

INDIGENOUS USES OF THE PLANTS OF MALAKAND VALLEY, DISTRICT DIR (LOWER), KHYBER PAKHTUNKHWA, PAKISTAN

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ABSTRACT

The study was carried out to collect and document the indigenous knowledge of the local community about the plants of Malakand valley, district Dir (Lower), Khyber Pakhtunkhwa, Pakistan. Ethno-medicinal knowledge was obtained by using semi-structured questionnaire. A total of 200 local inhabitants were found utilizing 52 plants of 37 families for various ethnobotanical purposes, notably as timber wood, fodder and forage for cattle, condiments, for shade, usage in construction and agricultural tools etc. Whole plant was mostly used for ethno-medicinal potentials followed by leaves. The common treated ailments in the study area were stomach, intestinal, chest and diabetes. It was confirmed that deforestation and overgrazing are the main causes for loss of plant wealth. Urgent measures such as NAGHA SYSTEM (Control of grazing and deforestation by local community for a specific time) is required to conserve the plants in the study area.

Key words: Malakand valley, Indigenous knowledge, human ailments, deforestation, overgrazing.

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INTRODUCTION

Malakand valley is a beautiful, amazing and scenic place, positioned in the middle of high peaks and lush green mountains. It is situated towards North-West from the district head quarter Timergara, Dir (L). Generally it stretches from River Punjkora to a high peak mountain called Mohan Mountain. The Mohan Mountain is named after a Hindu name the Mona. Its length is about seven miles while in width

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it ranges from 2 to 3 miles. The total covered area of the valley is about twelve square miles. Its elevation is about 7,630 feet from sea level while in River Punjkora its elevation reduces to 2,700 feet only. It is encircled from all three sides by a chain of mountains while into fourth side the village Andheri is situated at the bank of River Punjkora (Zakir, 1999). The surrounding mountains look like a wall of fort, hence providing marvelous scenery of the valley. It is an area of varied climate. The winter is severe cold, characterized by snow fall on the hilly regions and dry wind along river Punjkora in the lower plain. Summer is moderate as compared to other parts of district. December and January are the coldest months while June and July are considered the hottest months. The inhabitants of the area mostly depend upon agriculture for earning their livelihood. However, agricultural products do not meet their basic needs. Therefore, the people have to adopt alternative sources for their survival and existence. It is estimated that about 40 % of the local people are still dependent on plants resources (Zakir, 1999).

Pakistan has a very rich flora due to the variety of climatic zones, landscapes and multiple ecological regions (Haq *et al.*, 2010). It has been estimated that about 10% of the total reported vascular plant species in Pakistan are medicinally used (Shinwari, 2010) and reported as endangered due to population pressure, poverty and excessive use of the natural resource-base (Shinwari *et al.*, 2002 and Shinwari, 2010). A lot of ethno-botanical work has been carried out in the nearby regions of the research site. Shinwari *et al.* (2003a; 2003b), Begum *et al.* (2005), Ibrar *et al.* (2007), Hussain *et al.* (2005a), Hussain *et al.* (2005b), Sher and Hussain (2009) Ali *et al.* (2011) worked on the ethnobotanical studies in various parts of Malakand division. Ali and Qaisar (2009) documented the indigenous knowledge of medicinal plants from Chitral. Manan *et al.* (2007) conducted an ethnobotanical survey of Wari Sub-division Dir (U) with main emphases on the indigenous uses of the local plants.

As stated previously that numerous ethnobotanists have described the ethnomedicinal uses of plants from different parts of Pakistan Malakand valley is still unexplored ethno botanically. The major objective of the present research work was to collect, document and compile diverse traditional information of century's experienced therapeutic uses of medicinal plants of the Malakand valley, district Dir (L) KP, Pakistan before the ethno-medicinal wealth is lost forever. Secondly the present study will provide a base for future phytochemical and pharmacological studies.

MATERIALS AND METHODS

The research work was conducted by frequently surveying the study area in winter, spring and summer during 2010 to 2011. Ethno-medicinal knowledge was obtained by using semi-structured questionnaire. Information about the local uses of the plants was obtained through random sampling by interviewing 200 persons from different walks of life and different age groups. Ethno-medicinal values of those plants were recorded which were repeated at least by 3 persons in the research. For a cross verification, priority was given to local experience people and herbal practitioners (Hakims) of the area. Questionnaire was composed of different ethnobotanical questions i.e. local name of plant, medicinal and other uses of plants, part used for the treatment of human ailments, route of administration of the plant recipes, most commonly used plants by large number of people. The data regarding life form of the plants were gathered by searching online literature. Plant specimens were collected, dried and identified with the help of locally available authentic taxonomic literature (Nasir and Ali, 1978-2007). The voucher specimens were deposited in the Herbarium, Department of Botany, Kohat University of Science and Technology, Pakistan.

Questionnaire for Ethnobotanical Survey

1. Informant Information

Sheet No..... Dated

Site/village Hilly/plane

Name Age

Educational level Gender

Locality Occupation

2. Information regarding Plant Specimen

Local Name Habit

Scientific Name Status

Flowering period Locality

Species status Fruiting period

Which part is collected..... Who collected.....

Exact time for harvesting.....

Season of the year in which the plant were collected

Folk uses

3. Ethno-medicinal Uses

Disease's name Which part is used.....

How much time the plant was used

How the drug was prepared.....

How used.....

Other observations

Livestock use

Live stock disease treated

4. Proforma for other uses

Plant Used/ Purpose	Local Name	Botanical Name	Part Used	How and When Consumed
Construction				
Agriculture Tools				
Medicinal Usage				
Fodder				
Fuel Wood				
Economic plants				

RESULTS AND DISCUSSION

During ethnobotanical survey a total of 52 plant species belonging to 38 families were documented. Out of 52 plant species 41 (78%) were reported to have medicinal uses followed by fifteen (28%) fodder species, eleven (21%) fruiting species and ten (19%) fuel wood species (Table-1). Whole plant (43%) was used more frequently for ethnobotanical purposes followed by leaves (20%) were the second most part mostly used by the inhabitants of the region (Figure 1). Most of the medicinal plant recipes were taken orally in the study area followed by dermal (Figure 2). Regarding the life form of the reported medicinal plants by the respondents; the study showed that trees (41%) were found to be the mostly used plants (Figure 3) followed by herbs (38%). Variety of human ailments were treated by the traditional healers like intestinal, stomach problems, chest related etc. Majority of the medicinal plants were found to treat more than one ailment (Table-2). Most of the species like *Quercus baloot*, *Quercus dilatata*, *Pinus roxburgii*, *Olea ferruginea* were overexploited in the study area for multiple ethnobotanical uses.

The study region is rich in medicinal plant as shown in table 2. Results have also proved the role played the traditional plants for improving the livelihood by providing variety of ethnobotanical uses like medicinal, fodder, fuel wood, edible fruits, ethnoveterinary, condiments and construction purposes. Our record shows an analogy to the research work of Shinwari and Shah (1996) who conducted the ethnobotanical study of 171 plant species of Kharan district, Baluchistan use for variety of ethnobotanical purposes.

The natives of the region mostly use trees and herbs for ethnobotanical uses. The high proportion of woody plants in our survey is likely associated to the ability of trees to withstand long dry seasons, thus resulting in their abundance and year round availability in arid and semi-arid areas. The use of woody plants for curing purposes, fuel wood and construction material requirement is also fulfill through harvesting the woody plants rather than herbs. This finding is

in line to the patterns seen in various medicinal plant inventories Chiekhyoussef *et al.*, 2011; Motlhanka and Nthoiwa, 2013 and Tolossa *et al.*, 2013). Mostly the herbs are used for medicinal purpose in the study region because informant affirmed that it takes much time and effort to harvest plant material from woody medicinal plants. This could also relate to the fact that they are easily accessible in the nearby areas than trees and shrubs. The trend of using more of herbaceous plants could be advantageous as it is easier to cultivate them when they are in short supply. The finding agrees with the general pattern of dominance of herbaceous species seen in most medicinal plant inventories in Pakistan and other countries (Murad *et al.*, 2011; Adnan *et al.*, 2011; Giday *et al.*, 2010 and Yinegar *et al.*, 2007).

It was noticed that various parts of the plants are used for different purposes. Mostly, the people harvest whole plant for ethnobotanical purposes. Harvesting the whole plant greatly damages the plant population and poses great threat to extinction of that plant species. Harvesting whole plant is an alarming signal against the sustainable use of this highly valued plant biodiversity. Our finding is in agreement with ethnobotanical study conducted in Naran valley, Pakistan by Khan *et al.* (2013). Leaves are being most frequently used in the study area. The highest use of leaves might be due to its relative ease of finding. The excessive use of leaves might shows the presence of medicinal properties but chemical screening is needed to explore these medicinal properties. The frequent use of leaves is also reported by some other ethnobotanists like Barkatullah and Ibrar (2011).

The results indicate that stomach, intestinal and chest diseases are very common in the area. Different plants are being used to treat such ailments by the traditional healers. Majority of the medicinal plants recorded have been found to cure more than one ailment like *Solanum nigrum* is used against stomach problems, chest problems, kidney stones and diabetes. *Zanthoxylum armatum* is also used to treat various problems like intestinal, stomach and chest problems. This may be because some plants contain many secondary metabolites which could have different pharmacological activities and consequently treat different diseases (Simbo, 2010). The use of plants to treat a large number of ailments may provide a key reason to pharmaceutical industries for further screen out these plants.. Most of the medicinal recipes are taken orally in the study area that might be due to use of alternate additives like milk, honey, flour etc that serve as a vector to transport the remedies. The use of such vectors also might be due to reducing the bitter taste of remedies and to decrease the chances of vomiting and to avoid discomfort. Same findings were also reported by

Tolossa et al. (2013) that oral route is the most preferred mode of administration of plant remedies.

The flora of the region is facing multiple threats like overgrazing, overexploitation and fuel wood collection. The inhabitants of the valley are poor and mainly involve in rearing of live stock for their personal needs. Cattle, sheep and goats are the main grazers in the surrounding hills or the plants are collected by the local inhabitants and then used as fodder. The grazing of animals is causing great damage to the local medicinal plants of the region. The most common fodder plants include *Boerhaavia procumbense*, *Broussonetia papyrifera*, *Olea ferruginea*, *Quercus baloot*, *Melia azedarach* and *Grewia optiva*. Due to lack of modern fuel resources the local people unwillingly overharvesting the fuel woody species to fulfill their daily requirement without any knowledge of their extinction. It was observed that the fuel wood pressure was immeasurably increased in winter due to low temperature. The people of the region also collect woody species for the construction of house floors and furniture construction as well to compensate their income.

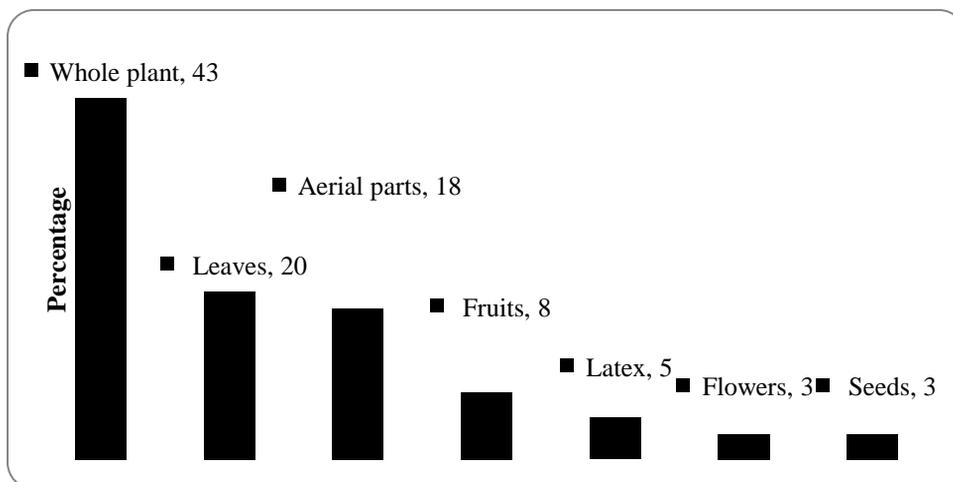
The local people utilized 14 species as fuel like *Quercus baloot*, *Dodonaea viscosa*, *Olea ferruginea*, *Quercus dilatata*, *Broussonetia papyrifera* etc. Correspondingly, the results of Khan et al. (2003) and Ibrar et al. (2007) are also lined with our mentioned findings. The study area is naturally gifted with a wealth of ethnobotanically important plants. The people of the area use variety of medicinal plants for the treatment of different ailments. The area lacks the basic facilities of gas, coal and hospitals. They depend on the local plants to fulfill their basic needs. The local inhabitants collect the local plants without knowing their proper time and method of collection, preservation and storage. They use of the plants for their basic needs including medicinal purposes. Careless and unscientific collection, preservation, overgrazing and deforestation may contribute to the extinction of the plant wealth from the study area. The plants such as *Quercus baloot*, *Quercus dilatata*, *Pinus roxburgii*, *Olea ferruginea* are extensively exploited by the local people for their various ethnobotanical uses that lead to the population decrease of these plants. It was sketched out that conservation strategy is needed to protect the nearby forests from becoming extinct forever. Strategies may include ban on overgrazing or it may be minimized to limited extent so as to provide a chance for the survival and existence of herbaceous plants. Reduction in cutting of forests may increase the conservation of local flora. Awareness programs including importance of plants on local basis may prove as valuable strategy for the conservation of local plants and forests.

ACKNOWLEDGEMENT

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Table-1. Different ethnobotanical class with species number and percentage

S. No.	Different ethnobotanical classes	No. of species	Percentage
01.	Ethnomedicinal plant species	41	78.78
02.	Ethnoveterinary plant species	02	03.84
01.	Fodder plant species	15	28.84
02.	Fruiting plant species	11	21.15
03.	Fuel plant species	10	19.23
04.	Condiments and spices species	04	07.69
05.	Flavouring agents species	03	05.76
06.	Fencing and hedges species	03	05.76
07.	Furniture making species	09	17.30
08.	Building construction species	07	13.46
09.	Baskets making species	02	03.84
10.	Poisonous species	01	01.92

**Figure 1.** Percentage of Plant parts used

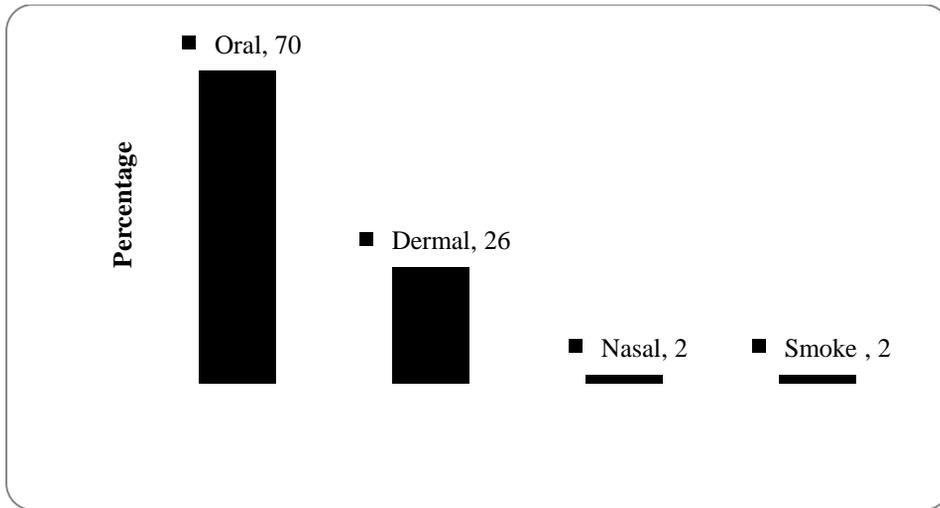


Figure 2. Route of administration of medicinal plants

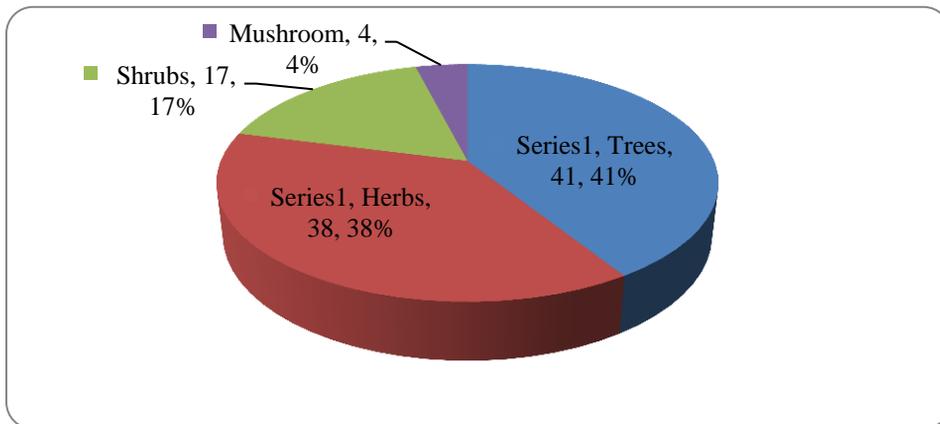


Figure 3. Habit of medicinal plants

Table 2. Ethnobotanical Uses of Medicinal Plants in Malakand Valley, Dir (Lower), KP, Pakistan

S.No.	Botanical Name	Local name	Family	Part Used	Ethnobotanical Uses
1.	<i>Agaricus compestris</i> L.	Kharairhy	Agaricaceae	Whole plant	Ascocarp is edible and used as a body tonic.
2.	<i>Ailanthus altissima</i> (Mill) Swingle	Shunday	Simaroubaceae	Whole plant	Massively used for timber and fuel purposes. Leaves are fresh fodder for cattle. Gum resin when mixed with milk is used against dysentery. Wood is used in construction and for low grade furniture purposes.
3.	<i>Ajuga bracteosa</i> Wall. ex. Benth	Gotty	Lamiaceae	Whole plant	Aqueous extracts of the leaves is used as depurative (blood purifier). Locally leaves are masticated in mouth and the resultant extracts is engulfed which restores the sour throat. The extract obtained after grinding leaves is used for lowering blood glucose level and to prevent jaundice. Also used as carminative and body coolant. Leaves decoction is useful for the suppression of infant's colic.
4.	<i>Berberis lycium</i> Royle	Kawaray	Berberidaceae	Whole plant	The root decoction is used to cure jaundice and stomachache, expectorant, diuretic and as a refrigerant. Fruit are edible. Wood is used for burning and hedging purposes.
5.	<i>Boerhaavia procumbense</i> L.	Insut	Nyctaginaceae	Whole plant	Used as a nutritive fodder and rarely used as Sag.
6.	<i>Broussonetia papyrifera</i> Vent.	Mamotay	Moraceae	Aerial part	Used for fuel, fodder and shading purposes. A good contributor of mosquitoes owing to its massive shade (the causal agents of malaria).
7.	<i>Calotropis procera</i> R. Brown.	Spalamay	Asclepiadaceae	Latex	The latex is a valuable remedy for toothache. It is also used for the confiscation of warts when applied. If the plant particularly leaves are taken in excessive acting as a poison and may terminate someone life.
8.	<i>Cannabis sativa</i> L.	Bung	Cannabinaceae	Leaf/flower	The dried crushed leaves and flowers are used in narcotics.
9.	<i>Celtis caucasica</i> Willd.	Tagha	Ulmaceae	Whole plant	The shoots powder is applied on burned wounds for earlier treatment and recovery. Exceptionally used as furniture and fuel wood plant. Fresh leaves are nutritive food for cattle.

10.	<i>Chenopodium botrys</i> L.	Kharawa	Chenopodiaceae	Whole plant	The plant's decoction is used for the children as a coolant and to cure abdominal pain. A similar dose is used as antipyretic in eczema. The aqueous extract is used for infant's skin diseases.
11.	<i>Coriandrum sativum</i> L.	Dhanya	Apiaceae	Seed/leaves	Boiled seeds solution is used as anti-emetic and for cough. Leaves and seeds are used as condiment, stimulant and flavoring agent. Seeds decoction is used as digestive and colic.
12.	<i>Cuscuta reflexa</i> Roxb.	Machay	Cuscutaceae	Whole plant	The plant powder is mixed with oil and used against ring worm. The decoction is used as depurative while the infusion is used as anti-lice by women.
13.	<i>Cynodon dactylon</i> L.	Kabal	Poaceae	Whole plant	Immensely used for fodder purpose. In case of injuries the juice obtained after crushing the plant is used to prevent bleeding and as an astringent. Plant is grown in home-lawns for greenery and softness.
14.	<i>Datura stramonium</i> L.	Batora	Solanaceae	Leaf/seed	Seeds are used as narcotic while leaves extract is used for toothache and headache. Generally it is a poisonous plant.
15.	<i>Diospyrus lotus</i> L.	Amlok	Ebenaceae	Whole plant	Fruits are edible and eaten to suppress flatulence easily. It is used as a flavoring agent, carminative and laxative. The fruit are sold in the nearby market to earn handsome cash.
16.	<i>Dodonaea viscosa</i> (L.) Jacq.	Ghoraskary	Sapindaceae	Whole plant	Plant for fuel wood and making roofs. Young shoots are used in hedges. The crushed leaves are useful in wounds healing, and burns.
17.	<i>Eriobotrya japonica</i> (Thunb) Lindl.	Lokat	Rosaceae	Fruits/leaves	Fruits are edible. Leaves decoction is used to lower the blood glucose level (mostly by diabetes patients).
18.	<i>Eucalyptus lanceolatus</i> L.	Lachi	Myrtaceae	Aerial part	The powdered seeds are used to suppress cough. Wood is used for fuel purposes.
19.	<i>Euphorbia helioscopia</i> L.	Mandaro	Euphorbiaceae	None	On local basis it is considered a highly poisonous plant.
20.	<i>Ficus carica</i> L.	Inzar	Moraceae	Fruits/leaf/Latex	Fruits are edible. The milky whitish juice (latex) of young petiole is used for the easy removal of thorns/spines when pierced in the h body. Leaves are used for cleaning utensils due to their rough surface. The crushed leaves formula is used for treating measles, and bladder problems.

21.	<i>Ficus palmata</i> Forsk.	Inzar	Moraceae	Aerial part	The young shoots are warmed in fire and placed on knees to suppress the knees bone-ache. Fruits are edible. Latex of young petiole is used for the easy amputation of spines/thorns etc.
22.	<i>Foeniculum vulgare</i> Mill.	Kaga	Apiaceae	Aerial part	Seeds are masticated in mouth and ingested to treat the abdominal pain. The aerial part is used as carminative and in condiments. Leaves are diuretic and aromating agent.
23.	<i>Grewia optiva</i> Drum. ex Burret.	Pastawony	Tiliaceae	Bark/fruit/leaves	Boiled bark decoction is used as antipyretic. It is also used to treat Charmaikh (Pashto name of an ailment) in cows. Leaves are fodder for cattle. Fruits are edible.
24.	<i>Indigofera gerardiana</i> Wall ex Baker.	Ghoreja	Papilionaceae	Whole plant	Young shoots are used for the manufacturing of baskets. Shoots are too used to make roofs in mud-construction. May serve as a fodder for cattle.
25.	<i>Juglans regia</i> L.	Ghoz	Juglandaceae	Aerial part	Bark (locally called DANDASA) is used to spark teeth. Nuts are edible; they are mixed with honey and used as brain tonic. The wood is valuable in furniture manufacturing while leaves and bark are used as lipsticks.
26.	<i>Mallotus philippensis</i> (Lamk) Muell.	Kambela	Euphorbiaceae	Fruits/leaves	Paste of fresh leaves is used for wounds, cuts and bruises. Fruits fine powder is used to induce diarrhea in cattle so as to sufficiently eliminate the waste product and to gain body weight hence used as a health promoting agent for cattle.
27.	<i>Melia azedarach</i> L.	Torashunday	Meliaceae	Aerial part	Bark is used against diarrhea. The extract of leaves is used for the removal of hair-lice. Leaves are used as repellent of insects and pests. Leaves are kept in fruits to keep away the bees and other harmful bugs. The wood yields furniture and used in construction. Fresh leaves are used as fodder for cattle.
28.	<i>Mentha arvensis</i> L.	Podina	Lamiaceae	Leaves	Fresh leaves are carminative and used in chutneys as flavoring agent. Crushed leaves are mixed with yogurt and used against diarrhea as an anti-diarrheal, stomachach and as an anti-emetic.
29.	<i>Mentha longifolia</i> (L.) Huds.	Wenalay	Lamiaceae	Leaves	Leaves are used in gastric problems, stomachache. Immensely used as flavoring agent. Grinded leaves are mixed with mint and used cure diarrhea.

30.	<i>Micromeria biflora</i> (Buch-Ham.ex D.Don) Benth.	Shomakay	Lamiaceae	Whole plant	Used to eradicate the disagreeable odor of yogurt pots. The plant is boiled in the pot for some time and then washed with plenty of hot water.
31.	<i>Morchella esculenta</i> L.	Khosay	Helvelaceae	Whole plant	Used as body tonic and nutritive food.
32.	<i>Morus nigra</i> L.	Tor thoot	Moraceae	Aerial part	Yields furniture wood and wood for construction. Fresh leaves are used as fodder for cattle. Young shoots are used to manufacture baskets.
33.	<i>Myrtus communis</i> L.	Manu	Myrtaceae	Leaves/Fruit	Fruits edible. Smoke of dried leaves is spiritually considered as an obstacle against evil eyes. Leaves decoction anti-diarrheal & anti-emetic.
34.	<i>Nasturtium officinale</i> R. Br	Turmera	Brassicaceae	Whole plant	Cooked as a vegetable locally called sag, also used to relieve stomachache.
35.	<i>Ocimum basilicum</i> L.	Kashmaly	Lamiaceae	Leaves/flower	Fresh leaves and flowers are boiled in water and the resultant aqueous solution is used to cure cough. Flowers are stimulant, diuretic and demulcent. Locally grown as an ornamental plant.
36.	<i>Olea ferruginea</i> Royle.	Khona	Oleaceae	Whole plant	Leaves and bark are used against fever and to treat sore throat. Fresh leaves are fodder for cattle. Fruits are edible while wood is used valuable in construction, furniture, timber and fuel. It also yields ploughs, walking stick and other agriculture tools. It is considered a Holy plant.
37.	<i>Oxalis corniculata</i> L.	Tarookay	Oxalidaceae	Whole plant	Used for the cleaning of rusted vessels, used as flavoring agent, vegetable and against bleeding.
38.	<i>Periploca aphylla</i> Decne.	Barana	Asclepiadaceae	Whole plant	Stem's latex is used to remove dermal tumors while whole plant decoction is purgative.
39.	<i>Pinus roxburgii</i> Sargent.	Nakhtar	Pinaceae	Whole plant	The exudation (resin) is used externally for the removal of spots and warms. Leaves are used for abrupt swelling of the body. Leaves extract is used against scorpion bite. The plant is a good source for furniture and fuel purposes along with the usage in construction particularly in mud made houses.
40.	<i>Pistacia integerrima</i> J.L. Stewart ex Brand.	Shanay	Anacardiaceae	Whole plant	Fruits are edible. The mixture of crushed leaves, fruits and wood is a useful remedy for jaundice. The trunk has ectoparasites which may cause irritation in human body when someone strokes the plant. Plant used as fuel wood.

41.	<i>Platanus orientalis</i> L.	Chenar	Platanaceae	Aerial part	Wood is used for furniture and buildings purpose. Its shade is very breezy (due to high rate of transpiration) and during summer season local people like to set under its shade due to its coolness. Bark bandages are used for empyema swellings.
42.	<i>Punica granatum</i> L.	Anangora y	Punicaceae	Arial part	Fruit are edible. Fruit bark is diuretic, depurative and used to cure mouth ulcers. Seeds are used as condiments. The plant is locally used in hedging.
43.	<i>Quercus baloot</i> Griffith.	Zagwana	Fagaceae	Whole plant	Fruits are edible, either eaten roasted or unroasted mostly in winter's chilly nights. Eating of fruits is helpful to prevent involuntary urination in adults. Leaves are used as fodder. In some hilly parts the plant is immensely used for fuel purposes.
44.	<i>Quercus incana</i> Lindl.	Seray	Fagaceae	Whole plant	Leaves are fresh fodder for cattle. The plant is heavily used for fuel purposes. It also yields agriculture tools together with the usage in building construction.
45.	<i>Ricinus communis</i> L.	Herhanda	Euphorbiaceae	Seeds /leaves	Seeds are used for stomachache and in bowels problems. Seed oil is specifically used therapeutic for constipation. Leaves are emetic, narcotic and purgative. Excessive use of seeds/leaves may act like poison and even may cause death of the eaters.
46.	<i>Rumex hastatus</i> D. Don	Trokay	Polygonaceae	Aerial part	The aerial parts are used against bleeding. It is also used as a flavoring agent in sag recipes. Also used as carminative, purgative, diuretic and for stomach problem. It is a good fodder source for goats.
47.	<i>Saccharum bengalense</i> L.	Sharghas hy	Poaceae	Whole plant	Used for making baskets. Young shoots are used to make brooms and are placed at the top of huts for easy drainage of rain water.
48.	<i>Salix tetrasperma</i> Roxb.	Walla	Salicaceae	Whole plant	Used for fuel, furniture and for making cricket bats. Mostly it is planted at streams bank in order to retard water erosion.
49.	<i>Solanum nigrum</i> L.	Karmacho	Solanaceae	Whole plant	Used in diabetes, diarrhea, hypertension, stomach problems, flatulence, kidney stones, abrupt body swelling and used as expectorant.
50.	<i>Vicia sativa</i> L..	Merghayk hapa	Papilionaceae	Whole plant	Fruits are edible while the rest of plant is used as a vegetable and for fodder purposes.

51.	<i>Zanthoxylum armatum</i> DC	Dambara	Rutaceae	Aerial part	Dried fruit is used as spices. Fruit are used as stomachic carminative, and in toothache. Seeds are used as flavoring agent, tonic, in fever, cholera and to increase milk in cows. Branches are used as walking sticks and in the nearest past the sticks were immensely used in quarrelling.
52.	<i>Ziziphus sativa</i> Gaertn.	Markhana y	Rhamnaceae	Whole plant	Fruits are edible and used as a cooling agent. Leaves are used as anti-diabetic, generally masticated in mouth and the resultant extract is swallowed for the lowering of blood glucose level. The entire plant is used as fuel wood and locally used in making fencing and hedges around the farming fields. leaves are fresh fodder for cattle particularly goats and sheep

REFERENCES CITED

- Adnan, M., S. Begum., A. Latif., A.M. Tareen and L.J. Lee. 2012. Medicinal plants and their uses in selected temperate zones of Pakistani Hindukush-Himalaya. *J. Med. Pl. Res.* 6: 4113-4127.
- Ahmad, S., A. Ali., H. Beg., A. A. Dasti and Z. K. Shinwari. 2006. Ethnobotanical studies on some medicinal plants of Booni valley, District Chitral, Pakistan. *Pak. J. W. Sci. Res.* 12:183-190
- Ali, H., J. Sannai., H. Sher and A. Rashid. 2011. Ethnobotanical profile of some plant resources in Malam Jabba valley of Swat, Pakistan. *J. Med. Pl. Res.* 5: 4676-4687
- Ali, S. I and M. Qaiser.1995-2007. *Flora of Pakistan*. Karachi: Department of Botany, University of Karachi.
- Ali, Z., 2002. Morels: The growing gold of Hindu Kush Himalayas. M. Hussain and Co. Mingora swat pp: 13-21
- Barkatullah, M. Ibrar and F. Hussain. 2009. Ethnobotanical studies of plants of Charkotli Hills, Batkhela District, Malakand, Pakistan. *Frontier Biology China.* 4: 539-548.
- Begum, H., M. M. Jan and F. Hussain. 2005. Ethnobotanical study of some plants of Dheri julagram Malakand Agency. *Pak. Int. J. Bio. Biotech.* 2: 597-602
- Cheikhyousof, A., M. Shapi., K. Matengu and H.M. Ashekele. 2011. Ethnobotanical study of indigenous knowledge on medicinal plant use by traditional healers in Oshikoto region, Namibia. *J. Ethno. and Ethnomed.* 7:10.
- Choudhary, K., M. Singh and U. Pillai. 2008. Ethnobotanical Survey of Rajasthan. *American-Eurasian J. Bot.* 1: 38-45
- Duke, J. A and E. S. Ayensu. 1985. *Medicinal Plants of China*. Vols. I & II. Reference Publications Inc., 218 St. Clair River Drive, Algonac, Michigan 48001(USA), 704-705.
- Giday, M., Z. Asfaw and Z. Woldu. 2009. Medicinal plants of Meinit ethnic group of Ethiopia. An ethnobotanical study. *J. Ethnopharmacology.* 124:513-521.
- Goodman, S. M and A. Ghafoor. 1992. The ethnobotany of southern Balochistan, Pakistan with particular reference to medicinal plants. *Fieldiana.* 31: 154-166
- Haq, F., A. Habib., A. Mukhtar., A. Ishtiaq and Rahatullah. 2010. Species diversity of vascular plants of Nandiar Valley western Himalaya, Pakistan, *Pak. J. Bot.* 42: 213-229
- Hazrat, A., M. Nisar., J. Shah and S. Ahmad. 2011. Ethnobotanical study of some elite plants belonging to Dir, Kohistan Valley, Khyber Pakhtunkhwa, Pakistan. *Pak. J. Botany.* 43: 787-795
- Hussain, F., H. Sher., M. Ibrar and M.J. Durrani. 2005b. Ethnobotanical uses of plants of District Swat. *Pak. J. Plant Sci.* 11: 137-158

- Hussain, F., I. Iqbal and M. J. Durrani. 2005a. Ethnobotany of Ghalegay, district Swat, Pakistan. *Acta Botanica Yunanica*. 28: 305-314
- Ibrar, M., F. Hussain and S. Amir. (2007). Ethnobotanical studies on plant resources of Ranyal Hills, District Shangla, Pakistan. *Pak. J. Bot.* 39: 329-337
- Jan, G., M.A. Khan, Farhatullah, F. Gul, M. Ahmad, M. Jan and M. Zafar. 2011. Ethnobotanical studies on some useful plants of Dir Kohistan valleys, KPK, Pakistan. *Pak. J. Bot.* 43: 1849-1852
- Ji, H., P. Shengji and L. Chunlin. 2004. An Ethnobotanical study of medicinal plants used by the Lisu people in Nujiang, northwest Yunnan, China, *Economic Botany* 58 (Supplement):S 253-S264,
- Khan, A. A and J. L. Fevre. 1996. Indigenous Knowledge of Plants: A Case Study in Chitral. *Proc. First Train. Workshop Ethnob. Appl. Conser., PARC, Islamabad*. P: 136-151
- Khan, A., S. Gillani., S. Hussain and M. J. Durrani. 2003. Ethnobotany of Gokand Valley, District Buner, Pakistan. *Pak. J. Bio. Sci.* 6: 364-366.
- Khan, M. A., 2008. Biodiversity and Ethnobotany of Himalayan Region Poonch Valley Azad Kashmir, Pakistan, Ph-D thesis Department of Plant Sciences Quid-i-Azam university Islamabad
- Khan, N., M. Ahmed., M. Wahab., M. Ajaib and S. S. Hussain. 2010. Studies along an altitudinal gradient in *Monothecca buxifolia* (Falc.) A.D, forest, district lower dir, Pakistan. *Pakistan Journal of Botany* 42: 3029-3038.
- Khan, S. W and S. Khatoon. 2008. Ethnobotanical studies on useful trees and shrubs of Haramosh and Bugrote valleys, in Gilgit Northern areas of Pakistan, *Pak. J. Bot.* 39: 699-710.
- Khan, S. M., S. Page., H. Ahmad., H. Shaheen., Z. Ullah., M. Ahmad and D.D. Harper. 2013. Medicinal flora and ethno ecological knowledge in the Naran Valley, Western Himalaya, Pakistan. *J. Ethnobiology and Ethnomedicine*. 9:4.
- Manan, Z., A. Sirajuddin., M. Razzaq., M. Islam and Ikramullah. 2007. Diversity of medicinal plants in Wari subdivision District upper Dir, Pakistan. *Pak. J. Pl. Sci.* 13: 21-28.
- Matin, A., M. A. Khan., M. Ashraf and R. A. Qureshi. 2002. Traditional use of shrubs and trees of Himalayan region, Shorgan valley, Mansehra (Hazara) Pakistan. *Hamdard Medicus*. 45: 50-56
- Motlhanka, D.M.T and G.P. Nthoiwa. 2013. Ethnobotanical Survey of Medicinal Plants of Tswapong North, in Eastern Botswana: A Case of Plants from Mosweu and Seolwane Villages. *European J. Med. Pl.* 3: 10-24.
- Panhwar, A. Q and H. Abro. 2007. H Ethnobotanical studies of Mahal Kohistan (Khirthar National Park), *Pak. J. Bot.* 39: 2301-2315.

- Reddy, K. N., 2008. Ethnobotany of Andhra Pradesh: A Review, Laila Impex R&D Centre, Unit-I, Phase-III Jawahar Autonagar, Vijayawada. 520 007.
- Shah, G. M., 2007. Plant and plant resources of Siren Valley Mansehra, N.W.F.P., Pakistan, Ph-D thesis Department of Plant Sciences Quid-i-Azam University Islamabad, Pakistan.
- Shinwari, M. I and M. A. Khan. 1998. Ethnobotany of Margalla Hills, National Park of Islamabad. Department of Biological Sciences Quaide-i-Azam University, Islamabad, Pakistan.
- Shinwari, Z. K., 2010. Medicinal plants research in Pakistan. *Journal of Med. Pl. Res.* 4: 171-173
- Shinwari, Z. K and M. Shah. 1996. The Ethnobotany of Kharan District, Baluchistan. Proceeding of first training workshop of Ethnobotany applications and conservation PARC, Islamabad. P: 124-132.
- Simbo, D.J. 2010. An ethnobotanical survey of medicinal plants in Babungu, Northwest Region, Cameroon. *J. Ethno. and Ethnomed.* 6:8.
- Tolossa, K., E. Debela., S. Athanasiadou., A. Tolera and G. Ganga. 2013. Ethno-medicinal study of plants used for treatment of human and livestock ailments by traditional healers in South Omo, Southern Ethiopia. *Journal of Ethno. and Ethnomed.*, 9:32
- Yineger, H., E. Kelbessa., T. Bekele and E. Lulekal. 2007. Ethnoveterinary medicinal plants at Bale Mountains National Park, Ethiopia. *J Ethnopharmacology.* 112:55-70
- Zabihullah, Q., A. Rashid and N. Akhtar. 2006. Ethnomedicinal survey in Kot Manzary Baba valley, Malakand Agency, Pakistan, *Pakistan Journal of Plant Sciences.* 12: 115-121
- Zakir, U., 1999-2003. Malakand Valley: An introduction, The Punjkora Magazine (Urdu), Govt: Degree College Timergara Dir (L), Pp. 91-98.