

## ETHNOBOTANICAL STUDIES OF MEDICINAL PLANTS OF MALAKAND DISTRICT

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### خلاصہ

یہ تحقیقی منصوبہ ایسے مختلف جڑی بوٹیوں کی نشاندہی کر رہا ہے جو مقامی لوگ مختلف بیماریوں کے علاج کے لیے استعمال کر رہے ہیں۔ انسان سکڑوں سالوں سے مختلف بیماریوں کے علاج کے لیے ہرمل ادویات کا استعمال کر رہے ہیں۔ مقامی ہرمل ادویات کے لیے مختلف پودوں کے مختلف بیماریوں کے علاج کے لیے زیرغور لایا جا رہا ہے۔ موجودہ مطالعہ ایک مخصوص دی علاقے کے روایتی علاج (ہرمل ادویات) تحقیقات کی روشنی میں پیش کیا گیا پودے اور ان کے ہرمل استعمال کے مناسبت مقامی لوگوں سے مختلف معلومات اکٹھی کی گئی۔ موجودہ طور پر ۴۰ بیماریوں کی اطلاع دی گئی جن میں سے دھما، اسہال، پاؤں اور منہ کی بیماریاں، بڑیوں اور بچوں کے مسائل سب سے زیادہ عام بیماریاں تھیں۔ مختلف بیماریوں کے علاج کے لیے مجموعی طور پر ۴۶ پودوں کی شناخت کی گئی یہ ۴۶ پودے ۹ مختلف خاندانوں سے تعلق رکھتے ہیں۔ جن میں انگور، ۲ جنمو سپرم اور ۴۳ پودے جینو سپرم کے شامل ہیں۔ جن میں سے ۱۴ فیصد بیماریوں کے لیے، پھل ۲۵ فیصد جی اور پھلکے ۸ فیصد جڑ ۵۳ فیصد، پھول ۱۴ فیصد، بلب اور گم پورے پودوں میں سے ہر ایک ۵ فیصد استعمال کی جاتا ہے جبکہ تنا اور جڑ ۸ فیصد، الگ الگ ہرمل استعمال میں زیرغور لایا جا رہا ہے۔ ان علاقوں کے لوگ اکثر مقامی انتظامیہ کی طرف سے ان لوگ جڑی بوٹیوں کا استعمال کرتے آئے ہیں اس مطالعہ میں ہم نے پودے کے مقامی نام، نباتاتی ذریعہ، تیار کرنے کا طریقہ، مختلف خام ادویات کے استعمال اور پودوں کے مختلف حصے جو ان ادویات کے بنانے میں استعمال ہوتے ہیں، کے معلومات فراہم کر رہے ہیں اس مطالعہ میں ہم ایسے معلومات بھی پیش کر رہے ہیں جیسا کہ ایک یا ایک سے زیادہ مخصوص بیماریوں کے لیے ۳۵ پودوں کو استعمال کیا جاتا ہے۔ اسی طرح ۱۱ پودوں کا ایک سے زیادہ مختلف بیماریوں کے علاج میں زیرغور لایا جا رہا ہے۔ پودوں کے ان اجزاء کو گرم پانی کے ساتھ، ست کے طور پر یا براہ راست استعمال کی جاتا ہے جیسا کہ بلب، پتے، جڑ، جی اور پھل کو کیا جاتا ہے۔

### Abstract

This research project reveals the use of folk herbal remedies with their ethno-botanical studies used by the local peoples for curing diseases. Human beings are using herbal remedies for curing different disease from hundreds of years. Different plant parts are used for the extraction of local herbal medicines for the treatment of different diseases. In present investigation information regarding traditional remedies of the area was carried out after survey of villagers of particular area. Questionnaires were used for collection of information regarding plants remedies. A total of 40 diseases were reported, of which Asthma, diarrhea, foot and mouth disease and bones and joints problems were the most frequently reported diseases. A total of 46 plants were identified in the area for treatment of different diseases. These 46 plants belonging to 29 families, out of which 1 species of fungus, 2 species gymnosperm and 43 species of angiosperm were identified. Different plant parts were frequently used in the preparation of folk herbal remedies leaves were used in 32.14% remedies, Fruit used in 25% remedies, seed and peel each 8.92%, rhizome 5.35%, flower 7.14%, bulb, gum and whole plant each were used 3.57% and stem and root 1.78% used in different folk herbal remedies. People of that area frequently used these folk herbs by oral administration. Different information like local name, family, botanical source, methods for preparation and usage of different crude drugs and different parts used for preparation were investigated in present study. Present study also provide information regarding use of plant for the treatment of single (35 plants were used to cure 1 particular disease) or more than one disease (11 plants were used to treat more than one disease). The Remedies were prepared by boiling in water, decoctions and administered or applied topically included bulbs, leaves, rhizomes, seeds and fruits.

### Introduction

The plants having high therapeutic values as possess various drugs are used for the treatment of diseases since prehistoric times by the peoples (Ahmad *et al.*, 2009). A vast amount of traditional knowledge is available for the treatment of various fatal diseases by folk herbal recipes in different tribes especially in Asian culture these practices are conducted for centuries (Marwat *et al.*, 2011). In the developing countries most of the people (about 80% of the population) used traditional herbal medicines for the cure of different diseases. Total use of different plant species is about 35000 – 70,000 for medicinal purpose in the world at one time/ in one culture. It is estimated that total 6500 plant species used in Asia for the treatment of different diseases as a home remedy (Pala *et al.*, 2010). The study of traditional knowledge also give information to other departments of study like Ecologist, Pharmacologist, Taxonomist and Wildlife department and also improving the economic status of both rural and mountainous region peoples (Ibrar *et al.*, 2007).

In Pakistan 60% people especially people living in rural areas are using traditional medicinal system for the curing of different disease. Medicinal plants are threatened in Pakistan due to unsustainable collection because the plants collector are mostly poor villagers, medicinal plants collection is their part time activity (Hamayun *et al.*, 2006). Climate of Pakistan is diverse and had varied climate and rich in different medicinal herbs scattered all over Pakistan. A total 5,521 plants species belonging to 1,572 genera are identified, only 600 plants are registered and using in different remedies for the curing of many diseases. More than 300 plants are trading in Pakistani markets which are using in different medicines, 275 medicinal plants are reported only from Swat which are locally used by the people, out of these 275 plants 87 plants are threatened, 23 plants are reported from Buneer and 31 medicinal plants species are reported from Chitral, the documentation of these traditional knowledge is going in all parts of Pakistan (Murad *et al.*, 2011). Pakistan is amongst the eight leading countries, which export medicinal plants, according to the Export Promoting Bureau, there was an export of over 8,500 tones medicinal herbs in 1999, which fetched a petty amount of 6 million U.S, dollars (Jamal *et al.*, 2012). Pharmaceutical companies use tones of medicinal plants to get some alkaloids, this has result the depletion of medicinal plants in many areas of Pakistan (Awan *et al.*, 2001). So, the present research work was designed to document the use of folk herbal remedies with their posological studies used by the local peoples for curing diseases.

### Materials and Methods

Regular field visits were arranged in district Malakand from June 2016 to February 2017 for collecting data about Folk plants recipes which is using by local people for curing many diseases. Interviews were conducted in different villages of the study area. The interviews were recorded from different people especially from aged people because they have more knowledge regarding the different herbal remedies for curing diseases and they have experience of practicing these remedies as well. During recorded data plant local name, part use, method of remedy preparation and method of usage were recorded. Interviews were done in some selected villages of the Malakand region. A total of 45 interviews were recorded in which 22.22% interviewers were 20 to 40 years of age, 28.88% is 41 to 60 years of age, 37.77% is 60 to 80 years of age and 11.11% interviewers were above 80 years of age. Out of 45 interviewers 3 were women and 42 were men, women were illiterate and out of 42 men 18 (24.85%) were illiterate and 24 (57.14%) were literate (Table1).

A questionnaire was prepared for the documentation of data during interviews which having all the important information regarding interviewers and plants for example name of interviewers, their education, address, contact number, plants botanical name ,local name, parts used, and their preparation method for curing diseases (Table 2). The data are arranged alphabetically on disease name, ingredients are mentioned and remedies preparation methods are also written down.

### Results and Discussion

The present study is carried out on folk herbal remedies of district Malakand, study shows that people of district Malakand are still using plants remedies for curing many diseases as it is also resulted by (Ibrar *et al.*, 2009). During data collection documented 40 different remedies which are using by local people as their primary medicines, in these 40 herbal remedies 46 plants species were used belonging to 29 families. Lamiaceae (*Mentha spicata* L., *Mentha longifolia* (L.) Huds., *Ocimum basilicum* L.), Apiaceae (*Coriandrum sativum* L., *Daucus carota* L., *Trachyspermum ammi* Sprague.) and Poaceae ( *cymbopogan citratus* ( Dc.) Stop f., *Triticum aestivum* L., *Zea mays* L.) Importance of these plants in local treatment were also described by (Zabihullah *et al.*, 2006). Out of 46 plants species 44 were Angiosperm in which 38 plants species were Dicot and 6 were Monocot, Gymnosperm were represented by 2 species and 1 fungus species were used in folk plants remedies, out of these 46 plants species 11 plants were used in more than one medicinal remedies these plants also play a vital role in other areas stated by (Murad *et al.*, 2011). Some remedies were used for human diseases and for animal disease as well. Local people collected all plants species and used in different folk herbal remedies for curing their diseases, some plants which are not available in study area people purchased it from local market and used as their primary medicinal source (Begum *et al.*, 2005).

**Table 1: Age description of interviewers**

S.No	Age of interviewers	Number of interviewers	Percentage
1	20 – 40	10	22.22
2	41 – 60	13	28.88
3	61 – 80	17	37.77
4	80+	5	11.11

Table 2. Showing list of diseases, treatments, botanical and local names, part use and method of administration.

S.No	Disease	Treatment	Plant name	Local name	Part use	Method of administration
1 ii		i	<i>Verbascum thapsus</i> L.	Khardag	Flower and leaves	Dried leaves and flowers are crushed and boiled in 150g milk and then give to patient thrice a day.
		ii	<i>Allium stivum</i> L.	Ooga	Bulb	Take 150 g bulb and boil it for 10 minutes give to the patient two time a day.
		iii	<i>Solanum nigrum</i> L.	Kachmacho	Leaves	Dried leaves of <i>Solanum nigrum</i> are boiled in 1 liter of water for 30 minutes then filter it and use three times a day one cup after meal for one month.
2	Athletes foot	i	<i>Lawsonia inermis</i> L.	Nakrezi	Leaves	Take 50g dried leaves of <i>Lawsonia inermis</i> L. and make powder of it added some water and put on effected finger highly effective against fungal skin infection.
3	Abdominal pain	i	<i>Punica granatum</i> L. and <i>Triticum aestivum</i> L.	Anar and ghanam	Peel	Take dried peel of <i>Punica granatum</i> L. and make powder of it mixed with <i>Triticum aestivum</i> flour and put Ghee then cooked for 20 to 30 minutes and give to patient.
4	Blood purification	i	<i>Convolvulus arvensis</i> L. and <i>Piper nigrum</i> L.	Prevatai and merch	Rhizome and Seed	5g powder of <i>Convolvulus arvensis</i> L. the dry rhizome along with 15 to 20 <i>Piper nigrum</i> L. is taken thrice a day as blood purifier.
						It is used as carminative agent. The powder (5g) is taken for treatment of toxemia and many diseases of children as well.
		ii	<i>Solanum nigrum</i> L.	Kachmacho	Leaves and stem	<i>Solanum nigrum</i> the aqueous extract 15 to 20mL of the fresh leaves and the stem of the plant is given twice a day as blood purifier and cooling agent. The fresh plant is given to animals as a treatment of diarrhea.
5	Blood pressure	i	<i>Allium stivum</i> L.	Ooga	Scales	Take 10 to 15g of <i>Allium stivum</i> L. crushed it and mixed in milk used two times a day also very good remedy for heart patient.
6	Bleeding gums and dental problems	i	<i>Nerium oleander</i> L.	Gandaray	Leaves	The fresh leaves of <i>Nerium oleander</i> Linn are washed, crushed, and then 3 cups of boil water is added. The filtrate is given to the patients suffering from dental pain or bleeding gums.
7	Bones and joints problems	i	<i>Rhazya stricta</i> Decene.	Gandicher	Whole plant	<i>Rhazya stricta</i> Decene. the plant is used for the treatment of syphilis, chronic rheumatism and old joint infections.
		ii	<i>Acacia modesta</i> Wall., <i>Papaver somniferum</i> L., <i>Phoenix dactylifera</i> L., <i>Prunus dulcis</i> (Mill) D.A Webb	Palosa, Opium, Kajora and Badam	Gum	Take 130g of <i>Acacia modesta</i> Wall. (resin) gums mix with 20g seeds of <i>Papaver somniferum</i> L. 20g, sugar 200g, <i>Phoenix dactylifera</i> L. 150g, <i>Prunus dulcis</i> (Mill) D.A Webb and cooked it in local ghee. Use three times a day for the back pain.

8	Body weakness	i	<i>Acacia modesta</i> Wall. And <i>Triticum aestivum</i> L.	Palosa and Ghanam	Gum and wheat	Gum of <i>Acacia modesta</i> Wall. with wheat flour and cooked it for 20 minutes, if almond is added to flour will be more effective against the disease, given to patient in breakfast.
9	Carminative and Diuretic	i	<i>Coriandrum sativum</i> L.	Dhanya	Shoot and leaves	Some part of shoot and fresh leaves of <i>Coriandrum sativum</i> L. are crushed and mixed with yogurt used three time a day.
10	Cholestrole level		<i>Cucumis stivus</i> L.	Badrang	Fruit	<i>Cucumis stivus</i> L. are used as salad in lunch and dinner very useful for reducing cholesterol level.
11	Cold and Cough	i	<i>Vitis vinifera</i> L.	Angor	Fruit	Extract juice from <i>Vitis vinifera</i> L. and mix some sugar for good taste used three times a day.
12	Constipation	i	<i>Mentha longifolia</i> (L.) Huds.	Vinalay	Leaves	Take 100g dried leaves of <i>Mentha longifolia</i> (L.) Huds. and grind it then mixed in 200g yogurt used two times a day during meal.
13	Dry skin	l	<i>Citrus lemon</i> (L.) Burm.f. and <i>Rosa demascena</i> Mill.	Nimbo and Gulab	Fruit and flower	Take extract of these plants and mix with Vaseline then store in a bottle used on dry skin at night time.
14	Diabetes	i	<i>Cupressus sempervirens</i> L.	Sarwa	Leaves	Take leaves of <i>Cupressus sempervirens</i> L. and boil it in 2 liter water until the water remain half of it, then filter the water and store in a freezer and use two time a day for 30 days the diabetes will control.
15	Diarrhea	i	<i>Vitis vinifera</i> L., <i>Punica granatum</i> L. and <i>Camellia sinensis</i> (L) Kuntze.	Angor, Anar and chai	Leaves, rend and leaves	Take 10g dried grinded leaves of <i>Vitis vinifera</i> L. and 10g rend of <i>Punica granatum</i> L. and <i>Camellia sinensis</i> (L) Kuntze. and make tea and give to patient three time day.
16	Dandruff	i	<i>Melia azedarach</i> L. and <i>Dalbergia sisso</i> Roxb.	Shanday and shawa	Fruit and leaves	Take fruit of <i>Melia azedarach</i> L. and fresh leaves of <i>Dalbergia sisso</i> Roxb. put it in water and boil for 30 minutes then filter it and wash hair with that water after some time again wash hair with fresh clean water.
17	Eye sight	i	<i>Daucus carota</i> L.	Gazara	Fruit	<i>Daucus carota</i> L. are cut down in small pieces and used as salad during lunch and dinner very useful for improvement of eye sight.
18	Ear ache		<i>Acacia nilotica</i> L. and <i>Brassica campestris</i> L.	Kiker and Sharhsham	Flower and seed oil	Take 20 to 30 flowers of <i>Acacia nilotica</i> L. and cooked these flowers in mustard oil then filter the oil. After the preparation 3 drops of that filtered oil poured in the patient ear till to control the ear ache.
19	Energy source	i	<i>Zea mays</i> L. a <i>Cicer arietinum</i> L.nd	Juwar and Chanrha	Seed	Mixed these all ingredients and out a jug of water in it and cooked for one hour very good source of energy especially for children's from 5 to 15 years of age.
20	Expectorant	I	<i>Solanum nigrum</i> L.	Kachmacho	Fruit	Take 10g fruits of <i>Solanum nigrum</i> L. and crushed it and added salt then eated orally or take it with water.

21	Fever	I	<i>Solanum surattense</i> Burm.F.	Marhaghonay	Leaves and Fruit	the leaves and fruits and boil it up to 20 minutes than filter the water and use two times a day orally for three days.
22	Flue	i	<i>Papaver somniferum</i> L., <i>Camellia sinesnsis</i> (L.) Kuntze. and <i>Punica granatum</i> L.,	Opium, Chai and Anar	Capsule, leaves and rind	Mixed all these ingredient and tea is prepared and used at night time for three days.
23	Gastric	i	<i>Punica granatum</i> L.	Anar	Peel	Take 60 to 70g peel of <i>Punica granatum</i> L. and make powder than half or 1 tea spoon of that powder put in one glass of water used two times a day.
24	Heart attack	I	<i>Citrus lemon</i> (L.) Burm.f. and <i>Allium sativum</i> L.	Nimbo and Ooga	Fruit and scales	take extract of lemon, 10g Honey and 10g grinded <i>Allium sativum</i> L. mixed all these ingredients and used three times a day.
25	Hair fall	i	<i>Brassica campestris</i> L. and <i>Morchella esculenta</i> Fr.	Sharhsham and Guche	Seed oil and whole plant	<i>Brassica cmpestres</i> L. oil are used as a remedy for hair fall and <i>Morchella esculenta</i> Fr. grind it and one tea spoon are used with water early in the morning.
26	Kidney stone	i	<i>Ficus carica</i> L.	Inzer	Fruit	Fruits of <i>Ficus carica</i> L. are used for kidney stone in early in the morning highly effective against kidney stone.
27	Mouth ulcer	i	<i>Ocimum basilacum</i> L. and <i>Mentha spicata</i> L.	Kashmalo and Podina	Leaves	Fresh leaves are wash with clean water and put in mouth for 5 to 10 minutes a good remedy for mouth pain and mouth soreness.
28	Maleria	i	<i>Verbena officinalis</i> L.		Leaves	40 to 50g dried leaves of <i>Verbena officinalis</i> L. is crushed and obtained juice then 10g sugar will add then give to patient before meal.
29	Nerves disorderness	i	<i>Artemisia vulgaris</i> L.		Leaves and young flowers	Take 100g shade dried leaves and flowers especially young flowers and make powder of it than two tea spoon of that powder take with water two times a day.
30	Pneumonia	i	<i>Trachyspermum ammi</i> Sprague., <i>Foeniculum vulgare</i> Mill., <i>Triticum aestivum</i> L. and <i>Brassica Campestris</i> L.	Sperkai, Kaaga, Ganam and Sharhsham	Seed	All the ingredients are mixed and boiled in water for 10 minutes. The decoction is administered orally to the patient 2 times a day.
31	Piles	i	<i>Punica granatum</i> L.	Anar	Fruit	Extract juice from <i>Punica granatum</i> L. put some salt in it and drink one glass two times a day.
32	Sexual tonic	i	<i>Tinospora cordifolia</i> (Thonb.)Miers.	-	Leaves	Take 10 to 20g shade dried leaves of <i>Tinospora cordifolia</i> and crush it then one tea spoon added with milk and drink it or take one tea spoon orally with water.
33	Swelling	i	<i>Punica granatum</i> L. and <i>Solanum nigrum</i> L.	Anaar and Kachmacho	Fruit	Take one glass juice of <i>Punica granatum</i> L. and added 5g grinded fruits of <i>Solanum nigrum</i> L. drink it daily very effective for reducing swelling.

34	Scorpion bites	i	<i>Allium cepa</i> L.	Piaz	Scales	Take some part of <i>Allium cepa</i> L. ant give some heat then put it on bitted place apply this remedy two time a day for 3 days.
35	Theeth problems	i	<i>Juglans regia</i> L.	Ghuz	Leaves and bark	Fresh leaves or dried bark of <i>Juglans regia</i> L. is used for teeth cleaning, anti-fungal and anti-microbial.
36	Throat disease	i	<i>Morus nigra</i> L. and <i>Piper nigrum</i> L.	Tooth and toor mirch	Fruit and seed	Take 20g dried fruit of <i>Morus nigra</i> L. and 5g powder form of <i>Piper nigrum</i> L. eat it orally very effective for throat diseases.
37	Temprature	i	<i>Cichorium intybus</i> L.	Kashni	Leaves	Take dried leaves of <i>Cichorium intybus</i> L. and make powder of it and take one tea spoon with water.
38	Urinary infection	i	<i>Juniperus communis</i> L.	Nazar panrha	Barries	Take 1 tea spoon barriers of the <i>Juniperus communis</i> L. and 5 cups of boiled water and make tea. Half or 1 cup of that tea take three times daily, this is highly effective remedy against urinary infection.
39	Vomiting	i	<i>Cymbopogan citratus</i> (Dc.) Stopf., <i>Camellia sinensis</i> (L.) Kuntze. and <i>Psidium gujava</i> L.	Sheen chai and chai and Amrod	Leaves and fruit	Mixed these all ingredient and make tea is prepared. Used orally two time a day
40	Wound	I	<i>Berberis lyceum</i> L. and <i>Bassica campastes</i> L.	Ziarhlargay and sharhsham	Root and seed oil	Take 20 gram of <i>Berberis lyceum</i> L. and boil it in oil. Use two times a day on the affected area.
		ii	<i>Berberis lyceum</i> L.	Ziarhlargay	Root.	Make powder of <i>Berberis lyceum</i> L. and take 5g of these powders with one glass of milk.
		iii	<i>Rumex dentatus</i> L.	Tarokay	Leaves	The leaves are crushed and make a paste which is applied to the wound to stop bleeding.

Table 3: Percentage of plant part used in remedies.

S.No	Plant part	Used in remedies	Percentage
1	Leaves	18	32.14
2	Fruit	14	25
3	Seed	5	8.92
4	Peel	5	8.92
5	Flower	4	7.14
6	Rhizome	3	5.35
7	Gum	2	3.57
8	Bulb	2	3.57
9	Stem	1	1.78
10	Whole plant	1	1.78

Various plants part were used in plants remedies leading by Fruits 25% were used in 14 different remedies followed by leaves used 26.15%, seed and peel each 8.92%, rhizome 5.35%, bulb, gum and whole plant, stem and root are used 1.53% (Table 3). These plants were present wildly but now only remains to cultivation (Sher *et al.* 2004). After the preparation of plants remedies both oral and topical method of administration were followed by the local people, during collection of data it was noticed that most people used oral method of administration because it is easy way to treat diseases, people take plant or plant part and mixed with some ingredients like maize, wheat flour or oil and then used for curing their diseases. In topical method plants were crushed and extracted juice then added some ingredient like sugar or oil and then used as a remedy for curing disease, this is also revealed by (Ibrar *et al.* (2007).

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