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RESEARCH PAPER

TITLE

ETHNOMEDICINAL INVENTORY OF VILLAGE TARAKAI, DISTRICT SWABI, PAKISTAN

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Abstract

Present study was an effort to investigate the ethnomedicinal flora of village Tarakai, District Swabi, Pakistan. Result of this study showed 59 medicinally important species of plant belongs to 45 different families the dominant families include Solanaceae, Rhamnaceae and Liliaceae. These medicinal plants are used for the cure of different diseases from these 39.2% plant species are used for the cure of digestive problem, 26.7% for skin disorders and 12.5 % for respiratory disorders and rest for other disorders. Our study also showed some recipes documented by the local peoples for the cure of disease and the mode of preparation and their mode of administration were also documented by the local inhabitants including both male and females. The result of this study may be helpful for further drug investigation.

Key words: Tarakai, ethnomedicinal, Swabi, ethnobotany, traditional knowledge

1. Introduction

Since the time of his creation the human being depending on plant directly or indirectly. In history each human population

classified plants, develops attitudes and beliefs and learns the uses of plants. To study this relationship between peoples and plants the term “Ethnobotany” is used. The term Ethnobotany was first applied in 1896 by the US botanist John Harshberger. He used this term to study plants used by local communities (Pahnwar & Abro 2007). The main benefit of ethnobotanical studies is to identify locally important plant species, used to cure different diseases and especially their recipes. These plants are further used for the discovery of useful drugs. Many modern-day drugs were identified by such ethnobotanical documentation of traditional knowledge (Shinwari 2010). Most of the human population in the world depend on the plants for medicine, Plant medicine is a recognized system of medicine in all over the world according to World health organization about 80 percent population of world is utilizing plants for medicinal purposes (WHO, 2011). The global market for medicinal and aromatic plants was \$62 billion in 2002 and may reach \$5 trillion by 2050 (Shinwari2010). A major reason for the plants to use as medicines is that medicinal plants contain combinations of active compounds which having ability of neutralizing side-effects (Shad et al., 2017).

So, these medicines are less harmful as compared to synthetic medicine.

So, in the last few years the field of ethnobotany has progressed very much. Instead of being study of only indigenous plant it also emphasizes on the conservation and sustainable use of plants resources. On this regard lot of work on ethnobotany has been reported from various areas of world and also it going to be popular in Pakistan, and various people reported the indigenous knowledge from various parts of the country.

The vegetation of Pakistan is very diverse having more than 6,000 species of higher plants, from which 12 percent are medicinally important, found in different regions of country but most are to be found in the Northern and Northwestern parts of Pakistan (Shinwari 2011). District Swabi is a settlement that lies between the River Indus and Kabul, in the province Khyber Pakhtunkhwa, Pakistan. The district was established in 1988 on an area of about 1,543 km². Swabi is an agricultural area due to its fertile soil and better irrigation through Indus River the main cash crop of area is tobacco but other like wheat, sugarcane, and corn also cultivated on large scale. On the ethnobotanical and ethnomedicinal prospective the area is not investigated well and no prominent work has been reported so the present study is conducted on the small village Tarakai of District Swabi and tehsil Razar to explore the ethnomedicinal profile of that village. Although the area is not very rich in vegetation but still the people of this area use herbs in their daily routine.

2. Methods and Material

2.1. Study Area

District Swabi occupies the south and south-western part of Khyber Pakhtunkhwa, Pakistan with an elevation varying from 360 to 2250 m. It lies between latitude 34-0' and 34-25' N and longitude 72-9' and 72-40' E. The area lies between the Indus River borders the South and South east and Kabul River at North. The area also lies between monsoon and western disturbances, resulting in increased rainfall and humidity. Hot summers are the characteristics with the hottest months June and July having mean maximum temperature of 40-42°C. There is a drop in temperature with rising altitude. Winters are cold with coldest month January. The mean winter temperatures are 4-10°C. The annual rainfall varies from 60cm to 145cm, increasing towards upward north and with rising altitude while most of the rain is received during the monsoon. The district occupies an area of about 1,543 km², consist of up four Tehsils Swabi, Lahore, Topi and Razar. The total population of district according to 2017 census, 1.625 million. Our study area is a small village Tarakai located in Tehsil Razar of District Swabi. The major land area of this village having fertile soil irrigated through Indus River having major crops tobacco, maize, wheat and sugarcane in this area. Due to agriculture practice the wild vegetation is not very rich in this area but still the people use available plants in their daily routine.



2.2. Collection of Ethnobotanical Data

Due to seasonal variation the plant will not grow in one particular area or season. So, in order to collect maximum indigenous knowledge, the study area is visited throughout the year. During field survey, more than 30 local inhabitants, including mostly older people, herbalists were interviewed through semi-structured questioner in order to get the indigenous knowledge of plant specially those having medicinal value. On the basis of which the plants were classified further (Qureshi *et al.* 2009). For identification the plant specimen was collected, dried and preserved properly by giving specific voucher numbers on the herbarium sheets and identified from the herbarium of Quaid-i-Azam University Islamabad. After proper identification, these plant specimens were deposited in the Herbarium, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi as voucher specimen for future references.

3. Result and Discussion

Although the health facilities are not poor in study area still the people use plants as medicine for their basic health requirements due to low side effects. In present study total 59 plant species were reported enlisted in (Table # 01) used by local inhabitants for the

cure of different diseases. For documentation purpose total 78 people were interviewed (Table# 02) including both male and females. These vascular plant species belong to 45 different families the most represented families are Solanaceae, Rhamnaceae and Liliaceae represented by 3 species followed by Asteraceae, Poaceae, Mimosaceae, Brassicaceae, Euphorbiaceae and Caesalpiniaceae having 2 species and remaining 36 family have one species each.

Conclusions

Table # 01- Plants and their uses.

S r. n o	Scientific name	Family	Local name	Ethno botanical uses
1.	<i>Acacia modesta</i> L.	Mimosaceae	Palosa	The leaves of this plant in the fresh form is crushed and the juice from that is used for eye infection and Cataract The gum of this tree is mixed with water and taken for the diarrhea Gum is also used as tonic for backache and rheumatism. Stem is used for making masuak.
2.	<i>Acacia nilotica</i> L.	Mimosaceae	Kikar	The leaves are dried and in the powder form mixed with oil and applied on burn wounds. The wood of this plant is burned and the ash of this is applied on the wounds. Stem is used for making masuak.
3.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Jishkay	Leaves are boiled in water and that water is used as blood purifier.
4.	<i>Adiantum capillipes</i>	Adiantaceae	Sumbal	The leaves are crushed and juice from that

	<i>- venerisL.</i>			is mixed with water and taken orally for the treatment of scabies and for other skin disorders.
5.	<i>Allium cepaL.</i>	Liliaceae	Payaz	Leaves as well as tuber is used as flavoring agent in cooking and salad. The tuber is crushed to obtain juice that juice is applied externally to treat scabies. The immature tuber is crushed to obtain its juice that juice is given to the person suffering from diarrhea and vomiting.
6.	<i>Allium sativumL.</i>	Liliaceae	Ouga	The tuber is used as a condiment in daily cooking used for the flavor. The tuber is crushed and applied on the ring worm disease. The tuber is dried and powder is taken daily with water for the high blood pressure.
7.	<i>Aloe vera(L.) Burm f.</i>	Liliaceae	Azma raybotay	The pulp of the leaves is kept for the whole night in the mud plate in open air and in the morning this pulp taken orally with water as a blood purifier. The pulp of this plant is also applied on the skin for pimples.
8.	<i>Amarant husviridis L.</i>	Amaranthaceae	Chalwary	The leaves are taken as raw for digestive problems the leaves are laxative in nature.
9.	<i>Avena sativaL.</i>	Poaceae	Jamda ray	The spike of this plant is used as nerve tonic.

10.	<i>Berberis lyceumR oyle.</i>	Berberidaceae	Ziarla rgay	The rhizome of this plant is kept in water for 12-24 hours in water and then after that that water is used for mouth infection and urinary tract infection. The rhizome in powder form is taken orally with water for broken bones, rheumatism and as a coolant. The rhizome is boiled in water and that water is given to live stock animals for internal wounds.
11.	<i>Bombex eibaL.</i>	Malvaceae	sumbal	The outer bark of this tree is wrapped around the broken bones.
12.	<i>Brassica compestris L.</i>	Brassicaceae	Shars ham	Seed is used to extract oil which is edible also used for hair nourishment and used as antidandruff, oil cake is used for cattle.
13.	<i>Calotropi sprocera(Aiton) W.T.Aiton</i>	Asclepiadaceae	Spalmay	Paste of leaves in oil is used as pain killer, to cure skin itch, and scabies. The root bark is used for the treatment of cholera and constipation.
14.	<i>Cannabis sativaL.</i>	Cannabinaceae	Bhang	Female plant is used in making narcotics like chars. The leaves are crushed and fresh juice of this is used to relieve pain in body.
15.	<i>Cassia fistulaL.</i>	Caesalpinaceae	Landsa	The pods of the plant are boiled in water and then that water is given to the animal suffering from severe constipation.
16.	<i>Cassia occidenta lisL.</i>	Caesalpinaceae	Larambootay	The seed are taken with water for stomach problem.

17.	<i>Chenopodium album</i> L.	Chenopodiaceae	Larmasarma	The leaves are taken in raw form or cooked and believed by the local inhabitants to contain laxative properties.
18.	<i>Convolvulus arvensis</i> L.	Convolvaceae	Prewatay	The leaves are crushed and in warm form is applied on the boils for maturation. The leaves paste is formed in butter and applied externally on nose for epistaxis. Also used as a fodder
19.	<i>Conyza Canadensis</i> (L.) Cronquist	Asteraceae	shamkay	The seed of the plant is taken with sugar water as a coolant for the body.
20.	<i>Cordiamyxala</i> L.	Boraginaceae	Lashora	Fruit is edible and used for arthritis disease by local inhabitants due to gummy nature.
21.	<i>Cucumis melo var. agratois</i> (Naudin.) Pangalo.	Cucurbitaceae	Tarkahindwana	The fruit is dried and in powder form is taken with water for asthma and phlegum and bronchitis. The fruit is dried and in powder form mixed with wheat flour and give to the animal suffering with dysentery and for fever.
22.	<i>Curcuma longa</i> L.	Zingiberaceae	curcumin	The rhizome powder is mixed in milk and give orally for internal wounds to human as well as to animals. For external wounds the rhizome powder is mixed in mustered oil warm and applied on the wound. Also used as condiments during cooking.

23.	<i>Cuscutaeflexa</i> Roxb.	Cuscutaceae	Zelai	The stem is boiled in water and used for the treatment of jaundice and fever.
24.	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Kabal	The tips of leaves are crushed and used as hemostatic on wounds.
25.	<i>Daturastramonium</i> L.	Solanaceae	Daltora	The stem is dried and smoked in hooka for asthma.
26.	<i>Dodonaeaviscosa</i> (L.) Jacq.	Sapindaceae	Ghoraske	The leaves are dried and powder and then this powder is applied directly on the wounds.
27.	<i>Eruca sativa</i> Mill.	Brassicaceae	Jawanwa	The leaves of that is cooked as vegetable and laxative in nature. The oil is used as antidandruff.
28.	<i>Eucalyptus camaldulensis</i> Dehnh.	Myrtaceae	Lachi	The leaves of this plant is boiled in water along with tea leaves and used for the treatment of flue, cough and cold. The paste of leaves is applied on acne.
29.	<i>Euphobiprostrate</i> Ait.	Euphorbiaceae	Marware/chaktara	The whole plant is dried and the powder of that is taken orally with water for treatment of piles.
30.	<i>Ficus carica</i> L.	Moraceae	Inzar	Fruit is edible, eaten fresh as well as in dried form for treatment of piles.
31.	<i>Mangifera indica</i> L.	Anacardiaceae	aam	Fruit is edible, seed kernel is dried and converted to fine powder then this powder is taken for the constipation and abdominal pain with water or milk.
32.	<i>Medicago polymorpha</i> L.	Fabaceae	Shapeshtay	The fresh plant as well as dried plant is used as vegetable and

				for flavor. The fresh plant is utilized against dysentery due to its costive properties.
33.	<i>Melia azedarach</i> L.	Meliaceae	Bakyraran	The leaves are crushed juice from that is mixed with water and taken orally for diabetes, skin pimples, and scabies and as a coolant. The fruit in fresh form is crushed and dipped in water for one day and after that that water is used for hair problem. The leaves in fresh form is used for treatment of body swelling in animals.
34.	<i>Mentha longifolia</i> (L.) Huds.	Lamiaceae	Velany	Leaves are dried and in powder form mixed with yogurt for reducing gastric acidity for diarrhea to relieve abdominal pain. Leaves are also used as carminative. The powder of leaves are mixed with salt and charcoal for cleaning teeth.
35.	<i>Mirabilis jalapa</i> L.	Nyctaginaceae	Gulbassy	The leaves of that is dipped in warm mustard oil and applied externally on boils for maturation.
36.	<i>Ocimum basilicum</i> L.	Lamiaceae	Kashmalo	The seed of this plant is kept in water for 12 hours and after this that water is used orally for mouth infection. The leaves of this plant are taken in equal quantity with <i>Menthapiperita</i> , <i>Coriandrumsati</i> <i>vumcrushed</i> and mixed in yogurt and used for

				stomach problem.
37.	<i>Oxalis corniculata</i> L.	Oxalidaceae	Tareawakay	The leaves are crushed to obtained juice then this fresh juice is mixed in Potassium alum and utilized for the infection of eyes.
38.	<i>Paeoniae modi</i> Wall. ex Royle.	Paeoniaceae	Mamekh	The roots of this plant is dried and powder and with water taken daily for backbone ache and for arthritis. In another recipe the powder of this plant is mixed with wheat flour and then they are warmed and tied on the inflammation and external wounds and for internal wounds it is mixed with <i>Berberis lyceum</i> and taken daily with water or milk. The powder of rhizome is mixed with wheat flour and given to the animal suffering from respiratory tract infection and for internal wounds.
39.	<i>Papaver somniferum</i> L.	Papaveraceae	Doda	The outer coat of capsule is boiled in water and then that water is given to the person suffering from severe cough and dysentery. The capsule is also used for the tooth ache. The seed are called khaskhash which is edible, the seeds are crushed and kept in milk for whole night in mud pots and used in morning for headache and memory.

				The capsule coat is dried convert in powder form is given to the animal with wheat flour to cure respiratory problem in animals. The plant is also used for making narcotics. Also used for ornamental purposes.
40.	<i>Peganum harmala</i> L.	Zygophyllaceae	speelani	The seeds are taken with water for abdominal pain and for pain during menstruation. The plant is considered spiritual and burned for bad evils and Evil eye in different occasions.
41.	<i>Platanus orientalis</i> L.	Platanaceae	China r	The plant flowers are eaten by the children due to sweet taste but when consumed in large amount cause blisters in mouth.
42.	<i>Polygonum barbatum</i> L.	Polygonaceae	Palpolak	The plant stem and leaf is dried and the powder is used for cleansing of teeth.
43.	<i>Portulaca oleracea</i> L.	Portulacaceae	Ensat	The whole plant is given to the animal for digestive and dysentery problems. The leaves are crushed and boiled with <i>Hordeum vulgare</i> to make paste and then this paste is applied on the boils.
44.	<i>Psidium uajava</i> L.	Myrtaceae	Amrod	The fruit in fresh form is used for diarrhea and digestive problems. The leaves and stem bark is boiled in water and the water is used for the

				treatment of diarrhea. For food as a fruit and leaves are used for laxative purposes and for tooth itch
45.	<i>Punicagranatum</i> L.	Punicaceae	Anar	The fruit is edible the fresh juice from this is used for heart problem. The fruit coat is dried and burned on coal along with <i>Trachyspermum ammi</i> . and potassium alum and then mixed in honey and used for flue, asthma and cough. The fruit coat is dried and the powder of that is taken along with water for abdominal pain and spasm. The whole fruit is covered with mud and burned in coal and then that fruit after burning is used for asthma patients. The fruit coat powder is mixed in water and given orally to animal for the problem of dysentery. Wood is used for fuel.
46.	<i>Ricinus communis</i> L.	Euphorbiaceae	Mara nda	The seed from this plant is orally taken with water for digestive problems. Due to poisonous nature leaves not used as fodder.
47.	<i>Rosa damasce na</i> Mill.	Rosaceae	Gulab	The flowers' petals along with tea leaves, lemon leaves and <i>Trachyspermum ammi</i> and with sunf is boiled in water and then used for the treatment of

				diarrhea, vomiting and other digestive problems. used for ornamental purposes
48.	<i>Salix babylonica</i> L.	Salicaceae	Mala	The leaves of this plant were boiled in water and give to the female suffering from heavy postpartum hemorrhage.
49.	<i>Solanum nigrum</i> L.	Solanaceae	Kach macho	The juice from fresh leaves are used for mouth infection.
50.	<i>Solanum surattense</i> Burm. f	Solanaceae	Mara ghoni	Fruit of this plant is kept in mouth for toothache. For the burning sensation of feet, the fruit of this plant is boiled in water and when cool down the feet are kept in that water for some time.
51.	<i>Tamarix phylla</i> (L.) Karst.	Tamaricaceae	Ghaz	The leaves are dried and then powdered that powder is applied in dry form on burn wounds.
52.	<i>Trachyspermum mmi</i> (L.) Sprague	Apiaceae	Sper kay	The fruit of this plant is boiled in water and then that water is used for abdominal pain, pain during menstruation, fever, cold and for digestive problems. The fruit is roasted and mixed with honey and taken for the cold and cough. Fruit is used for cough, fever, cold, digestive, and in colic pain. Fruit is used as carminative.
53.	<i>Verbascum</i>	Scrophulariaceae	Khardak	Leaves are used externally to

	<i>Thapsus</i> L.			relieve pain and inflammation.
54.	<i>Verbena officinalis</i> L.	Verbenaceae	Sham akay	Seeds are used for fever and leaves are used for cooling agent.
55.	<i>Vitis vinifera</i> L.	Vitaceae	Angor	The fresh leave along with mustard oil is applied on the boils for maturation. Fresh fruit is eaten raw and carminative in nature.
56.	<i>Xanthium stramonium</i> .	Asteraceae	Jeshay	Stem ash is used as pain killer.
57.	<i>Ziziphus spina Christi</i> (L.) Desf.	Rhamnaceae	Bhera	Leaves in crushed form is applied on boils and pimples. The fruit is edible.
58.	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	Bhera	The leaves along with oil applied on pimples. Fruit is edible
59.	<i>Ziziphus nummularia</i> (Burm.f.) Wight & Arn.	Rhamnaceae	Jara	The leaves are crushed and applied on boils, acne and pimples. Fruit is edible.

Ethnomedicinal uses of plant indicates high percentage usage of 39.2% for the cure of digestive problems such as diarrhea, dysentery, constipation, stomach disorders and abdominal pain followed by skin disorders such as scabies, pimples, ringworm, boils etc. having percentage usage 26.7% followed by respiratory disorders such as cough, cold, asthma, bronchitis having usage percentage 12.5% (Fig # 01) many other diseases such as wounds, rheumatism, pain killer, blood purifier, eye infection, fever, backache, piles etc. are also treated (Table # 01) by local inhabitants. Study also showed that most prominent part of the plant which are utilized most are leaves 44.64%

then followed by fruit and seeds having percentage usage 23.21% and 10.7% in some cases whole plant and rhizome are also used having usage percentage 7.14% for both (Fig #02)

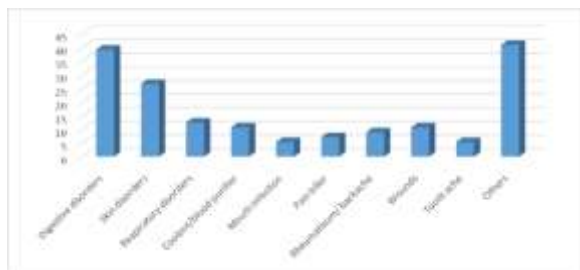


Fig 01: Percentage use of plant for cure of different diseases

The gum of some plant is also very useful like the gum of *Acacia modesta* is used for rheumatism, backache and for diarrhea this finding is same as that by the peoples in Buner and Malakand District of KPK Province where the people used this gum as a tonic and for dysentery problem (Alamgeeret al.2013; Sher et al.2011; Zabihullahet al. 2006). Some plant are utilized in the form of ash like the stem of *Acacia nilotica* is burned and then the ash of that is applied on the wounds. The branches of some plant are also used as masuak like the stem of *A.modesta* and *Acacia nilotica* this use by same plants were also documented by (Alamgeeret al.2013; Ahmad et al. 2013).

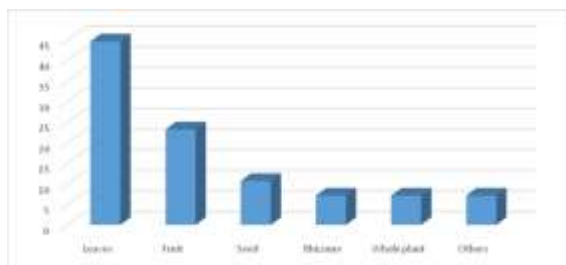


Fig 02: Percentage use on the bases of plant parts.

(Table # 01) indicates that some plant species such as *Punicagranatum*, *Portulacaoleracea*,

Papaver somniferum, *Paeoniaemodi*, *Cucumismelo var. agratois*, *Meliaazedrach*, *Cassia fistula* are also used for the treatment of different disorders in livestock these disorders include digestive problems, internal wounds, body swelling, fever etc. Zabihullahet al. (2006) also reported *Meliaazedrach* for veterinary use (Table # 01). Some plants are used as narcotics such as *Papaver somniferum* and *Cannabis sativa* the same is reported by (Zabihullahet al. 2006; Sher and Al-yemeni 2011). Some plants are also used as pot herbs such as *Solanumnigrum*, *Portulacaoleracea*, *Medicagopolymorpha*, *Eruca sativa*, *Chenopodium album*, *Brassica campestris* and *Amaranthusviridissame* plant are also used as vegetables in different areas of KPK Province mentioned by (Badshahet al. 2012; Zabihullahet al. 2006) there are also many different plants whose fruit is edible like *Zizyphusmauritanica*, *Punicagranatum*, *Ficus palmate*, *Vitisvinifera*, *Psidiumguajava* and *Mangiferaindicat* the finding agrees with that of (Ibraret al. 2007) (Alamgeeret al.2013).

Table # 02: Interviewed person

Gender	Age	Number
Male	< 50	11
	> 50	16
	> 18	5
Female	<50	16
	> 50	22
	> 18	8

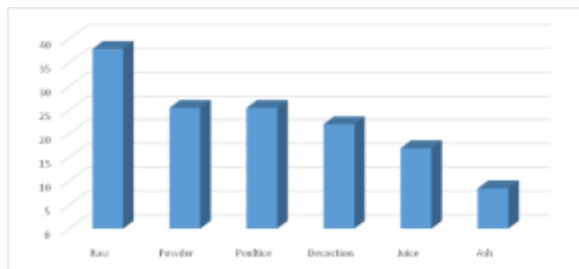


Fig 03: percentage usage on the mode of preparation.

Study also showed the mode of preparation of plant for disease treatment some plants are used in powder form some as poultice and some are used in fresh form (Fig# 03). Some herbs are used in combination with other herbs. During our study it was also noticed that the leaves of some plant such as *Vitis vinifera*, *Ziziphus mauritiana*, *Mirabilis jalapa* and *Convolvulus arvensis* are used with mustard oil as a poultice for boils treatment. Some plant leaves are crushed and applied as a poultice for different treatment on skin (Table#01). Our study showed that most plant of our study are utilized in raw form followed by powder and poultice. In our study certain formulation were also recorded for the treatment of different diseases from local inhabitant and hakims (Table#01).

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