

# Ethnomedicinal Survey of plants of Valley Alladand Dehri, Tehsil Batkhela, District Malakand, Pakistan

Alamgeer<sup>1</sup>, Taseer Ahmad<sup>1</sup>, Muhammad Rashid<sup>4</sup>, Muhammad Nasir Hayat Malik<sup>1</sup>, Muhammad Naveed Mushtaq<sup>1</sup>, Jahangir Khan<sup>1, 3</sup>, Raheela Qayyum<sup>2</sup>, Abdul Qayum Khan<sup>1</sup>, Nasir Muhammad<sup>5</sup>

<sup>1</sup>Faculty of Pharmacy university of Sargodha, Sargodha, Pakistan

<sup>2</sup>Department of Pharmaceutical Sciences, COMSATS Institute of Information Technology, Abbottabad, Pakistan

<sup>3</sup>Department of pharmacy, university of malakand, KPK, Pakistan.

<sup>4</sup>School of pharmacy the university of Faisalabad, Pakistan.

<sup>5</sup>Department of Chemistry, Kohat University of Science and Technology, KPK, Pakistan.

Email: drtasir2011@gmail.com

**Abstract** – The aim of this survey was to evaluate and document ethnomedicinal knowledge of the Valley Alladand Dehri, Tehsil Batkhela, District Malakand, which has high medicinal plants prospective. Ethnomedicinal informations including local names, local medicinal uses of plants, were collected through an open-ended questionnaire. These Informations were only reported when at least 10 interviewees verified it. The study showed that the local people used approximately 92 species of different plants for various diseases like in high blood pressure as diuretic (18%), diarrhea (11%) and diabetes (8%). The leading families out of 53 in medicinal indications were Lamiaceae (12%), Asteraceae (8%), Cucurbitaceae (8%) and Solanaceae (8%). It was also observed that local collectors are unaware of proper collection, and preservation techniques, due to which its active ingredients are lost. It is concluded from our survey that this ethnomedicinal study will definitely provide a folkloric claim base for researchers and also asses in the treatment of local diseases.

**Keywords** – Ethnomedicinal survey, valley Alladand Dehri, local indications, diseases, families

## 1. Introduction

This Ethnomedicine is a subfield of ethnobotany dealing with the study of traditional medicine: not only those that have written sources relevant (such as traditional Chinese medicine, Siddha, Ayurveda), but these private, knowledge and practices that were orally transmitted on over the centuries [1]. Herbal medicine is the use of a plant's seeds, fruits, roots, gum, stem, leaves, bark, or flowers for the treatment of various diseases. Throughout the worldwide, herbal medicine is used for the prevention, treatment, mitigation, and management of a variety of ailments since prehistoric times [2][3][4][5]. According to World Health Organization (WHO, 2001) 60% of the world's population rely on traditional medicine, and 80% of the population in developing countries depend almost entirely on traditional medical practices, in particular, herbal medicine for their primary health care needs [6][7]. Although synthetic or chemical drugs are more efficacious and potent, as compared to phytomedicine, but they present a higher degree of side effects and risks [8]. The search for herbal medicine has accelerated in recent years. Pharmacologists, microbiologists, biochemist, botanists, and natural-products chemists all over the world are currently evaluating medicinal plants for phytochemicals and lead compounds that could be developed for treatment of various diseases [1]. Pakistan is a country blessed with large biodiversity of medicinal plants. It has been reported that about 6,000 species of plants with potential medicinal activities are widely distributed, in which 600 to 700 species are being used for medicinal purposes [9]. Approximately 60% urban population of Pakistan relies on medicinal plants for their drug related needs [10].

Batkhela is the main tehsil and capital of malakand

district, khyber pakhtunkhwa, Pakistan. Batkhela lies from 34.62°N to 71.97°E . According to the 1998 census, the population of Batkhela is approximately 38,222 [11]. Batkhela is a popular business city in Khyber Pakhtunkhwa province. This beautiful valley is covered by tall hills from all sides and there are many fast flowing rivers which are contribution to its wonderful landscape. A near village with Batkhela city on its east side is Alladand dehri, (a beautiful valley which is surrounded by tall hills, plenty of medicinal plants are find here), on west side Totakan, on north side Lower Dir and on its south side lies Malakand top, which are also hilly area, rich of medicinal plants (Fig-1).

## 2. Materials and Methods

The selected area was visited many times for collection of data during the year, 2012. Informations were recorded about the local plants, and collection of the specimens in various flowering seasons. Plants of medicinal importance were selected. For this purpose pansaries (local medicinal Plant sellers), Hakeems (expert of Unani system of medicine), Saniasi or Jogies (Traditional herbalists), elders (knowledgeable people) including both men and women approximately up to the age of 30-65 years were interviewed. An open-ended questionnaire was used for data collection. The data obtained was then analyzed carefully. Ethnomedicinal information including local names, local medicinal uses of plants, their way of local use and other related informations were collected from these people through open-ended questionnaire on the spot as most of the respondents were illiterate. The Informations about plants

were only reported when at least 10 interviewees verified the name and local uses of the plant. Plants collected during the surveys were identified with the help of published flora of Pakistan [9][12]. Voucher specimen has been deposited in the Herbarium of Botony Department, University of Sargodha. In Table 1, the plants have been arranged alphabetically according to their families, showing their botanical, local names and traditional indications.

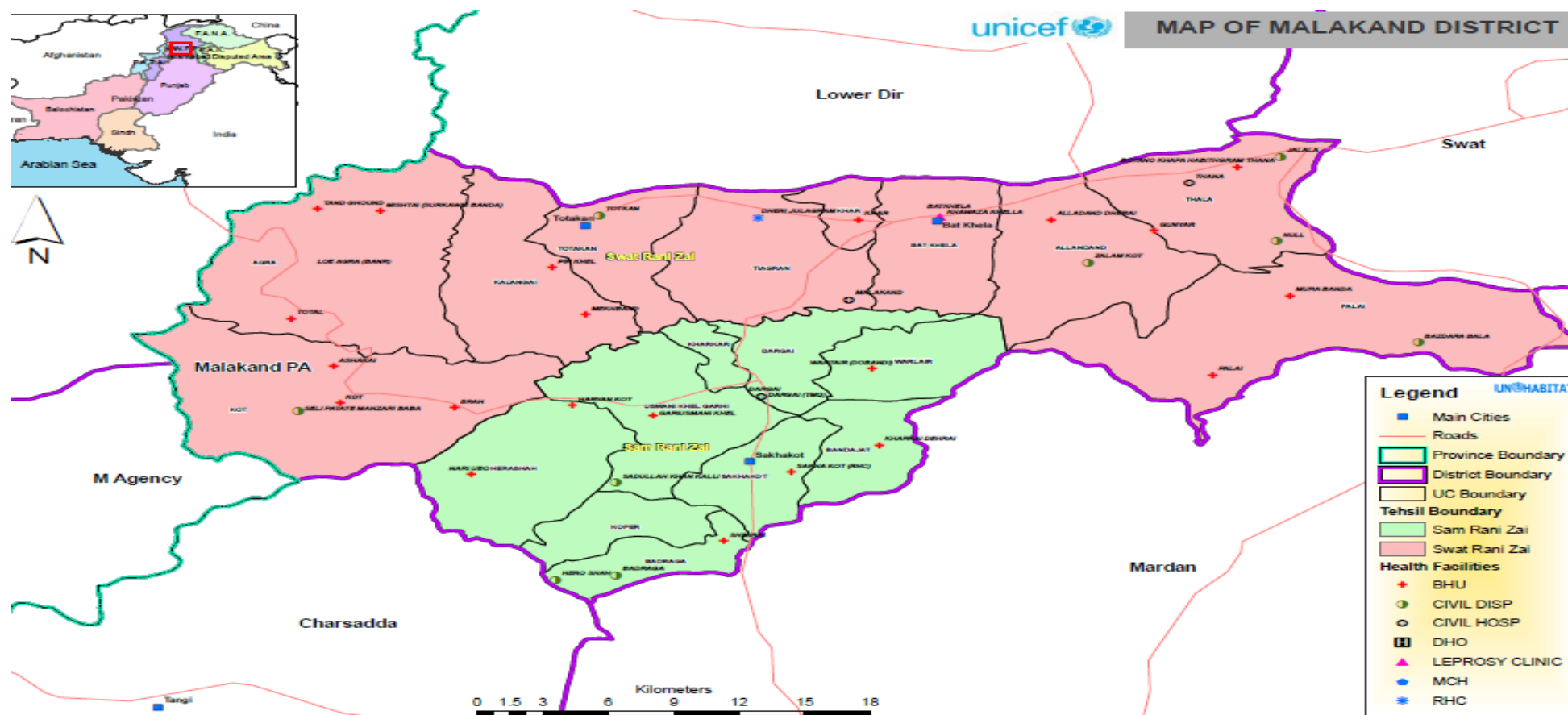


Figure 1. Map of Valley Alladand Dehri, Tehsil, Bathkela District, Malakand

Table 1. Ethnomedicinal survey of Valley Alladand Dehri, Tehsil, Batkhela District, Malakand.

S.no.	Botanical Name	Local Name	Family Name	Habitat	Part used	Local indications
1.	<i>Justicia adhatoda</i> L V#1084	Baikar	Acanthaceae	shrub	Root, leaves	Roots are used in rheumatism, pneumonia, and cough. Leaves are used in inflammation i.e. to reduce swelling. Decoction of leaves is made which is used as antispasmodic, expectorant, abortifaciant and also used for curing dysentery in cattle. It is also used in snakebites, eye and ear ailments. It is also used in scabies and as antiseptic.
2.	<i>Acorus calamus</i> L. V#1085	Skhawaja.	Acoraceae	Herb	Rhizome	It is used in dysentery, and chronic diarrhea. Its powder and mustard oil mixture are used topically for rheumatism. During teething, it is used as a source of biting for children
3.	<i>Allium cepa</i> Linn V#1086	Piaz	Alliaceae	Vegetable	Bulbs, leaves	It is used extensively in cooking as flavouring agent and condiment. The bulb is used as stimulant. Its leaves are used as antiseptic, diuretic, aphrodisiac and expectorant. Its juice is used in the cure of irritation caused by scorpion, hornet sting and tobacco poisoning.
4.	<i>Narcissus tazetta</i> Linn. V#1087	Gul-e-Nargis	Amaryllidaceae	A perennial herb	Flowers	Its Juice is used as purgative and emetic.
5.	<i>Caralluma tuberculata</i> N.E. Br. V#1088	Pamankay	Apocynaceae	Herb	Succulent stem shoots	A vegetable, used as carminative. It is also used in hypertension, diabetes, inflammation, hepatitis Band C, rheumatism, febrifuge, anti- pyretic , obesity, erectile dysfunction ,Impotency.
6.	<i>Nerium indicum</i> Mill. V#1089	Ganderay	Apocyanaceae	A huge shrub	Flowers, leaves root	Leaves decoction in paste form is used for skin diseases. Roots are useful in snakebites. It is poisonous.
7.	<i>Hedra helix</i> L V#1090	ZalyaeIvy	Araliaceae	Herb	Leaves	Leaves extract is used in diabetes, blood pressure treatment and also as blood purifier.
8.	<i>Taraxacum officinale</i> Linn. V#1091	Zair gulae.	Asteraceae (Compositae)	A perennial herb	Flower, root, leaves	It is used in the cure of kidney and liver diseases. It is used against. It is purgative, diuretic, antitumor, tonic and mild laxative. It is also helping in the flow of bile.
9.	<i>Calendula arvensis</i> Linn. V#1092	Zair gulae	Asteraceae	Herb	Leaves, flowers	It is used in scrofula affected children. It is used as tonic, anthelmintic and diaphoretic.
10.	<i>Calendula officinale</i> Linn. V#1093	Zair gulae	Asteraceae	Ornamental herb	Flowers, leaves	Flowers and shoots are used in healing of wounds. Flowers and honey mixture is used stimulant, astringent and antispasmodic.
11.	<i>Carthamus oxycantha</i> Bieb. V#1094	kareeza	Asteraceae	Spiny herb	Seeds	The oily seeds which are used for controlling urination. It is also used in stomach pain.
12.	<i>Xanthium strumarium</i> Linn. V#1095	Ghiskay	Asteraceae	An annual herb	Leaves	Its leaves are useful in malarial fever.
13.	<i>Conyza canadensis</i> Conquist V#1095	Danya botay/ Malloch	Asteraceae	Wild herb	Vegetative portion	It is used as homeostatic, stimulant, diuretic and astringent. It is also used in diarrhea and dysentery.
14.	<i>Calotropis procera</i> (Willd.) R.Br. V#1096	Spulmaey	Asclepiadaceae	Erect shrub	Whole plant	Its paste is made which is applied on dog bites. Its flowers are used as diuretics and in stomach aches. The smoke of leaves is smoked to treat asthma and cough. Latex is used in skin disorders. It is poisonous, stimulant, astringent and antispasmodic.
15.	<i>Berberis lycium</i> Royle V#1097	Kwaray/ ziar largy	Berberidaceae	Spiny shrub	Root, fruit, shoots	It is used as stomachic, intestinal colic, expectorant. Root is used in jaundice, liver disorders and healing wounds. It is also used in diarrhea and diuretic. The fruits are edible

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S.no.	Botanical Name	Local Name	Family Name	Habitat	Part used	Local indications
16.	<i>Nasturtium officinale</i> R.Br. V# 1098	Tarmera	Brassicaceae	A perennial herb of moist habitat	Shoots	It is used as vegetable. It is antimicrobial, appetizer and diuretic. It is also used in chest problems. Local hakims use it in tablets, which are used for pain in the body, such as stomachache.
17.	<i>Canabis sativa</i> Linn. V#1099	Bhang	Cannabaceae	An annual herb	Erect Shoots	Leaves are used as bandages to cure a wound Juice added with milk and nuts to make drink known "Tandai". "Charas" also prepared from it. It is used as purgative and also used in skin diseases.
18.	<i>Convolvulus arvensis</i> Linn. V#1100	Prewata	Convolvulaceae	Climbing herb	Vegetative part	It is used as purgative and also used in skin diseases.
19.	<i>Helianthus annuus</i> Linn. V#1101	Nwar parast	Compositae	A cultivated herb	Seed, flowers	Its seeds oil is best oil for cooking. Its seeds used as laxative and diuretic.
20.	<i>Citrus colocynthis</i> V#1102	Kalkundi	Cucurbitaceae	A prostrate her Shard.	Fruit	Fruit is administered to cattle for intestinal disorders. It is used as purgative. Its juice is given in dropsy, fruits are bitter and poisonous, careless use may prove fatal.
21.	<i>Cucurbita maxima</i> Linn. V#1103	Peta Kadoo	Cucurbitaceae	Climbing herb	Whole	It is used as common vegetable. It is also used in ulcer and as stomachic. From fruit delicious "Kadoo halva" is prepared. Fruit pulp and seeds are used in confectionery, cakes, Jams and Jelleys. Seeds are also used as anthelmintic.
22.	<i>Cucurbita pepo</i> Linn. V#1104	Gharangy Kadoo	Cucurbitaceae	Climbing herb	Fruit	Fruit is used as vegetable. It is diet for patients suffering from Jaundice, heart and stomach problems.
23.	<i>Memordica charantia</i> Linn. V#1105	Karela	Cucurbitaceae	Climbing herb	Fruit	A commonly used vegetable. It is used in fever, diabetes and blood pressure. It is expectorant.
24.	<i>Ajuga Luffa cylindrica</i> (L.) Room V#1106	Torai	Cucurbitaceae	Climbing vegetable	Fruits	Fruits are commonly used vegetable. It is use stomach and ulcer problems.
25.	<i>Cuscuta reflexa</i> Roxb V#1107	Marazbote/ ziara zele	Cuscutaceae	Parasitic yellowish herb	Stem	Aqueous extract of stem is used for bruises and for controlling urination. The local hakims use it for the treatment of sciatica.
26.	<i>Diospyrus lotus</i> Linn. V#1108	Toor amlook	Ebenaceae	Tree	Fruit	Fruit is edible and used as carminative and purgative. It causes flatulence.
27.	<i>Equisetum arvense</i> Linn V#1109	Bandakay	Equisetaceae	A tall herb (pteridophyte)	Shoots	The extract of shoots plus mustered oil mixture is used as hair tonic and antilice. Aqueous extract is useful in kidney stones.
28.	<i>Euphorbia helioscopia</i> Linn. V#1110	Mandanu	Euphorbiaceae	An erect herb	Shoots	It is used as cathartic and anthelmintic. It causes irritation and used as fish poison. Locally it is considered a poisonous plant. Local hakims use this plant for the treatment laxative. When Its latex pasted on skin it causes swelling.
29.	<i>Euphorbia prostrata</i> L. V#1112	Warmug	Euphorbiaceae	Creeping herb	Shoots	It is useful in skin diseases, for e.g. itching and ringworms.
30.	<i>Ricinus communis</i> Linn V#1113	Arhanda	Euphorbiaceae	Erect suffrutescent	Seed branch	The seeds are useful for sexual disorders. The seeds are poisonous in excessive amount. Seed oil is used for treating constipation
31.	<i>Mallotus philippensis</i> (Lann) Muell V#1114	Kambela	Euphorbiaceae	Small size tree	Fruit	Fruit red smoke/powder is used for diarrhea. The fruit is also useful in cattle diarrhea.
32.	<i>Fumaria indica</i> Pugsley (Husskn) V#1115	Papra	Fumariaceae	Small branched herb	Shoot	Its aqueous extract is used as in febrifuge, curing irritation of the skin, and also used as body coolant.

Table 1 Continue. Ethanomedicinal survey of Valley Alladand Dehri Tehsil, Batkhela District, Malakand.

S.no.	Botanical Name	Local Name	Family Name	Habitat	Part used	Local indications
33.	<i>Morchella esculenta</i> (Linn.) Pers ex Fr. V#1116	khareray/ Goujai	Helveliaceae	Mushroom of moist habitat	Whole	Due to its rare production, it is very costly and delicious mushroom. It is used in pizza. It has also medicinal value
34.	<i>Juglans regia</i> Linn V#1117	Ghuz	Juglandaceae	Tree	Fruits, nut, bark, leaves.	Its bark (Dandasa) is used for cleaning of teeth (toothbrush). Leaves are also used as lips make up. Its fruit (a delicious dry fruit) has a brain shape, which have anti-depressant activity. Leaves decoction is used in eczema and intestinal worms. It is used as brain tonic.
35.	<i>Teucrium stocksianum</i> bioiss V#1118	Speraboty/ aspabotay	Lamiaceae	Aaromatic herb	Shoots	Decoction of plants is used for curing diabetes and foot burning sensation, and as a body coolant. It is also used as a blood purifier.
36.	<i>Ajuga bracteosa</i> Wall. ex. Benth. V#1119	Boti	Lamiaceae	Herb	Whole plant	It is used for the curing of achenes. Aqueous extract is useful for the treatment of jaundice, hypertension, body coolant, sore throat. It is also used as blood purifier and carminative.
37.	<i>Mentha spicata</i> Linn. V#1120	Podina	Lamiaceae	A perennial cultivated herb	Leaves	The leaves used as salad (chatnies), spice, stimulant, carminative. Leaves decoction is used as mouthwash. It is helpful in dyspepsia.
38.	<i>Mentha longifolia</i> (L) L. V#1121	Enaley	Lamiaceae	perennial aromatic herb	Leaves	The dried powdered of leaves are used for diarrhea (mostly mixed with yogurt) stomach ache and as a carminative.
39.	<i>Origanum vulgare</i> Linn. V#1122	Shamakay	Lamiaceae	A perennial herb	Vegetative portion	It is used in tooth and ear ache. It is also diuretic.
40.	<i>Plectranthus rugosus</i> Wall. Ex Bth V#1123	Spairkay	Lamiaceae	shrub	Leaves, seed	Its seed is used in stomach problems (mostly in stomachache). Decoction of leaves are antiseptic.
50.	<i>Ilium sativum</i> Linn V#1124	Ooga	Liliaceae	Vegetable	Bulbs, leaves	It is used extensively in cooking as flavouring agent, heart diseases, hypertension, epilepsy, carminative, aromatic and condiment. It is diaphoretic, diuretic, expectorant and antiseptic.
51.	<i>Melia azedarach</i> Linn. V#1125	Bakyana/ Tora shandi	Meliaceae	Tree	Bark, leaves fruit, seeds	Its bark is used as cathartic and emetic. Flowers applied as poultice. Leaves decoction is used in hysteria. Seeds/fruits are used in rheumatism and blood pressure. Ripened fruits are used in. The dried powdered fruit used to treat diabetes, flatulence, gastric problem children's fever, and cough.
52.	<i>Acacia modesta</i> Wall V#1126	Palosa	Mimosaceae	Tree	Gum, branches	Gum is used as tonic. It is also used in dysentery, weakness, stimulant, demulcent and as aphrodisiac for backache and also in fractures bandage. Branches are used as a toothbrush (Muswak).
53.	<i>Abelmoschus esculentus</i> Moench (L.) V#1127	Bhindi	Malvaceae	A cultivated	Fruits vegetable	A commonly used vegetable. It is used as diuretic, emollient and demulcent, it also causes constipation.
54.	<i>Ficus carica</i> Forsk V#1128	Inzar	Moraceae	Medium size tree	Fruits, Leaves, latex	It is considered as a holy tree. It is used in constipation and also as a laxative, demulcent, piles and urinary bladder problems. Superstitious stories are related, if one saw its flower will become rich. The warts from the body are removed by using latex. Fruits are useful in stomach diseases.
55.	<i>Morus alba</i> Linn. V#1129	Spin toot/ Malooby	Moraceae	A cultivated / wild tree.	Fruit, leaves	Fruit are delicious in taste and eaten (both in dry and fresh form). It is used as laxative, purgative. Leaves are emollient, used for cleaning throat,

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S.no.	Botanical Name	Local Name	Family Name	Habitat	Part used	Local indications
						cooling agent, anthelmintic and astringent. Leaves were once used in rearing silk worms. It is used as anti-diabetic and also has antibacterial activity.
56.	<i>Morus nigra</i> Linn. V#1130	Toor toot	Moraceae	A cultivated / wild tree.	Leaves,fruit	Fruits are eaten however they are laxative, leaves are emollient, used for cleaning throat, cleaning agent, anthelmintic and astringent.
57.	<i>Eucalyptus globulus</i> V#1131	Lachi	Myrtaceae	Tall tree	Leaves, oil, stem	It is used as flavoring agent (mostly in tea), antiseptic, antiperiodic. Smoke of leaves used in asthma.
58.	<i>Boerhavia diffusa</i> L. V#1132	Ensat	Nyctaginaceae	Herb	Shoot,seeds	The shoot mixed with milk makes a poultice, which is used to cure wounds. The seeds are used as diuretics and rarely as vegetables. Seeds powder is useful in cough, asthma.
59.	<i>Jasminum officinale</i> Linn. V#1133	Spin Rambail Chambail/ Yasmin.	Oleaceae	Ornamental shrub	Whole plant	It is used as diuretic and anthelmintic. Flowers are used in skin diseases(dermatology), headache. Used in mouth rash. Oil is rubbed on heart as nerve sedative. Due to its fragrance, it is famous that when it blooms it attracts snakes.
60.	<i>Jasminum humile</i> Linn. V#1134	Zair Rambail Chambail	Oleaceae	Ornamental shrub	Flowers, roots	It is used for ornamental. Decoction of roots is made which is used for the removal of ringworms from the body.
61.	<i>Olea ferrugenea</i> Royle V#1135	Khuna	Oleaceae	Evergreen tree	Fruits, leaves, trunk	Its fruit is antidiabetic, which are edible. Its leaves are used in toothache, as astringent antiseptic, diuretic, antiperiodic. It is also used in soarthroat. Its seed is a source of edible oil.
62.	<i>Oxalis corniculata</i> Linn. V#1136	Tarookay	Oxalidaceae	A perennial small herb	Leaves	It is used in stomach problems, refrigerant, and as vermifuge, it is used for developing taste, also used for sensitive teeth. Leaves decoction is useful in fever and dysentery.
63.	<i>Lotus corniculatus</i> Linn V#1137	Fatekhana	Papilionaceae	Perennial herb	Shoot	Its dried powdered is mixed with ghee and is used as aphrodisiac. It is also used as body coolant and to treat backache
64.	<i>Robinia pseudo-accacia</i> Linn. V#1138	Kekar	Papilionaceae	A cultivated tree	Seeds	Its seeds are useful in asthma and fever.
65.	<i>Papaver somniferum</i> V#1139	Qash-Qash	Papaveraceae	A cultivated herb	Seeds	By making incision in unripe fruit, its latex are obtained, which is narcotic, anodyne, sedative, increases excitement and physical vigor. It is used as a source of heroin (or afyne). It seeds are edible and it yields Resin and turpentine. Its resin (local name "Jaula") is stimulant. It is also used in ulcer, snake, bites, scorpion stings, skin diseases and blood purifier.
66.	<i>Populus caspica</i> Borrm V#1140	Nakhtar	Pinaceae	Tree	Seeds,resin	
67.	<i>Platanus orientalis</i> Linn V#1141	Chinar	Platinaceae	A huge deciduous tree	Bark	Its bark is given in tooth ache and diarrhea.
68.	<i>Zea mays</i> Linn V#1142	Jewar	Poaceae	A cultivated crop	Cobs,seeds	It is a source of edible oil and delicious bread is made of it and is routine diet of people. It decreases cholesterol level (antiatherosclerotic)
69.	<i>Rumex nepalensis</i> Spreng. V#1143	Shalkhay	Polygonaceae	A perennial herb	Leaves, roots	They are used as diuretic, purgative, astringent and demulcent. It also soothes the irritation caused by urtica dioica. Its roots have astringent effect.
70.	<i>Polygonum barbatum</i> Linn. V#1144	Pulpulak	Polygonaceae	A perennial herb of moist habitat	Shoots	It is a poisonous plant, leaves are used as fish killer, and it also causes skin irritation.

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S.no.	Botanical Name	Local Name	Family Name	Habitat	Part used	Local indications
71.	<i>Portulaca olearacea</i> Linn. V#1145	Warkharae	Portulacaceae	A cultivated herb	Vegetative portion	It is used in kidney, liver, urinary bladder and lungs problems. It is also used as refrigerant.
72.	<i>Punica granatum</i> Linn. V#1146	Ananghorai	Punicaceae	A medium size tree	Fruit, bark, leaves	Its leaves are used in dysentery and skin diseases. Fruit is used as astringent. Fruit juice is antiseptic and blood purifier. Fruit pericarp is used as laxative and in whooping cough "anardana" (i.e. dried seed) is used as condiment. The fruit bark is used as a diuretic and for curing mouth ulcers. Its stem and root bark is anthelmintic.
73.	<i>Paeonia emodi</i> Wall ex. Royle V#1147	Mamaikh	Ranunculaceae	A perennial herb	Rhizome	Rhizomes are useful in backbone ache. It is also used as colic, tonic, dropsy, epilepsy, emetic and cathartic. It is blood purifier.
74.	<i>Ranunculus aquatilis</i> Linn. V#1148	Jaghagha	Ranunculaceae	An aquatic herb	Whole plant	It is poisonous to some extent. It is used in asthma and periodic fever. It is also used as a purgative for goat.
75.	<i>Zizyphus sativa</i> Gaertn. V#1149	Markhanaey	Rhamnaceae	Medium size tree	Fruit, branches	Fruit are edible, and used as astringent. It is useful in curing stomach problems and whooping cough.
76.	<i>Rubus ulmifolius</i> Schott V#1150	Karwara	Rosaceae	Erect shrub	Shoot	The young shoot is boiled with <i>Adiantum venustum</i> and extract is used as aphrodisiac (sexual disorders). The edible fruits are used as carminatives.
77.	<i>Zanthoxylum armatum</i> D.C. V#1151	Dambara	Rutaceae	Spiny small tree	Bark, fruit, stem, seeds	Its fruit is used as stomachic, carminative. Seed is condiment ("Chutney"), tonic and aromatic. It is also used in fever and cholera, toothache, and as toothbrush (Muswak). It increases milk in cows. It is also useful in gum diseases.
78.	<i>Dodonea viscosa</i> (L.) Jacq. V#1152	Ghwaraskay	Sapinadaceae	A small size tree of hilly areas	Leaves, seeds	It is used in rheumatism, swelling and burns. It is also used as astringent, aphrodisiac. Powder of seeds is used in body pains. Bandages are made of leaves, which is useful in wound healing.
79.	<i>Verbascum thapsus</i> V#1153	Khardhag	Scrophulariaceae	Herb	Leaves, flowers,	It is used in diarrhea and dysentery of cattle. It is used as analgesic, antiseptic and wounds healing. Its leaves and flowers are used in paste form against cough and pulmonary diseases. Seeds are narcotic and fish poison. Warm leaves are used to treat rheumatic pains.
80.	<i>Ailanthus altissima</i> (Mill) Swingle V#1154	Backyanra	Simarubacea	Tree	Bark	Bark is used as anthelmintic. Bark juice is and milk mixture is used for curing dysentery and diarrhea. Its decoction is effective in hysteria, flatulence, asthma and whooping cough.
81.	<i>Solanum miniatum</i> Benth. Ex Wild V#1155	Kachmachu	Solanaceae	A wild herb	Berries, leaves.	It is used in certain skin diseases. It is used in dropsy, jaundice and for washing and cleaning wounds. It is carminative, tonic, expectorant and diuretic.
82.	<i>Nicotiana tabacum</i> Linn. V#1156	Tambacco	Solanaceae	Cultivated herb	Leaves	It is used in snuff, healing wounds, antiseptic, and narcotic. It is also used for making cigarettes.
83.	<i>Solanum surratense</i> Burm. f. V#1157	Manraghonay	Solanaceae	A small spiny	Whole plant	It is used as expectorant, stomachic and diuretic. It is used in asthma, cough, fever, gonorrhoea and pain in chest. Dried powdered fruits are used in diabetes and fever in small babies. The powdered drug is used for headache, toothache and nose irritation.

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S.no.	Botanical Name	Local Name	Family Name	Habitat	Part used	Local indications
84.	<i>Withania somnifera</i> (L) Dunal V#1158	Kootilal	Solanaceae	A dwarf shrub	Seeds	The seeds are used in pregnancy for controlling body temperature. The dried powdered root is used as aphrodisiac. Dried seeds powder is used for healing wounds of the mammary gland of cattle. It is also useful in increase milk production in cattle.
85.	<i>Daphne mucronata</i> Royle V#1159	Leghone	Thymelaceae	Shrubby plant	Fruit,bark	The fruit is edible. The bark shows anti-inflammatory activity.
86.	<i>Verbena officinalis</i> Linn. V#1160	Shamakay	Verbenaceae	Erect perennial herb	Shoot	Plant decoction is used for diarrhea, as a cooling agent, as a blood purifier, and also used in fever.
87.	<i>Vitex negundo</i> Linn V#1161	Marvandaey/ vermandai	Verbenaceae	Tall shrub	Leaves, roots, branches	Branches are used as tooth brush (Miswak).Its leaves are used as aromatic, febrifuge,diuretic and anthelmintic. Leaves smoke is us to relieve headache. Flowers are astringent and tonic. It is also used as an antiallergic and a body coolant.
88.	<i>Viola betonicifolia</i> Sm. V#1162	Banafsh	Violaceae	A perennial herb	Whole plant	It is used as astringent, diaphoretic, antipyretic, anticancer, febrifuge and purgative. It is also used in epilepsy and nervous disorders.
89.	<i>Viola canscens</i> Wall ex Roxb. V#1163	Banafsha	Violaceae	A perennial herb	Whole plant	It is used as astringent, demulcent, purgative, diaphoretic, antipyretic and febrifuge, also famous as anticancer. It is used in epilepsy and nervous disorders, acnes, folk stories and its syrup is also used in common colds.
90.	<i>Ziziphus mauritiana</i> Linn. V#1164	Bera	Zhamnaceae	Branched tree	Fruit, leaves	The fruits are edible. The leaves are used as anti-lice treatment. Local people used the extract of fruit in treatment of blood pressure (seven fruits is placed for an over-night in water, and the extract is used at morning time).
91.	<i>Tribulus terrestris</i> Linn V#1165	Markondai	Zygophyllaceae	Prostrate herb	Shoots	The plant is used as a tonic and to treat rheumatic pains.
92.	<i>Fagonia olivieri</i> Dl V#1166	Azghakay	Zygophyllaceae	Prostrate herb	Shoot	Locally, it is soaked in water at night time and extract of the plant is used in morning time for curing cough, diabetes. It is also and as a blood purifier.

### 3. Results

Ethnomedicine plays a unique role not only provides crude drugs for treatment different diseases but also provide a support to the economically affected society which cannot afford costly synthetic medicines. Miscellaneous medicinal uses such as of 92 plant species having well defined traditional uses over generations were recorded. The selection criteria were based on its availability, local use and medicinal importance. They are arranged in alphabetical order on the basis of their families. During the survey, it was found that about 60% of the respondents were illiterate while were 40% literate.

Traditional medicinal indications of plants of Valley Alladand Dehri, Tehsil, Batkhela District, Malakand are discussed as shown in table 1.

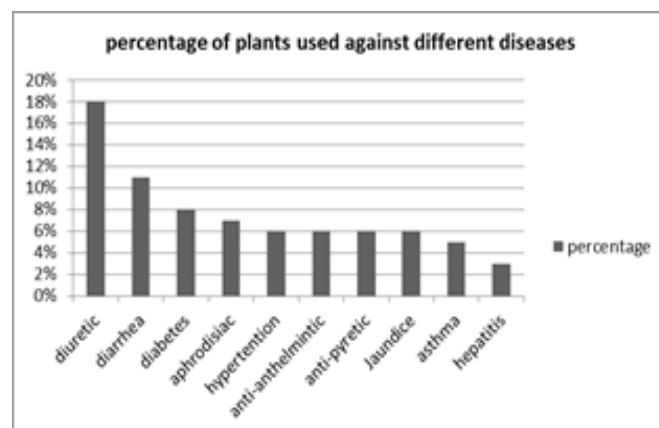


Figure 2. Local indications of plants used against different diseases.

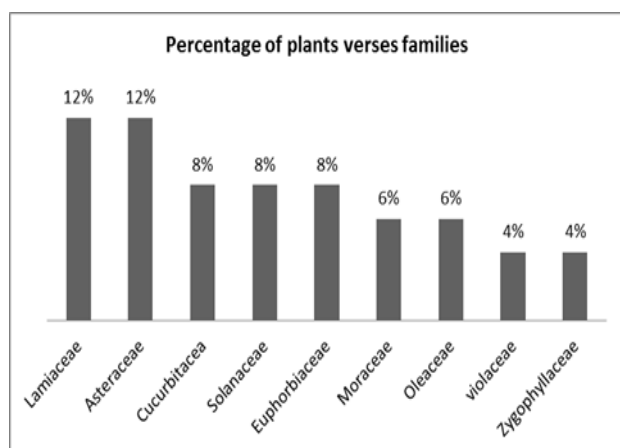


Figure 3. Some important medicinal plants families in relation to its percentage

#### 4. Discussion

Pakistan is a country bestowed with large biodiversity of medicinal plants. It has been reported that about 6,000 species of plants with potential medicinal activities are widely distributed, in which 600 to 700 species are being used for medicinal purposes [9]. People living in tribal localities and in villages are using indigenous plants as medicines from long ago because this knowledge passed from generation to generation, and is based on practical experience [13]. There is no monetary analysis system exists in the selected area which provides us a marketing chain from collection to consumption. It is crucial to know precise quantities of plant material collected, refined and get to local, national and International markets, it will provide us the rough picture of the whole system from collection to consumption. It may also be the one reason of overexploitation of highly valuable and threatened medicinal plants [14].

The survey shown that the local people use approximately 92 species of plants from 52 families for various diseases (Table 1). Most plants have various uses, and in some cases several plants have analogous traditional efficacy. Out of these 92 plant species some leading medicinal plants in the locality are *Acacia modesta*, *Fagonia olivieri*, *Ajuga bracteosa*, *Berberis lyceum*, *Calotris procesera*, *Caralluma tuberculata*, *Fumaria indica*, *Punica granatum*, *Justicia adhatoda*, *Mentha longifolia*, *Olea ferruginea*, *Paeonia embody*, *Rubus ulmifolius*, *Teucrium stocksianum*, *Viola canscens* and *Vitex negundu*. A considerable number of these plants/plant based products have been widely used. Therefore, interest in the examination of plants as potential sources of new drugs is increasing [15].

It is revealed from local indications of the area that mostly used as, diuretic (20%), and diarrhea (11%), diabetes (8%), aphrodisiac (7%), hypertension (6%), anti-anthelmintic (6%), anti-pyretic (6%), Jaundice (6%), asthma (5%), hepatitis (3%), cancer (3%), inflammation (3%), depression (3%), epilepsy (2%) etc. (Fig-2). It is also illustrated from our survey that out of 53 families, Lamiaceae (12%), Asteraceae (12%), Cucurbitaceae (8%), Solanaceae (8%), Euphorbiaceae (8%), Moraceae (6%), Oleaceae (6%), Violaceae (4%) Zygophyllaceae (4%), etc,

(Fig-3) are the most important families of the selected area, due to its abundance of medicinal plants prevalence. The local methods of medicinal plants collection and their further processing were also explored. It was observed from our survey that elders people particularly women's used these medicinal plants in their homes for herself and other family members in the treatment of different diseases, but these women's and also local collectors were oblivious of proper collection, cleaning, packing and preservation techniques, for e.g. sun drying of medicinal plants instead of shade drying or if the plant got some moisture or water during drying, it will definitely got fungal growth, due to which the active ingredients are almost lost and as a result treatment will be ineffective, so shade drying or in dim sun-light at morning time was recommended.

It is suggested that the specified plants which have still not clear phytochemical study should be done in relation to its local indications, on the basis of which it will be helpful for the scientist to select such plants and to verify its folkloric claim.

#### 5. Conclusion

Hopefully this research paper will generate widespread interest in protecting and preserving plants of medicinal importance in Valley Alladand Dehri, Tehsil Batkhela, District Malakand. At present time transmission of such knowledge from herbalists to the public had been enormously decreased. However due to the involvement of ethnomedicinal research, awareness in the local community and overall global trend towards recovery of the transmission of knowledge from the herbalist to the public has been introduced. It is noted that pansaries (local medicinal Plant sellers), herbalist (Hakims), are reluctant in the prescription of medicinal knowledge to the local people. The present research in this area proved that most of the indications prescribed are related to the local society diseases like, blood pressure, diarrhea, diabetes, fever, asthma etc. which will be definitely helpful for the society members of developing country like Pakistan.

#### Conflict of interest

The authors declare no conflict of interest.

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