



## Ethnomedicinal and traditional knowledge of phanerogames of Tehsil Munda, district Lower Dir, Khyber Pakhtunkhwa, Pakistan

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### Abstract

An ethnomedicinal and traditional uses of the plants of tehsil Munda, district lower Dir, Khyber Pakhtunkhwa, Pakistan was carried out to collect the valuable information of medicinal plants from the local peoples because there is a rich diversity of phanerogames in the area and are utilized by the local inhabitants as a source of herbal and ethnomedicinal uses. Interviews were conducted in different villages and plants were collected, dried, preserved and pasted on standard herbarium sheets and relevant information was documented in field note book. Relevant information was taken from various tribes viz Gujjars, Sultankheil, Yousafzai and Mandaar etc. Aged peoples were interviewed especially women's, hakeeems, wound healers, teachers and farmers. A total of 62 ethnomedicinal taxa were reported distributed in 57 genera and 41 families which were utilized by the local people for various ailments. All the taxa were Angiosperms including sixty taxa of Dicotyledonous and two taxa were Monocotyledonous. They were mostly used for the remedies against respiratory infections viz. asthma, bronchitis, emphysema, pneumonia, kidney and urinary problems, circulatory disorders and skin diseases by the methods of decoctions and infusions. These species can be utilized easily for commercial, economical purposes and for the discovery of new drugs in future.

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## Introduction

Tehsil Munda is located on south-west of sub division Timergara, district Lower Dir, Khyber Pakhtunkhwa, Pakistan. It has a rich diversity of Phanerogames and are used by the local inhabitants for the herbal and ethnomedicinal purposes that's why the studied area was selected for study. It shares its boundaries on western side with Bajour agency viz. village Qazafi, towards northern side teshsil Samarbagh, towards eastern side connected with tehsil Laalqilla viz. Maidan and towards southern side connected with tehsil Timergara. It consists of four union councils and Miankali is its head quarter. Munda is an administrative tehsil which falls under the authority of sub-division Samar bagh. Topographically most of its area is plane and rarely hilly. Summer season is hot in the months of June-July and in August temperature reaches up to 35°C maximum. December-January and February are the coldest months while the remaining months are moderate (Anon, 1998). Due to variation in altitudinal ranges, topographic factors, precipitation and humidity the vegetation of tehsil Munda is sub-tropical and temperate in nature.

The most common crops grown are *Triticum aestivum*, *Zea mays*, *Oryza sativa*, *Hordeum vulgare* and *Avena sativa* while the common vegetables grown are *Phaseolus vulgaris*, *Allium sativa*, *Hibiscus esculentus*, *cucurbita maxima*, *capsicum anum* and *Allium cepa* while the common fruits grown are *Prunus persica*, *Malus pumila*, *Prunus domestica*, *Pyrus pashia*, *Diosporus kaki*, *Diosporus lotus* and *Vitis vinifera* etc. Ethno medicine expresses the relationship between plants and their uses for medicinal purpose by the local peoples. Those plants which have any bio-chemical constituents and having some active ingredients in the treatment of various ailments are known as medicinal plants (Ali *et al.*, 2017). Pakistan having a diverse flora having about six thousands species reported amongst them six hundreds species shows medicinal importance. It is a fact that chemical and synthetic drugs have caused many side effects as compared to traditional uses of Plants. Unani system was dominant in Pakistan but

the ethno- medicine is being practiced in the remote areas of Pakistan. Medicinal plants are mostly used by the local medical experts' viz. Hakims, wound healers, aged women's and local inhabitants in various hilly and remote areas.

There are different kinds of hormones used by the local communities for the rapid growth and better yield of medicinal plants (Irfan *et al.*, 2017; Irfan *et al.*, 2018). Disease resistant medicinal plants are also grown by the local inhabitants of the area (Irfan & Imran, 2018). Due to the uses of these medicinal plants by the local communities various pharmaceutical companies are interested to isolate certain active compounds from them in making of various modern medicines (Tareen *et al.*, 2010).

## Materials and method

The study was carried out from March to December 2016 at tehsil Munda, District Lower Dir, Khyber Pakhtunkhwa, Pakistan. Interviews were conducted in the villages' viz. Khazana, Shinjai, Toor Camp, Taakwaru, Musa abad, Mian kali, Seenzu, Bazarak etc and plants were collected, dried, preserved and pasted on standard herbarium sheets and relevant information was documented in field note book viz. local names, part used, habit and method of uses.

Relevant information was taken from various tribes viz Gujjars, Sultankheil, Yousafzai and Mandaar etc. Aged peoples were interviewed especially women's, hakeeems, wound healers, teachers and farmers. Plants were collected, photographs were taken, pressed, preserved and pasted on standard herbarium sheets then identified with the help of flora of Pakistan and available literature (Ali *et al.*, 1970-2004).

## Results and discussion

The ethnomedicinal plants knowledge of various local inhabitants of tehsil Munda, District Lower Dir, Khyber Pakhtunkhwa, Pakistan was collected and documented. A total of 62 taxa distributed in 57 genera and 41 families were used by different ethnic group for different ailments (fig. 1 & table. 1).

**Table 1.** Ethnomedicinal plants uses of Tehsil Munda, District Lower Dir, Khyber Pakhtunkhwa, Pakistan.

S. No	Botanical name	Local name	Habit	Family	Part/s used	Ethnomedicinal uses
1	<i>Acacia modesta</i> Wall.	Palusa	Tree	Mimosaceae	Gum	Gum extract used in dental infection, snake biting and Blood purification.
2	<i>Achyranthes aspera</i> L.	Geshy	Herb	Amaranthaceae	Whole plant	Used as anti-rheumatism, abdominal pain & eye infections.
3	<i>Ajuga bracteosa</i> Wall. Ex Gooti Bth.		Herb	Lamiaceae	Whole Plant	Used in stomach disorders, Blood purification, abdominal pain, jaundice, hypertension & carminative purposes.
4	<i>Allium cepa</i> L.	Peyaz	Herb	Liliaceae	Leaves	Leaves used in removal of kidney stones, snake, scorpion and fly biting, antiseptic, oxidant & stimulant.
5	<i>Allium sativa</i>	Oogha	Herb	Liliaceae	Bulb	Highly nutritious, improve immune system, reduce blood pressure problems & prevents body from Alzheimer attack.
6	<i>Amaranthus viridis</i> L.	Ganhar	Herb	Amaranthaceae	Whole Plant	Laxative, tonic & used in blood purification.
7	<i>Ammi visnaga</i> Lam.	Spirkai	Herb	Apiaceae	Fruit	Antiasthmatic, antispasmodic, astringent, diuretic and used in throat, chest infection.
8	<i>Artemisia maritime</i> L	Tharkha	Shrub	Asteraceae	Whole plant	Antipyretic, used in cold, carminative & vermifuge.
9	<i>Berberis lycium</i> Royle.	Kwary	Shrub	Berberidaceae	Roots, Fruit	Intestinal, skin, stomach disorders, used as tonic & antiseptic.
10	<i>Berberis vulgaris</i> L.	Kwary	Shrub	Berberidaceae	Rhizome, Fruit	Used in piles, stomach ulcer & in chronic diarrhea.
11	<i>Brassica campestris</i> L.	Sharsham	Herb	Brassicaceae	Leaves, Seed	Diuretic, night blindness, headache, hair growth and for muscular pain of body
12	<i>Calendula officinale</i>	Ziar guli	Herb	Asteraceae	Leaves, flower	Used in healing of wounds, used as stimulant and tonic.
13	<i>Calotropis procerea</i> L.	Spulmai	Herb	Asclepidiaceae	Latex and Root	Leaves are used against snake and dog biting, flower extraction used in stomach infection.
14	<i>Carthamus oxycantha</i> Kareeza Bieb.		Herb	Asteraceae	Seed & fruits	Seed oil used for urine infection and disorder of stomach.
15	<i>Cannabis sativa</i>	Bhang	Herb	Cannabiaceae	Leaves	Leaves used as narcotic, seeds used in preparation of Tandai juice a kind of narcotics.
16	<i>Chenopodium album</i> L.	Sarmay	Tree	Chenopodiaceae	Whole plant	Plant used as vegetable, dried leaves used as painkiller and calcium deficiency, removal of worms from intestine seed are used.
17	<i>Citrus medica</i> L.	Lambo	Herb	Rutaceae	Fruit	Fruit juice used for kidney stone, infection and weight lose.
18	<i>Coriandrium sativum</i> L.	Dania	Shrub	Apiaceae	Leaves, Fruit	Fragrance agent, seed used in condiments, carminative.
19	<i>Cotoneaster numularia</i> Luni Fisch		Herb	Rosaceae	Root	Root extraction used for stomach disorders & expectorant
20	<i>cucurbita maxima</i> L.	Peta Kadoo	Shrub	Cucurbitaceae	Whole plant	Used as a vegetable also used for stomach ulcer. seed used as anthelmintic.
21	<i>Daphne oleoides</i> Schreb.	Anaghonai	Shrub	Thymeliaceae	Whole plant	Roots and fruit used for stomach, vomiting and intestinal problems.
22	<i>Datura innoxia</i> Mill	Baturra	Shrub	Solanaceae	Flower& seeds	Leaves extraction used for teeth infection, epilepsy headache, seed used as narcotic.
23	<i>Datura stramonium</i> L.	Baturra	Tree	Solanaceae	Flower, leaves,	Antispasmodic and astringent, seeds having alkaloid used for pain killer and anodyne.

24	<i>Dodonea viscosa</i> L.	Ghrasky	Herb	Sapindaceae	Bark, leaves, seed	Anticancerous, antidiabetic, leaves decoction used in stomach and gas trouble.
25	<i>Eruca sativa</i> Mill.	Jmama	Tree	Brassicaceae	Wholeplant	Used in eye disease and seed used for increasing sexual desire.
26	<i>Eucalyptus camaldulensis</i> Deh.	Lachi	Tree	Myrtaceae	Fruits and leaves	Leaves are boiled in water and used for mouth, teeth infection. Leaves extraction also used as antiseptic & Antiasthmatic.
27	<i>Euphorbia helioscopia</i> L.	Mandro	Tree	Euphorbiaceae	Juice of leaves, Roots	Highly allergic, astringent, Laxative, Leaves juice used against scorpion and snake biting,
28	<i>Ficus carica</i> L.	Inzar	Herb	Moraceae	Latex, Fruit	Fruit used in stomach, abdomen, and skin urinary tract infections, antiseptic and purgative.
29	<i>Foeniculum vulgare</i> Mill.	Kaga	Herb	Apiaceae	Leaves, fruits	Fruit used for abdominal pain and anti diabetic. Aromatic.
30	<i>Fumaria indica</i> Hausskn.	Shatara	Herb	Fumariaceae	Whole plant	Plant extract used for skin disorder, body coolant, febrifuge, poultice and expectorant.
31	<i>Geranium wallichianum</i> D. Don ex Sweet.	Sor booti	Herb	Geraniaceae	Roots	Root extraction used for ulcer of mouth also having Leucorrhea, dysentery and abdominal pain.
32	<i>Hedera nepalensis</i> K. Koch.	Parvtha	Shrub	Hederraceae	Fruit and Leaf	Used as antiseptic, pulmonary disorder, ant diabetic and rheumatism
33	<i>Indigofera articulata</i> Gouan (L).	Gwareja	Shrub	Papilionaceae	Seed, Root	Roots extraction used for curing of wounds ,leaves used for stomach, and eczema.
34	<i>Isodon rugosus</i> (Wall. Ex Bth.) Codd.	Krachi	Shrub	Lamiaceae	Leaves	Blood purifier, repellent, aromatic, Plant paste used for anti-lice on goats and sheep's.
35	<i>Juglans regia</i> L.	Ghooz	Shrub	Juglandaceae	Bark, Fruits	Bark use for lipstick and teeth cleaning ,leaves used for intestinal infection and eczema
36	<i>Justicia adhatoda</i> L.	Baikand	Tree	Acanthaceae	Leaves	Leaf extraction used for rheumatism, cough. decoction of leaves is dysentery ,antispasmodic also used for skin and scabies disease
37	<i>Melia azedarach</i> L.	Thora shandai	Herb	Meliaceae	Fruit, leaves and seed	Leaves and root extraction used for antidiabetic, chest infection, fruit are boiled in water used for acne and facial pimples
38	<i>Mentha arvensis</i> L.	Podina	Herb	Lamiaceae	Whole Plant	Stimulant, anthelmintic and diuretic also use for vomiting
39	<i>Mentha longifolia</i> L.	Velany	Shrub	Lamiaceae	Whole Plant	Astringent, Carminative and stimulant.
40	<i>Micromeria biflora</i> Benth.	Kashmli	Herb	Lamiaceae	Vegetative parts	Leaves are used for acne, facial problem and also in abdominal pain.
41	<i>Morus alba</i>	Spin tot	Tree	Moraceae	Fruit, bark	Used for removal of intestinal parasites and worms also used as a tonic.
42	<i>Nerium odorum</i> Soland.	Ganderi	Herb	Apocynaceae	Bark and root	Leaf extract used in gums teeth and mouth infection.
43	<i>Ocimum basilicum</i> L.	Kasmali	Herb	Lamiaceae	Whole Plant	Used in headache, stomach, appetite, and intestinal disorder, also used for urine, acne and weight lose.
44	<i>Olea ferruginea</i> Royle.	Khona	Tree	Oleaceae	Leaves, Fruit	Bark, Fruit edible and used for antidiabetic disease, seed oil is used for anti-cancer and bone strength, leaves extraction used for mouth infection.
45	<i>Oxalis corniculata</i>	Thrwky	Herb	Oxalidaceae	Whole Plant	Leaves used for stomach disorder and heart burn, cooling agent ,refrigerant.
46	<i>Papaver somniferum</i> L.	Doda, kash kash	Herb	Papaveraceae	Seeds, latex	Narcotic, it was used as anesthetic purposes in surgeries before chloroform discovery and used in severe pain.

47	<i>Plantago lanceolata</i> L.	Sat	Herb	Plantaginaceae	Seeds and leaves	Used for abdominal and stomach disorders.
48	<i>Platanus orientalis</i>	Chinar	Tree	Plantanaceae	Leaves and Bark	Bark extraction used for joint and body pain, prevent lose motion.
49	<i>Podophyllum emoid</i> Wall.	Kakora	Herb	Phodophyllaceae	Root, Rhizome	Used for body pain killer and also used for kidney waste removal
50	<i>Punica granatum</i> L.	Anngori	Tree	Punicaeae	Fruit	Juice used for kidney infection, urine flow, also show diuretic, cardiac, stomach problems.
51	<i>Quercus incana</i> Roxb.	Serray	Shrub	Fagaceae	Leaves, Bark, Seed	Dried leaf solution used as antifungal-bacterial, urine infection.
52	<i>Ricinus communis</i> L.	Aranda	Shrub	Euphorbiaceae	Seed, Leaves	Seed used for abdominal disorder, also used for increasing sexual desire.
53	<i>Rubus anatolicus</i> L.	Krwara	Shrub	Rosaceae	Fruits	Fruit used for increasing sexual desire, tonic carminative and anti-allergic purposes
54	<i>Rosa webbiana</i> L.	Throni	Shrub	Rosaceae	Fruits	Petals are mixed with honey for increasing eye sight and eye disease also used in Gul Kand
55	<i>Saxifraga ligulata</i>	Chanta	Herb	<u>Saxifragaceae</u>	Roots	Plant extraction used dissolving of kidney stone and urine infection
56	<i>Solanum nigrum</i>	Krmcho	Herb	Solanaceae	Whole Plant	Sedative, purgative, expectorant.fuit are effective in stomach and Hepatitis Disease
57	<i>Teucrium stocksianum</i> Spara botyy Boss (Airtch & Hemsl.)		Herb	Lamiaceae	Leaves	Decoction of plant is used in sugar and increase the efficiency.
58	<i>Verbascum thapsus</i> L.	Khrdug	Herb	Scrophulariaceae	Flower, Leaves	Antiseptic, painkiller, for wound healings. Flower and leaves are used for pulmonary infection, seed poison for fishes.
59	<i>Viola serpens</i> wall.	Bnowsa	Herb	Violaceae	Leaves, Flower	Very effective in chest and throat infection also used as febrifuge, antiseptic and purgative
60	<i>Xanthium strumarium</i> L.	Geeshy	Shrub	Asteraceae	Whole Plant	Leaves used as anti-septic and anti-malarial
61	<i>Zizyphus jujube</i> Mill.	Marhani	Shrub	Rhamnaceae	Fruit, leaves	Useful in coughing and stomach problems, emollient, expectorant and dysentery.
62	<i>Ziziphus numularia</i> Lam. Non Mill.	Beera	Shrub	Rhamnaceae	Leaves, fruits	Leaves are used to regulate body temperature, prevents blood and mucous along with feaces.

Out of these thirty two taxa were herbs (51.62%) nineteen taxa were Shrubs (30.65%) and eleven taxa were Trees (17.73%), (fig. 2 & table.1). Leaves of thirty two taxa (50%), Seeds of seventeen taxa (26.56%), Fruits of nine taxa (14.06), Roots of eight taxa

(12.5%), Whole plant of six taxa (9.37), Flowers of five taxa (7.81%), Bark of two taxa (3.12%), Gum, Bulb and Rhizome of one taxa (1.56%) each, used for the treatment of different ailments (fig. 3 & table. 1).

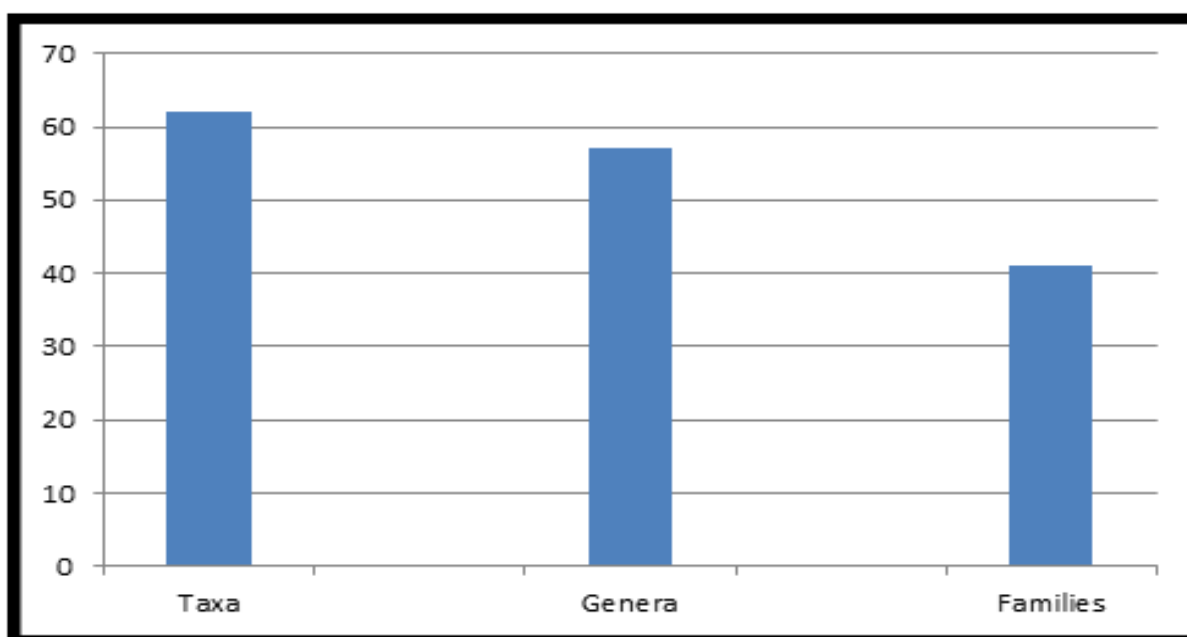
**Table 2.** Ethnomedicinal plants taxa and their percentage against various diseases in Tehsil Munda, District Lower Dir, Khyber Pakhtunkhwa, Pakistan.

Sr.No	Diseases	Number of taxa	Percentage
1	Stomach disorders	16	10.74
2	Stimulant	9	6.04
3	Tonic	7	4.7
4	Abdominal pain	7	4.7
5	Anti-diabetic	7	4.7
6	Antiseptic	6	4.03
7	Mouth ulcer	6	4.03
8	Anodyne	6	4.03
9	Dental infections	5	3.35

10	Carminative	5	3.35
11	Urinary infections	5	3.35
12	Vermicide	4	2.68
13	Skin disorders	4	2.68
14	Diuretic	4	2.68
15	Anti-asthmatic	4	2.68
16	Anti-spasmodic	4	2.68
17	Blood purification	4	2.68
18	Anti-rheumatism	3	2.01
19	Eye infections	3	2.01
20	Astringent	3	2.01
21	Headache	3	2.01
22	Healing of wounds	3	2.01
23	Analgesic	3	2.01
24	Expectorant	3	2.01
25	Nutritious	3	2.01
26	Intestinal disorders	3	2.01
27	Purgative	3	2.01
28	Kidney stones	3	2.01
29	Jaundice	2	1.34
29	Cardiac stimulant	2	1.34
30	Diarrhea	2	1.34
31	Antifungal	2	1.34
32	Vomiting	2	1.34
33	Anti-cancer	2	1.34
34	Others	1	0.67

Lamiaceae was the largest family having eight taxa (12.69%), Asteraceae, Apiaceae, Solanaceae having three taxa each (4.69%), Amaranthaceae, Berberidaceae, Brassicaceae, Euphorbiaceae, Myrtaceae, Poaceae and Rutaceae having two taxa each (3.12%) while remaining thirty families having

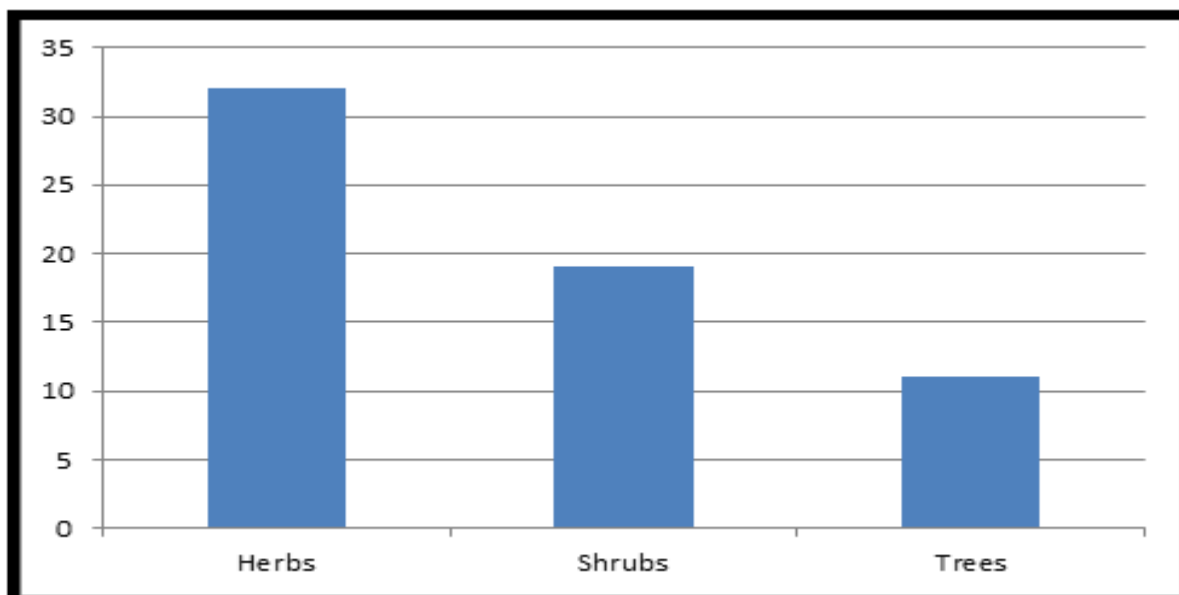
one taxa each. Amongst them fifteen taxa (23.44%) were cultivated while the remaining forty nine taxa (76.56%) were grown in wild. Leaves, roots, seeds, whole plant and fruits of various taxa were mainly used for extraction and treatment of disease.



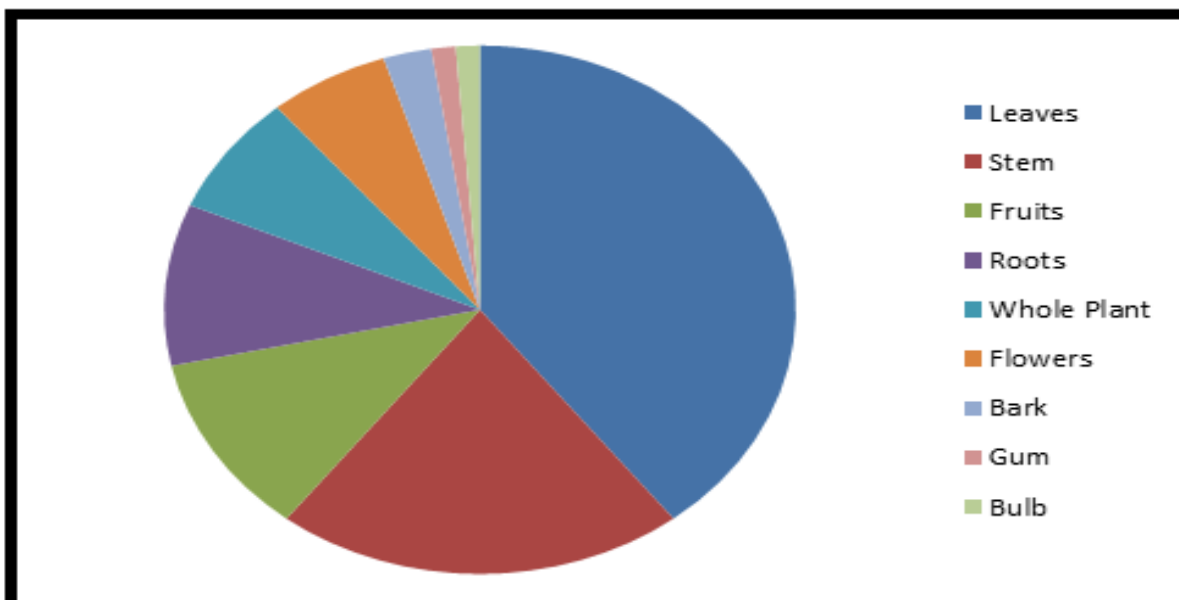
**Fig. 1.** Representation of ethnomedicinal uses of taxa, genera and families in tehsil Munda, District Lower Dir, Khyber Pakhtunkhwa, Pakistan.

Meticulous parts of trees and shrubs were used for remedies while herbs were used as a whole. A total of two hundreds local inhabitants were interviewed in which one hundred and fifty (75%) were men's and fifty (25%) were women's. Mostly the aged peoples

have more information's about the traditional uses of plants. They were engaged with the profession of Hakeems, wound healers, farmers, teachers and house wife old women's.



**Fig. 2.** Representation of ethnomedicinal uses of herbs, shrubs and trees in tehsil Munda, District Lower Dir, Khyber Pakhtunkhwa, Pakistan.



**Fig. 3.** Representation of ethnomedicinal uses of part/s used in tehsil Munda, District Lower Dir, Khyber Pakhtunkhwa, Pakistan.

The species were available freely in nature and used by local inhabitants from many years. *Berberis lycium*, *Mentha arvensis*, *Punica granatum* and *Cucurbita maxima* were used for stomach problems,

*Oxalis corniculata*, *Allium sativa* for cardiac disorders, *Helianthus annuus*, *Brassica campestris* and *Olea ferruginea* seeds oil were used as analgesic while the remaining species were used for various

remedies viz. Diarrhea, Abdominal Pain, Blood Purifier, Dysentery, Diuretic, Antispasmodic, as a stimulant, ring worm etc.

The same kinds of results agrees with the earlier work viz. common medicinal plants from Chapursan valley, Gojal, Gilgit Baltistan, Pakistan (Wazir *et al.*, 2004), ethnobotanical profile of plants from Shower Valley, District; Swat, Khyber Pakhtunkhwa, Pakistan (Hussain *et al.*, 2006), medicinal value of Ranunculaceae from Dir valley, Khyber Pakhtunkhwa, Pakistan (Hazrat *et al.*, 2007), ethnobotanical study of common weeds from Dir Kohistan valley, Khyber Pakhtunkhwa, Pakistan (Jan *et al.*, 2010), ethnobotanical study from Kahuta, District Rawalpindi, Punjab, Pakistan (Qureshi & Khan, 2001), diversity of medicinal plants from Wari, district Upper Dir, Khyber Pakhtunkhwa, Pakistan (Manan *et al.*, 2007), ethnobotanical study from tehsil Kabal, Swat District, Khyber Pakhtunkhwa, Pakistan (Ahmad *et al.*, 2011), ethnobotanical survey of plants from Neelum valley, Azad Jammu & Kashmir, Pakistan (Mahmood *et al.*, 2011), Indigenous knowledge and folk use of medicinal plants by the tribal communities of Hazar Nao Forest, Malakand District, Khyber Pakhtunkhwa, Pakistan (Murad *et al.*, 2011), the ethnobotany of Chitral Valley, Khyber Pakhtunkhwa, Pakistan (Ali & Qaiser, 2009), traditional medicinal plant knowledge of some spermatophytes of Samar Bagh Valley, Lower Dir district, Khyber Pakhtunkhwa, Pakistan (Irfan *et al.*, 2017), checklist of some medicinal plants of district Lower Dir, Khyber Pakhtunkhwa, Pakistan (Ahmad *et al.*, 2016), an updated checklist of Pteridophytes of district Mansehra, Khyber Pakhtunkhwa, Pakistan (Gul *et al.*, 2016), Indigenous medicinal plants used by local women in southern Himalayan regions of Pakistan (Qureshi *et al.*, 2009), check list of medicinal Plants from Siran Valley, district Mansehra, Khyber Pakhtunkhwa, Pakistan (Shah & Khan, 2006), economically and ecologically important plant communities in high altitude coniferous forest of Malam Jabba, district Swat, Khyber Pakhtunkhwa, Pakistan (Sher & Alyemeni, 2011), ethnobotanical study of some elite plants

belonging to Dir Kohistan valley, district Dir upper, Khyber Pakhtunkhwa, Pakistan (Hazrat *et al.*, 2011), ethnobotanical studies of plants of Charkotli Hills, Batkhela District, Malakand, Khyber Pakhtunkhwa, Pakistan (Barakat *et al.*, 2009), traditional resource evaluation of some plants of Mastuj, District Chitral, Khyber Pakhtunkhwa, Pakistan (Husain *et al.*, 2007), ethnobotanical survey of the flora of Maidan Valley, Lower Dir District, Khyber Pakhtunkhwa, Pakistan (Irfan *et al.*, 2018), first Floristic Checklist of Dilbori, District Mansehra, Khyber Pakhtunkhwa, Pakistan (Ahmed *et al.*, 2017), Preliminary Checklist of Upper Tanawal, District Mansehra, Khyber Pakhtunkhwa, Pakistan (Farooq *et al.*, 2017), Floristic List and Indigenous Uses of Poaceae Family in District Tor Ghar, Khyber Pakhtunkhwa, Pakistan (Mehmood *et al.*, 2017), ethnomedicinal Uses of Plants from tehsil Laalqilla District Lower Dir, Khyber Pakhtunkhwa, Pakistan (Irfan *et al.*, 2018), ethnomedicinal Plants used for gastrointestinal ailments by the rural communities of Kaghan Valley, district Mansehra, Khyber Pakhtunkhwa, Pakistan (Jamal *et al.*, 2017) and ethnobotanical Survey of the Flora of tehsil Balakot, district Mansehra, Khyber Pakhtunkhwa, Pakistan (Irfan *et al.*, 2018).

#### *Author's contribution*

MI, N & MK conducted the experiment and NAK, MI & AA carried out the statistical analysis SU & MS designed the experiment and GJ & WM structured and wrote the manuscript.

#### *Conflict of interest*

The authors declare that there is no conflict of interest.

#### **Acknowledgment**

We are really thankful to local communities for sharing their precious knowledge with us.

#### **Conclusion**

The study concluded that medicinal plants were mostly used in hilly and remote areas. Mostly the species were practiced against different ailments viz.

blood purification, kidney stones, antispasmodic, ring worm, Diuretic and as a stimulant. Aged people were well known about the uses of species than Younger's. Animal grazing, deforestation, construction of buildings, roads and other anthropogenic activities and climatic change had reduced the number of these useful medicinal plants. These species can be utilized easily for commercial, economical purposes and for the discovery of new drugs in future.

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