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ETHNOBOTANICAL PROFILE OF PLANTS OF SHAWAR VALLEY, DISTRICT SWAT, PAKISTAN

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ABSTRACT

This preliminary study indicated that the locals of Shawar Valley, District Swat use 121 plant species for various purposes. It includes 65 (53.7%) medicinal, 52 (43%) fodder, 31 (25.6%) fire wood, 30 (24.9)%) honey bee, 19 (15.7%) fruit (including 11 wild species), 16 (13%) timber wood, 11 (9%) vegetable (including 6 wild sp.) and 9 (7%) furniture wood species. Three species were used as fish poisoning and two as antilice agents.. *Acorus calamus* was used antidote for snakebites. Other utilities of the plants included making fences, hedges and agricultural tools. Ecological problems such as erosion, deforestation, over exploitation and overgrazing have promoted deterioration of the area. There is a need for sustainable management of the resources. The commercially grown fruit cash crops and off-season cultivation of vegetable needs encouragement with proper storage and marketing facilities.

Key-words: Ethnobotany, medicinal plants, Shawar valley, Swat-Pakistan

INTRODUCTION

Shawar Valley, District Swat lies between 34^0, 06, to 34^0, 20′ latitude and 72^0 30′ to 72^0, 40′ East longitude. The total area of valley is 12,192 acres having a population of 20,163 with an over all literacy rate of 16.6% (Anonymous, 2003). The valley is comprised of gently rolling topography in its northern and southern parts, high ridges, cliffs and rugged hills in the south and northwestern parts. The highest peaks are Landay Sar and Chota Sar having an altitude of 2900 meters and 3900 meters, respectively; while valley floor is 1400m on the average. The climate and vegetation varies from subtropical to alpine type.

Since ages human civilization has obligate dependence on plants, as they are primary producers, provide oxygen, medicines, shelter, food, fruits, cloths, fodder for animals and other innumerable direct and indirect benefits. Plants are the basis of traditional medicine system all over the world. About 35,000 – 250,000 species of plants have been used for medicinal purposes (Walters and Hamilton, 1993). In USA alone annual value of plant-based drug is estimated to be $ 43000 million. Worldwide studies have stressed upon the importance of ethnobotanical traditional knowledge and plant based health care system, which is trustworthy and dependable.

Zaman and Khan(1970) reported 100 drug plants of Pakistan. Afridi (1986) listed 67 medicinal plants from Khbyer agency. Similarly, local medicinal and other traditional uses of plants of Mansehra (Haq and Hussain, 1993), Rawalpindi (Arshad and Akram, 1999), Harboi (Durrani and Hussain, 2003), Kurrum (Gillani *et al.*, 2003) and Margala (Shinwari and Khan., 1999) have been reported. Ethnobotanical studies made in the various parts of Swat include those of Haq and Rehman (1990), Haq and Ghani (1994), Hussain *et al.* (1995), Sher and Hussain (1998), Burq (1998), Zabiullah (2002), Murad (2004), Khan *et al.* (2003), Gilani *et al.* (2003), Sher *et al*, (2004, 2005) and Begum *et al*. (2005). The review indicates that no ethnobotanical study has ever been made on the plants of Shawar Valley. This paper therefore reports the ethnobotanical profile of some plants to bring on record the traditional knowledge and prepare an inventory of useful plants for the future workers involved for the conservation and improvement of this remote area.

MATERIALS AND METHODS

Ethnobotanical information, including local names and traditional uses of plants, was collected from local inhabitants through open-ended questionnaire. Plant specimen were collected, dried, preserved and identified with the help of Flora of Pakistan (Nasir and Ali, 1971–1995; Ali and Qaiser, 1995–2004). The identification was further confirmed at herbaria of Peshawar University, National Herbarium NARC Islamabad and Quaid-e-Azam University, Islamabad. Plants were classified into their respective families and according to their local uses.

RESULTS AND DISCUSSION

The local community uses 121 species (Table 1) for various purposes. The major utility appears to be the use of medicinal species in local health care system. There are 65 (53.7%) species being used for curing various ailments

ranging from nutrition to curing complex diseases such as diabetes, cancer, gastrointestinal disorders and skin diseases etc. These plants are used either as single crud drug or in combination with other plants for treating single or many diseases. Women, children and shepherds, called Gujars, mostly collect plants in the open grazing land and forests. The collected plants are not only used for personal health care but also sold to local drug dealers. Similar use of medicinal plants has also been reported from other parts of Swat and our findings agree with them (Hussain *et al.*, 1995; Sher and Hussain, 1998; Sher *et al.*, 2004; Begum *et al.*, 2005). The time of collection, parts collected and storage is done in unscientific way that not only damages the medicinal plant resources but also lowers the quality of the collected material. The locals need education in the collection, preservation and processing of drug plants. It was observed that reliance on medicinal plants has been decreased over the years because of improved health facilities, education and communication in the area. It was obvious that elderly persons (age above 60 years) are still familiar with the uses of medicinal plants but young generation (less than 30 years) is unaware of such benefits. *Ajuga bracteosa, Acorus calamus, Thymus linearis, Berberis lycium, Pistacia integerrima, Alium cepa, Plantago major* and *Mentha spicata, M. longifolia* etc. are the most common medicinal plants with multiple uses.

The valley has agriculture and livestock-based economy. The locals identified 52 plant species (43%) used as a low to high quality fodder. Whole plants such as herbs and grasses or tender shoots or leaves of shrubs and trees are used as fodder. Due to lack of grazing management system, the animals freely graze to the extent of over grazing that has severely reduced the carrying capacity of these pastures. Fodder species found in this valley are similar to the species reported as fodder plants from other adjacent parts of Swat (Hussain *et al*., 1995; Sher *et al*., 2004, 2005; Begum *et al.*, 2005).

There are 11 (9%) vegetable species including six wild vegetables. The cultivated species include potatoes, tomatoes, peas and chilies etc. There are three cultivated cereal crops and three pulse species (*Vigna* sp.) There are wide differences in climate of this valley and plains of Pakistan. Opposed to the hot summers in the plains, it is cool spring like climate in the Shawar valley at the same time. This permits the cultivation of off-season vegetables and their marketing to other part of the country. However, improved varieties of traditional and novel vegetables such as asparagus, broccoli and celery etc. be provided for commercial cultivation.

Shawar Valley, like other parts of Swat, is famous for fruit plants. Most people of the valley earn livelihood directly or indirectly from fruit crops. There are eight cultivated and eleven wild fruit plants. The cultivated species include four major cash fruit corps: apples, persimmons, peaches and pears that annually produce 82,500, 2,90,192, 17,348 and 10412 boxes, respectively. Total annual income of the valley from these fruits is approximately Rs. 41.00 millions. It is stressed that new disease free and resistant better yielding improved varieties be provided for enhanced productivity. Although locals are well versed with the marketing of their fruits, yet they need modernization in agronomic practices especially while using agrochemical, storing, grading, packing and marketing their produce. The value added product will be more profiting. Eleven species including *Rubus, Pyrus pashia, Podophyllum, Vibernum, Crataegus, Ficus, Morus* and *Juglans regia* have been identified as wild fruits. Fruit plants are also source of nectar for honeybees, firewood and fodder.

The people completely depend on forest resources for fuel wood due to lack of alternate source of energy and increasing demand for it. In snowbound winters there is intense need of heating living rooms and livestock sheds. Thus, fire wood need is met through 31 species (25.6%) including trees like *Pinus wallichiana, Morus indica, M. nigra, Platanus orientalis, Melia azedarach, Quercus incana, Q. dilatata, Q. baloot, Ailanthus altissima*, *Olea ferruginea, Celtis australis* and many shrubs and pruned parts of cultivated trees. Oaks and olives are preferred fuel woods as they have more heat value and produce less smoke. The wood fetches higher price in the plains of Pakistan. Oak and olive forests have almost been eliminated owing to over harvest and this agrees with other workers who reported similar situation in Swat (Beg and Khan, 1980,1984; Hussain *et al.*, 1995; Khan *et al.*, 2003). The preference of fuel wood decreases in the order of *Quercus, Olea, Morus, Melia, Parrotiopsis, Aesculus, Taxus, Abies* and *Pinus* in the area. Many other studies (Khan *et al*., 2003; Begum *et al*., 2005; Murad, 2004; Sher *et al*., 2004, 2005) have also indicated that deforestation of woody species has destroyed the over all forest ecosystem and hampered the regeneration of useful species. There is an urgent need to provide an alternate source of energy to reduce the fuel wood pressure on forest resources.

Swat is famous for honey production. In Shawar Valley honeybees gather honey and pollen from 30 (24.8%) species of plants. The quality and thus selling prices depend upon the collector bee species and honey host plants. Honey collected by *Apis feroria* in wild is the best and most costly; while honey prepared by *Apis indica* and *A.mellifera* from *Ziziphus* sp. comes next in quality and price. The colour of honey may vary from whitish to pale yellow, reddish and dark reddish depending upon the flowering season of most dominant plant species. Apiculture is a traditional cottage industry in the area.

There are 16 (13.2%) timber wood species including *Pinus wallichiana, Morus indica, M. nigra, Platanus orientalis, M. azedarach, Quercus incana, Q. dilatata, Q. baloot, Ailanthus altissima* and willows. *P. wallichiana* is

the second best timber wood in Pakistan. The over harvest has led to its low regeneration and decreased population, which needs timely management. Some of the same species are used as timber wood in other parts of Swat (Hussain *et al*., 1995; Sher *et al*., 2004, 2005; Khan *et al*., 2003; Murad, 2004; Begum *et al*., 2005). Nine species including *Juglans regia, P. wallichiana, M. azedarach, Morus indica, M. alba,* and *P. orientalis* etc are preferred for making furniture. Among them furniture made from *P. wallichiana* and *J. regia* fetches the highest price due to its quality. Walnut wood is the best for carving work. It used to be wild in the past but now it survives only as cultivated and protected plant. It has many other multiple uses that has made it more vulnerable species and could be rarely sighted in wild.

Table 1. Local uses of some plants in Shawar valley, district Swat.

S. No	Botanical Name (Family)	Local Name	Medicinal uses and other miscellaneous uses
1	*Abies pindrow* Royle	Achar	Timber, furniture wood, bridges, beams and fuel wood.
2	*Acorus calamus* L.	Skhawaja	Emetic, stomachic, cure for dyspepsia, colic and antidote for snakebite.
3	*Adiantum capillus-veneris L*	Sumbal	Used as demulcent, expectorant, diuretic and tonic. Ornamental.
4	*Adiantum incisum* Forssk	Sumbal	Leaves used for treating skin diseases, diabetes, cough and fever. Ornamental.
5	*Aesculus indica* (Wall ex Cambl) HKf.	Jawaz	Fruits are used for treating colic pain in cattle and horses, oil is applied externally to cure rheumatism. Low quality timber wood, branches firewood. Visited by honey bees
6	*Ailanthus altissima* (Mill) Swingle	Asela Shandai	Anthelmintic, dysentery, Timber wood, used as fences and fodder. Visited by honey bees.
7	*Ajuga bracteosa* Wall ex Benth.	Khwaga Butai	Bitter, astringent, aromatic, tonic, hypertension, throat sore, blood purifier, colic and jaundice. Fish poison,
8	*Ajuga parviflora* Bth.	Tarkha butai	Bitter, astringent, aromatic, tonic, hypertension, throat sore, blood purifier, colic and jaundice. Fish poison.
9	*Amaranthus caudatus* L.	Chalwaii	Diuretic, blood purifier and antispasmodic. Potherb.
10	*Arisaema jacquemontii* Blume.	Marjarai	Used for tracing bears, poisonous, used for ghee extraction
11	*Artimisia maritime* L.	Tartha	Flowers antihelmentic. Fodder.
12	*Asparagus officinale* L.	Tendorai	Young tender shoot used as vegetable.
13	*Atropa acuminata* Royle ex Lindl	Bargag	Poisonous, leaves are narcotic, sedative, diuretic and anodyne.
14	*Avena sativa* L.	Jamdar	Seed are nerve tonic, stimulant and laxative. Fodder.
15	*Berberis lycium* Royle.	Kwaray	Roots and stem bark used for curing jaundice, chronic ulcer, body coolant, coolness, and as sexual tonic. Used as fencing and firewood. Visited by honey bees.
16	*Bergenia ciliata* (Haw) Sternb	Kamerpana	Tonic and used for curing muscular pains. Low quality fodder.
17	*Bromus japonicus* Thumb ex Murr	Jokai	Fodder.
18	*Buxus wallichiana* Baill	Shamshad	Fire wood.
19	*Calendula arvensis* L.	Zailgulae	Flower stimulant, antispasmodic; leaves astringent, flowers and shoot are used to treat wounds, injuries.
20	*Caltha palustris* L.	Makanpath	Said to be medicinal.
21	*Canabis sativa* L.	Bang	Narcotic, stimulant.
22	*Capsicum annuum L*	Marchakae	Cultivated vegetable.
23	*Capsell bursa-pastoris* (L) Medic	Bambisa	Fodder.
24	*Cedrela serrata* Royle	Skhanwona	Fire wood
25	*Celtis australis* L	Tagha	Timber and fire wood.
26	*Chenopodium album* L	Sarmai	Fodder.
27	*Chrysopogon aucheri* (Boiss) Stapf.	Sin wakha	Fodder
28	*Coriandrum sativum* L.	Dhanya	Fruit is carminative, diuretic, stimulant, aromatic antbilious and aphrodisiac. Vegetable, spice.
29	*Corydalis diphylla* Wall	Mamera	Curic for Opthalmic disease.
30	*Corydalis stewarii* Fedde	Mamera	Curic for Opthalmic disease.
31	*Cotoneaster numumularia* Fish and May	Kharawa	Used for making stick, fences, fodder and snuff ash. Visited by honey bees.
32	*Cratagaegus oxycantha* Hk.f	Tampasa	Fruit used as cardiac tonic. Fire wood. Visited by honey bees.
33	*Cuscuta reflexa* Roxb	Jamaldarai	Insecticide and antilice agent. Fodder.
34	*Cynodon dactylon* L.	Kabal	Forage and soil binder.
35	*Daphne oleoides* Royle.	Laighoni	Medicinal. Fruits are narcotic. Fuel wood.

36	*Datura metel* L.	Harhanda	Used for curing fever, catarrhoea, diarrhea, skin disease and narcotic. Poisonous.
37	*Datura stamonium* L.	Harhanda	Same as *D. metel*
38	*Dicliptera roxburghiana* Nees	Marchak burai	Fodder.
39	*Dioscorea deltoidea* Wall	Qains	Rhizome used as antilice, fish poison and armifuge.
40	*Diospyrus kaki* L.	Asel amlok	Fruits commercially sold as a cash crop. Branches used as fire wood. Visited by honey bees.
41	*Diospyrus lotus* L.	Tor amlok	Fruit is used in gastric problems. Wood used for shuttles, buts of guns and construction beds. Fire wood. Visited by honey bees.
42	*Elaeagus anustifolia* Thumb	Ghanum rangai	Fruits edible. Fire wood. Leaves fodder. Visited by honey bees.
43	*Euphorbia helioscopia* L.	Mandanoo	Latex when comes in contact with body parts causes swelling. Poisonous. Weed.
44	*Equisetum arvense* L.	Bandakae	Used as a hair tonic.
45	*Ficus palmata* Forssk.	Enzer	Fruits edible, antispasmodic. Fruits edible, antispasmodic. Holy tree.
46	*Fragaria indica* Andrews	Zmakae toot	Fruits edible and carminative. Fodder. Visited by honeybees.
47	*Fragaria vasica*	Zmakae toot	Same as *F. indica*
48	*Geranium collinum* Stapf.	Srazela	Used for curing jaundice, fever, cough and tonic. Fodder. Visited by honey bees.
49	*Hedra helix* L.	Zalyae, Prewathi	Leaf extract used for curing diabetes.
50	*Hordeum vulgare* L	Warbasha	Cultivated as cereal crop and fodder.
51	*Hypericum perforatum* L.	Shen chap	Used as astringent, anthalminitic and diuretic. Visited by honey bees.
52	*Indigofera gerardiana* Wall.	Ghwareje	Extract from stems used for curing human fungal disease, skin ailments. Fire wood. Fodder. Visited by honey bees.
53	*Iris hookeriana* Foster		Ornamnental.
54	*Jasminum humile* L	Ziar Rambel	Fodder. Visited by Honey bees. Girls are name after it as Yasmin etc.
55	*Jasminum officinale* L	Spin Rambel.	Same as *J. humile*.
56	*Juglans regia* L.	Ghuz	Walnuts are brain and health tonic. Best furniture wood, easy to carve. Bark called dandasa is used as teeth cleaner, cosmetics, antimicrobial.
57	*Lathyrus aphaca* L	Kurkamani	Fodder.
58	*Lathyrus sativa* L	Ghta chilo	Fodder.
59	*Lathyrus pratense* L	Zail chilo	Fodder.
60	*Lycopersicon esculentum* Miller.	Tamater	Cultivated vegetable for commercial purpose and domestic use.
61	*Malus pumila* Mill.	Seb, manre	Fruit heart and brain tonic. Cash crop. Visited by honey bees.
62	*Malva neglecta* Waller	Paneraik	Potherb and ant-spasmodic.
63	*Melia azedarach* L.	Kamasala shandai	Timber, furniture and fire wood. Fodder. Visited by honey bees.
64	*Mentha longifolia* L.	Vanaly	Cure for diarrhea and gastric problems. stimulant, antiseptic.
65	*Mentha spicata* L.	Podina	Same as *M. longifolia*.
66	*Morus indica* L.	Spin Toot	Fruit edible, laxative, timber, furniture and fuel wood.
67	*Morus nigra* L.	Tor toot	Same as *M. indica.*
68	*Nasturtium officinale* R.Br.	Talmera	laxative. Potherb.
69	*Olea ferruginea* Royle (L.) Pers ex Fr.	Khuna	Fruits edible, oil is aromatic, leaves fodder. fuel wood, used in making agricultural tools.
70	*Paeonia emodi* Wall.	Mamikh	Cure for diarrhea, dropsy, epilepsy and colic pains. Seeds emetic, cathartic, blood purifier.
71	*Parrotiopsis jacquemontii* (Dcne) Rehder.	Bairaji	Fodder and fir wood.
72	*Pinus wallichiana* A.B. Jackson.	Sarp	Best timber wood, furniture wood, branches firewood.
73	*Pisum sativum* L.	Matar	Cultivated vegetable. Visited by honey bees.
74	*Pistacia integerrima* Stewart	Shani	Tonic, antiseptic, bark powder is used for healing chronic wounds; fruits extract is a cure for Jaundice. Fire wood.
75	*Plantago lanceolata* L.	Jabai	Seeds are used with sugar as a purgative; leaves are applied on sore wounds and inflamed surfaces. Fodder.
76	*Plantago major* L.	Ghata Jabai	Leaves applied to bruises, astringent, seed are tonic, stimulant and used in dysentery. Fodder.
77	*Plantago ovata* Forssk	Jabai	Similar to *P. lanceolata.*
78	*Platanus orientalis* L.	Chinar	Timber, furniture and firewood.
79	*Plectranthus rugosus* Wall ex Benth	Sparkay, Brutus	Antiseptic, cures teeth ache. Thatching material, visited by honey bees.
80	*Podophyllum emodi* Wall	Kakora	Hepatic stimulant, purgative, tonic and said to be anticancer.
81	*Populus sp.*	Spardar	Timber, furniture and fire wood. Leaves fodder.

82	*Polygonum aviculare* L.	Palpolak	Roots tonic, demulcent, astringent, and cure for female weakness, and fish poisoning.
83	*Portulaca oleracea* L.	Warkharae	Refrigerants, used to cure liver, kidney and liver problems. Seeds are demulcent, diuretic and wormifuge
84	*Prunis armeniaca* L.	Khobanai, Khurmanre	Fruits health tonic, laxative. Branches fire wood, leaves fodder. Cash crop. Visited by honey bees.
85	*Prunis avium* L.	Cherry	Cultivated as cash fruit crop. Visited by honey bees.
86	*Prunis domestica* L.	Alucha	Fruit medicinal and commercially sold. Visited by honey bees.
87	*Prunis persica* (L) Batsch	Shaltalu	Fruit health tonic. Cash fruit crop. Leave fodder. Branches fire wood. Visited by honey bees.
88	*Pteridium equilinum* (L) Khun	Kwanjai	Tender unfolded fronds used as pot herb. Fodder.
89	*Pyrus cummunis* L.	Nashpatai	Cultivated cash fruit crop. Fruits health tonic, laxative. Branches used as fire wood. Leaves as fodder. Visited by honey bees.
90	*Pyrus pashia* Ham ex D. Don.	Tangai	Wild or cultivated cash fruit crop. Fruit laxative, tonic. Visited by honey bees.
91	*Quercus baloot* Royle	Sarai	Timber wood, firewood, fodder, used in making agricultural tools.
92	*Quercus dilatata* Royle	Spin bunj	Timber wood, firewood, fodder, used in making agricultural tools.
93	*Quercus incana* Royle	Banj	Timber wood, firewood, fodder, used in making agricultural tools.
94	*Rubus fruticosus* Hkf	Karwara	Fruits edible used in making hedges, and as a fodder. Visited by honey bees.
95	*Rubus ulmifolius* Schot	Goraja	Fruits edible used in making hedges, and as a fodder. Visited by honey bees.
96	*Rumex acetosa* L.	Tarokay	Leaves are diuretic, refrigerant and used as cooling agent. Fodder.
97	*Rumux dentatus* L.	Shalkhae	Leaves are diuretic, refrigerant and used as cooling agent. Fodder.
98	*Salix babylionica* L.	Wula	Timber and fire wood. Leaves fodder.
99	*Salix tetrasperma* Roxb.	Asela wula	Timber and fire wood. Leaves fodder.
100	*Sarcococca saligna* (Don) Duell.	Ladanr	Leaves are heated in mustered oil and applied to curec muscular pains. Fire wood.
101	*Skimmia laureola* (DC) Steb and Zace Ex Wall.	Nazrpanra	Leaves are used for treating smallpox, powdered leaves used for curing stomachache. Smokes from burning leaves are used to purify air and repel evils.
102	*Solanum nigrum* L.	Karmacho	Used for curing hepatitis, soar throat. Vegetable.
103	*Solanum tuberosum* L.	Alu	Cultivated as cash crop and for domestic use.
104	*Sonchus asper* L.	Shodapai	Low quality fodder.
105	*Sorbaria tomentosa* (Lind.) Rehder.	Jejari	Fire wood.
106	*Sorghum halepense* (L.) Pers	Dadam	Fodder but poisonous during the months of June, July for cattle.
107	*Taraxacum officinale* Weber	Ziargulae	Low quality fodder.
108	*Taxus wallichiana* L.	Banya	Leaves, bark and fruits are used as anti-cancer, grave covering because of hard reddish wood and insecticidal property. Fire wood.
109	*Trifolium repense* L.	Shautal	Cultivated for fodder. Visited by honey bees.
110	*Triticum aestivum* L.	Ghanum	Cultivated as a staple food. Fodder.
111	*Thymus linearis* L.	Deghare sparkai	Used as herbal tea. Fodder. Visited by honey bees.
112	*Ulmus wallichiana* Planch	Kahae	Fire wood.
113	*Valeriana jatamansi* Jones	Shangatai	Said to be medicinal.
114	*Utrica dioica* L.	Sezonkae, Galbang	Used as astringent, causes irritation on contact with body.
115	*Vigna mungo* (L.) Hepper	Mai	Cultivated pulse.
116	*Vigna radiata* (L.)Wilczek.	Mahae	Cultivated pulse.
117	*Vigna unguiculata* (L.) Walp	Lobya	Cultivated pulse.
118	*Verbascum thapsus* L.	Khar dug	Seeds are aphrodisiac, narcotic. used as fish poisons.
119	*Viola serpens Wall*	Banafsha	Used as diaphoretic, antipyretic and febrifuge. Fodder.
120	*Zea mays* L.	Juwar	Cultivated as cereal crop. Fodder.
121	*Zizyphus sativa* Gaertn.	Markhanre	Considered as anti-diabetes. Timber and fire wood, fruits edible leaves are fodder. Visited by honey bees.

Farm implements are commonly made from *Quercus dilatata, Q. incana, Q. baloot, Olea ferruginea* and *Celtis australis*. They need conservation owing to their slow growth and regeneration. It is interesting to see that locals use *Cuscuta reflexa* and *Dioscorea deltoidea* as antilice agents. *Acorus calamus* was used as antidote for snakebites. Three species are as fish poisoning for fishing. The use of plant or their extracts is friendlier to mankind than chemicals, which may have side effects and costly to purchase. This study suggests that plants identified as fish poisons, antilice, antidiabetic, antidote for snakebites and for treating fungal diseases be ecologically and

therapeutically studied in detail for commercialization. This will not only help to improve the economy of locals but also provide herbal-based environment friendly health care drugs to modern society.

Most plants had multiple uses such as that of *Aesculus indica* whose seeds are locally used as vermifuge and anthelmintic, shoots as fodder, branches as fire wood, fences, its bark is used for "Sakht" (psycho-spiritual ramidy) writing, its wood is used for making agricultural tools and variety of house hold utensils. Similarly, edible acorns of *Quercus* are delicious, leaves are fodder, wood is preferred for making agricultural implements, especially plough, is a good fuel wood, its ash is ideal for snuff preparations. Walnuts are edible, serve as brain and sexual tonic, leaves and bark are used for cleaning teeth and for dying cloth. Catkins (flowers) are used as antiseptic and for curing anti fungal disease. Its wood is used for making carved furniture. Plants with multi major uses, such as timber, fire and furniture wood, medicinal and fodder, suffer the most. Ecologically speaking the valley is suffering from environmental problems that can be checked by proper management. The can be achieved through participation of the local community and by providing them alternate source of energy, better breed of livestock to reduce the herd size, better varieties of fruits and vegetables, improved health and marketing facilities and by creating ecological awareness. Further study is needed to identify candidate medicinal species for commercialization and selection of hot spot area for conservation.

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