodder. Collector: Women.

85. *Solanum nigrum* L. (Family Solanaceae; Local Name Pirmelik)

The cooked leaves are used as antipyretic to control fever. The extract from crushed ripe fruits is a cure for ophthalmic diseases. The poultice is applied on face as sunscreen to avoid sunburn. The fruits are eaten to treat abdominal pain. It is used as fodder. Collector: Women.

86. *Solanum tuberosum* L. (Family Solanaceae; Local Name Aloo)

Potato is widely grown as vegetable. Leaves are used as fodder. Collector: Men.

87. *Sophora mollis* (Royle.) Baker. (Family Papilionaceae; Local Name Baishoo)

Oil is obtained by burning fresh shoots. The trickling oil is collected, which is used in curing various skin diseases. The leaves are used as fodder and branches as firewood. Collector: Men

88. *Tamarix dioica* Roxb. ex Roth. (Family Tamaricaceae; Local Name Hinghu)

It is mostly used as firewood and in making agricultural tools and handle of axes. The dried leaves are good organic matter. Branches and stems are used in thatching of houses and cattle shelters. Collector: Men.

89. *Trifolium repens* L. (Family Papilionaceae; Local Name Shabluki)

It is a preferred fodder for cattle especially in fresh condition that increases the milking capacity.

90. *Trifolium resupinatum* L. (Family Papilionaceae; Local Name Shaftal)

The tender shoots and leaves are used as vegetable. It is a preferred fodder and increases the milk yielding capacity of cattle. Collector: Men.

91. *Vaccaria pyramidata* Medik. (Family Caryophyllaceae; Local Name Drawnthrough)

Previously it was used in making washing soap. The shoots were boiled in water for 1 to 2 hours and the extract cooled down. The clothes were soaked and washed in the extract. It is a weed of wheat and clover and is non-palatable. Collector: Women.

92. *Verbascum thapsus* L. (Family Scrophulariaceae; Local Name Ghordoughkaro)

The leaves are placed over affected parts of the body to cure wounds and inflammation. Leaves are given to cattle to treat abdominal swelling. Collector: Men.

93. *Vicia sativa* L. (Family Papilionaceae; Local Name Kharashik)

The fresh leaves are cooked as vegetable, which is also cure for constipation and indigestion. It is mostly used as fodder. It is a weed of *Zea mays*. Collector: Women.

94. *Vitis vinifera* L. (Family Vitaceae; Local name Droch)

Grapes are cultivated in the area. The grape juice is a treatment for typhoid and dyspepsia. The gently warmed leaves in cattle's ghee are placed over inflamed parts of the body for healing. The leaves serve as fodder. Pruned and dried branches are used as firewood. Alcoholic drinks are also prepared by fermenting the fruits. Collector: Men.

95. *Tribulus terrestris* L. (Family Zygophyllaceae; Local Name Kolovzoakh)

It is used as fodder.

96. *Taraxacum officinale* Weber. (Family Asteraceae; Local Name Phovow)

The young leaves are cooked as vegetable; and also as fodder. Collector: Women.

97. *Trachomitum venetum* (L.) Woodson. (Family Apocynaceae; Local Name Bakat)

Peels from dried stem, called Khaf, is placed over affected parts and burnt to cure rheumatic pains. Previously fibres were obtained from stems, which were used in making ropes and pull-through for cleaning gun barrels. It is a fodder especially in dry condition and also serves as firewood. Collector: Men.

98. *Xanthium strumarium* L. (Family Asteraceae)

It is a weed of maize and used as low quality fodder. Collector: Women.

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