

Ethnobotanical Survey of Medicinal Plants Used in Wazir and Daur Tribes of North Waziristan, Pakistan

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Abstract: Waziristan is the land of Wazir, Daur and Mahsood Tribes is a mountainous region of Khyber Pukhtoon Khwa (K.P.K) Province of Pakistan, bordering Afghanistan. Present ethnobotanical studies were conducted in the North Waziristan. Information on the traditional folklore uses of 88 medicinal and aromatic plants belonging to 53 families was recorded. The study showed that out of these plant collection, 19 plants were used as tonic, 18 as astringent, 16 as anthelmintic, 14 as diuretic, 13 as purgative, 12 as antirheumatic, 10 as stimulant, 6 as sedatives, 5 as carminative and 5 as antispasmodic.

Key words: North Waziristan • Medicinal Plants • Folk Therapy • Pakistan

INTRODUCTION

North Waziristan Agency is the mountainous region lies between 32° - 35' and 33° - 20' north Latitudes and 69° - 25' and 70° - 40' east longitudes in Pakistan. It is in the low elevation areas below Miranshah Lar Daur and above it at high elevations Bar Daur are living. Wazir tribe is the inhabitants of high lands like Shawal and Razmak. Both tribes have their own life styles. Wazir tribe nomadic movements (go to high hills in summer and back to plains in winter) while Daur tribe do not make such movements. The north Waziristan is a far flung area near Afghan border. 80% of the inhabitants rely on the medicinal plants for the treatment of various diseases [1-3].

The north Waziristan is divided into 9 physical features, of them dominating is the Tochi valley, which is 101 Km long. Total area under forests is 475000 acres. The high elevated mountains are densely vegetated due

to less biotic interference. Razmak and Shawal are the hilly areas while Darwesta, Larema, Vezda, Ingamal, Shoidr, Shawal, Ebulnki, Alexandra Muzdak and Zakha are the famous hills. This zone receives snow during winter and minimum temperature reaches -9°C while the annual rainfall is 40cm. Temperature in the summer and winter are 46°C and 15°C respectively. Hottest months are June and August.

Ethnobotanical studies have been carried out in various areas of Pakistan [4], which documented 400-700 plants, being used as alternative medicine [5]. Similarly medicinal plants of Abeokuta, Nigeria used as traditional medicine have also been documented [6]. Ethnobotanical studies of the flora of Musakhel and Barkhan districts have also been conducted in Baluchistan [7]. The local uses of plants pertinent to Quetta and Henna lake area of Baluchistan have also been recorded [8]. Ethnobotanical exploration of plants of Lawat district in Azad Kashmir have been published [9].

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MATERIALS AND METHODS

The study was conducted between March and October, 2010. Dwellers of the area were interviewed and ethnobotanic information were documented on spot. The plant material was collected in triplicates; voucher specimens were prepared, treated with preservatives, identified with the help of taxonomic markers after consultation of fascicles of Flora of Pakistan [10]. Macro and micro morphological characteristics were also studied according to Pharmacognosy methods by Trease &

Evans, 1989 [11] British Herbal Pharmacopoeia, Part I-II [12] and catalogued in the Herbarium (PES) PCSIR Laboratories Complex Peshawar, Pakistan after the genera of flowering plants I & II [13], for future reference.

Folk information on medicinal plants were obtained from traditional medicinal plants practitioners, folk therapists and aged people in Mirali, Idac, Miran Shah, Razmak, Shawal, Dossali and Shewa areas. They were interviewed and the proforma information obtained was compiled in tabular form (Table 1) in consonance with the material characterized botanically.

Table 1: Folk use of plants among the ethnic Wazir and Daur races

S.No	Species/Family	Voucher No	Vernacular names				Parts used	Occurrence	Folk uses
			English	Urdu	Punjabi	Pushto			
1.	<i>Acacia modesta</i> Wall/ Leguminosae	10276	Acacia	Phulai	Phulai	Palusa	Wood, Leaves, Flowers, Gum	Isha, Gardai, Dossali, Khaisora	Stem is dried after grinding and used for soul's bruise. Ash of the wood and bark is used for the preparation of snuff. Decoction of the leaves is used to regulate menstrual cycle in women. Stimulant and aphrodisiac
2.	<i>Acacia nilotica</i> L./ Leguminosae	10277	Gum Arabic tree	Babul	Kikar	Kikar	Bark, Leaves, Seeds, Pods, Gum	Throughout North Waziristan	Decoction of the bark is used in the form of extract to relieve toothache and repair septic gums. Aerial branches are used as tooth brushes, known as Maswak
3.	<i>Achyranthes aspera</i> L./ Amaranthaceae	10278	Prickly-chaff flower/ Devils horsewhip	Chrchitt a, Chat	Kutri, Puthkanda	Ghoskai	Whole plant	Throughout North Waziristan	Decoction of leaves and roots used for relief of toothache and abdominal pain, but used rare of the later complaint. Decoction of the spikes is taken for malarial cure.
4.	<i>Adiantum capillus-veneris</i> L. Pteridaceae	10279	Maidenhair fern, Rocky fern	Hansraj	-	Kakpai	Roots, talk, leaves	Grown on damp walls of wells	Herb is used as tonic
5.	<i>Adonis aestivahs</i> L. Ranunculaceae	10280	Summer pheasants eye	-	-	-	Whole plant	Razmak	Its decoction is used as a remedy for cough
6.	<i>Aesculus indica</i> (Wall ex Camb.) HK f Hippocastanaceae	10281	Horse chestnut	Bankhor	-	-	Stem, Fruit, seed oil	Razmak	Decoction of the leaves is used as poultice for strengthening penis. Infusion of the fresh fruits is used for the cure of external wound of cattle
7.	<i>Alhagi maurorum</i> , Medic Leguminosae	10282	Arabian manna, Camel thorn	Jawain, Turan Jabin	-	Tundoun	Whole plant	Mirali, Miran Shah, Wam, Isha	Locally used as a fodder for sheep and camels. Exudates from the leaves and branches are used as blood purifier and expectorant. Infusion of the roots is useful for kidney stone expulsion and pain relief
S.No	Species/Family	Voucher No	Vernacular names				Parts used	Occurrence	Folk uses
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8.	<i>Amaranthus viridis</i> L. Amaranthaceae	10283	Amaranth	Chulai	Ganhar, Sag	Razmak, Chawai	Whole plant	Throughout North Waziristan	Used as a laxative and purgative
9.	<i>Andrachne cordifolia</i> (Dcne) Muell. Euphorbiaceae	10284	-	-	Gurguli	-	Whole plant	Doya, Miran Shah, Datta, Khel	Plant is poisonous to animals
10.	<i>Arisaema tortuosum</i> (Wall) Scott Araceae	10285	Cobra plant	Kukri, kiriki	-	Mangoro o Themna	Whole plant	Dossali, Razmak	Seeds are used as aphrodisiac and contain narcotic properties
11.	<i>Artemisia maritima</i> L. Asteraceae	10286	Santonica, worm seed	Afsant in -41- Bahr	-	Tarkha	Leaves, flowers	Razmak	Decoction of the plant is given for blood purifier.
12.	<i>Berberis lyceum</i> Koyte., Berberidaceae	10287	Berberis	Kashmal	-	Sharagae	Roots bark	Dossali, Razmak, Shawal, Garai	Grind root bark is used with milk for curing piles. After grinding stem and leaves are applied as poultice to piles wounds for healing.
13.	<i>Bupleurum gilesii</i> Wolf Apiaceae	10288	Bupleurum	-	-	-	-	Throughout North Waziristan	Roots used as tonic.
14.	<i>Boerhaavia diffusa</i> auct. Plur Nyctaginaceae	10289	Spreading hogweed	Sant	-	Santh	Root	Dossali	Roots are used as diuretic, laxative and to treat jaundice.
15.	<i>Calotropis procera</i> (Willd.) Asclepiadaceae	10290	Undar plant, Milk plant, shallow wart	Ak	Ak, Mundar	Spalmak a	Whole plant	Throughout the area	A paste prepared from the ash mixed with sugar is used for removing pimples from skin. Crushed leaves are wrapped around the wounds for healing. Milky juice is used for the cure of various skin diseases. Milky latex is mixed with salt for the removal of hairs from hides. Powdered bark is used in dysentery. Its fumigation repels snakes and scorpions.

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16.	<i>Cannabis sativa</i> L. Cannabaceae	10291	Pakistani hemp, soft hemp, true hemp	Bhang	Pang	Bhangay	Leaves, flowering tops	Razmak, Shawal, Mirali, Shewa, Miran Shah	Decoction of the leaves is used as sedative and narcotic.
17.	<i>Capparis decidua</i> (Forsk.) Capparidaceae	10292	Caper plant	Kiari	Della	Kirha	Whole plant	Idac, Spin Wam, Boya, Isha, Miran Shah, Khajuri	Decoction of the shoot is used for relief of earache. Young leaves and shoot tops in powdered form are used to erase blisters and to relieve toothache and is antidote to poison. The same parts are also used as a plaster for boils and swellings. Fruits are used in pickles and jams.
18.	<i>Caralluma edulis</i> (Edgew.) Benth Asclepiadaceae	10293	Caralluma	-	Choung	Pawana	Whole plant	Cheena Roub, Miran Shah, Spin Wam, Shewa	The herb is used as a vegetable, blood purifier, carminative and stomachic.
19.	<i>Cedrus deodara</i> (Roxb ex Lamb) G. Don Pinaceae	10294	Cedar	Deodar	Deodar	Almanza, Diar	Wood, Bark, Gum, oil	Razmak, Shawal, Mamma Ziarat	Oil extracted from the plant is called Ranra is used for skin diseases, which is also applied for wound healing. Decoction of the stem is used to gain body strength.
20.	<i>Celtis australis</i> L. Ulmaceae	10295	Hackberry	-	Kharak, Bramji	Inzar	Fruit, seed	Razmak	Leaves are used as carminative for cattle. Decoction of the leaves used as poultice to give strength to the penis.
21.	<i>Chenopodium album</i> L. Chenopodiaceae	10296	Wild spinach/ Lams quarter	Bathu	Bathu	Sarmae	Whole plant	Throughout the area	Herb is used as laxative in human subject. Also used as a fodder for cattle.
22.	<i>Chenopodium ambrosioides</i> L. Chenopodiaceae	10297	Mexican tea/ worm seed	Katto	Bathu	Ska bootay	Whole plant	Waste places and lower hills	Anthelmintic, vermifuge, used in domestic practice combined with honey, as troche.

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23.	<i>Cirsium arvense</i> (L.) Scop. Asteraceae	10298	Boar thistle	Pohli	-	Zakhta	Whole plant	Razmak	Used as tonic and aphrodisiac
24.	<i>Citrullus colocynthis</i> (L.) Schrad Cucurbitaceae	10299	Bitter apple	Indurayan	-	Maraygh unye	Roots, fruit, seeds	Boya, Idac, Razmak, Miran Shah	Sweet decoction of the fruit is used for dysentery. Fruits are also used in small doses in constipation, fever and intestinal disorder. The root powder is used as an insecticide.
25.	<i>Convolvulus arvensis</i> L. Convolvulaceae	10300	Bind weed	Leli	-	Parwothy	Leaves, roots	Growing wild in cultivated fields.	A compound preparation from the ground whole plant and sugar is used for regulating menstrual cycle in women, also used as laxative. Dried leaves are used as anthelmintic for children. Roots are used as purgative.
26.	<i>Cotoneaster nummularia</i> Fisch & Mey Rosaceae	10301	Cotoncater	Shah chob	Pushta vurgra	-	Whole plant	Razmak	The shrub is used as stomachic and sexual tonic.
27.	<i>Cymbopogon javarancusa</i> (Jones) Poaceae	10302	Rusa grass	Karan Kusa	Surgurh	-	Whole plant	Mirali, Shewa, Isha, Miran Shah	A decoction of the plant is used for the cattle breast inflammation. Dried leaves and flowers are used as a tea and is regarded valuable for flu and cough.
28.	<i>Cymodon dactylon</i> L. Poaceae	10303	Dhub grass	Dhub, Hariali	Dhub	Drub	Juice of plant, Roots	Throughout the area	Plant used to feed cattle.
29.	<i>Laphne oleoides</i> Schreb. Thymeliaceae	10304	Daphe plant	-	-	Lagheria papal	Whole plant	Razmak	Bark and leaves are used as poultice for tumor and swellings. Infusion of the leaves is given in abdominal pain.
30.	<i>Datura metel</i> L. Solanaceae	10305	Apple of Peru, Green thorn apple	-	-	Barbaka	Whole plant	Razmak, Dossali, Miran Shah, Khushali	Seeds and roots are used in skin diseases. Juice of the leaves is used in earache. The stem is used as antidote for snakebite.

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31.	<i>Datura stramonium</i> L. Solanaceae	10306	Jimson weed, Thorn apple	Sada Dhatura	Tattur, Dattura	Datura	Dried leaves, branches flowers, fruiting parts, seeds	Common in waste places	Seeds of the plant are smoked in small quantity for narcotic action
32.	<i>Dodonaea viscosa</i> L. Jacq. Sapindaceae	10307	Switchsorrel	Sanatha	-	Ghwaras kay	Leaves, bark, seeds	Miran Shah, Isha, Khaisora, Idac, Razmak	Leaves are bitter and astringent
33.	<i>Ephedra intermedia</i> Schrenk var. Ephedraceae	10308	Ephedra	Kuchan	Chewa, Budshur	Mawa	Whole plant	Razmak	Ash of the stem and branches is mixed with tobacco are used as intoxicant.
34.	<i>Equisetum arvense</i> L. Equisetaceae	10309	Devil's guts, Quenede Renard	-	Nari	Banda kai	Whole plant	Tochi River	Infusion of the herb is used for relief of toothache
35.	<i>Eremostachys vicarya</i> Benth. ex Hk. f. Labiateae	10310	Eremostachys	Gurgunn a	Rewand chini, Khurzbin	-	Seeds	Mirali, Miran Shah	Seeds are used for cooling effect
36.	<i>Euphorbia helioscopia</i> L. Euphorbiaceae	10311	Spurge	Chatri dodak	Dodak	Parpary, Mandaro	Roots, Milky Juice	Wild throughout the area	Plant poisonous, milky Juice irritates skin
37.	<i>Fagonia cretica</i> L. Zygophyllaceae	10312	Cretan prickly clover	Dhamas a	Dhama	-	Whole plant	Wild throughout the area	Leaves and twigs are used as antidote for snakebite. Fresh juice is used for jaundice and as cooling agent. Aqueous decoction of plant is used for the treatment of skin lesions: abscesses and boils. Decoction is used as blood purifier.
38.	<i>Fumaria indica</i> (Hauksn.) H.N. Pugsley Fumariaceae	10313	Fumitory	Shahtara, papra	Papra	Marsawa	Whole plant	Cultivated fields	Decoction of the plant is given in fever. Also used as anthelmintic, antipyretic
39.	<i>Heliotropium strigosum</i> Willd	10314	Bristly Heliotrope	Safaid Bhangra	Tindu	-	Whole plant	Razmak	Decoction of plant is used as blood purifier
Boraginaceae									
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40.	<i>Incarvillea emodi</i> (Lindl.) Chatterji Boraginaceae	10315	Himalayan Incarvillea	-	Kaur	Maizar	-	Razmak	Plant is boiled in water, mixed with Brassica oil It is used in piles.
41.	<i>Juglans regia</i> L. Juglandaceae	10316	Walnut	Akhrot	Khor	Meetak	Bark, leaves fruit	Razmak	Leaves and stem are used for toothache. Bark and leaves are used for cleaning teeth
42.	<i>Lens culinaris</i> Medic. Vorles Leguminosae	10317	Lentil	Masur	-	Dall	Seeds	Kaitu valley	Seeds are used as laxative.
43.	<i>Lepidium sativum</i> L. Brassicaceae	10318	Common Cress	Halim, Hurf	-	shurghan dai	Whole plant	Miran Shah	Leaves are used as vegetable. Also used in gas troubles. Seeds are used in diarrhea and dysentery.
44.	<i>Lycopus europaeus</i> L. Labiateae	10319	Glipsy wortq	Jalmm	-	-	Whole plant	Razmak	After grinding, leaves are used for killing lice. Ground leaves are mixed with Gur (sugar) and used as sexual tonic.
45.	<i>Malva neglecta</i> Wallr. Malvaceae	10320	Country maslow	Sunchal	-	Tekaliai	Leaves, Seeds	Throughout the agency	Tender shoots are used as salad. Leaves are used as anti purgative.
46.	<i>Marrubium vulgare</i> L. Labiateae	10321	White horehound	Pahari gandana	-	Quarshk a	Whole plant	Dossali, Razmak	Used as anti-tussive, for cough and cold. Decoction is used in stomach troubles and Jaundice.
47.	<i>Melia azadirachta</i> L. Meliaceae	10322	Persian lilac, bead tree	Darek Dek	Bokam, Bakam	Bakanya	Roots, bark, fruit, flower leaves	Dossali, Razmak	Shoots are used as carminative for cattle. Seeds are used as antidiabetic. Leaves are used for skin diseases.
48.	<i>Mentha longifolia</i> L. Huds. Labiateae	10323	Horse mint, spearmint, wild mint	Pudina	-	Valanae	Whole plant	Grows near water courses	Crushed leaves are used as chatni, as carminative. Also used as stomachic agent and used to remove all the pains inside abdomen and in gas troubles. The leaves are used as blood purifier and anti-diabetic.
49.	<i>Monothea buxifolia</i> (Falc). Dcnc ex Engler	10324	-	Gargol	-	Gurgura	Fruit, wood,	Dossali, Gurdai, Razmak, Miran	Fruits are used as blood purifier.

	Sapotaceae						branches	Shah Isha	
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50.	<i>Nannorrhops ritchiana</i> H. Wendl Hydrocharitaceae	10325	Mazari palm	Mazari	Mazri	Mezaray	Leaves	Razmak, Isha	Leaves decoction is given in dysentery and diarrhea, purgative
51.	<i>Nepeta hindostana</i> (Roth) Haines Labiatae	10326	Catmint	Badrang boya	Badranjbo ya	-	Whole plant	Common roadsides in hilly regions	Plant is used as fodder for cattle.
52.	<i>Nerium indicum</i> Mill Apocynaceae	10327	Oleander	Kaner	Kanra	Gandarae	Root, Bark	Miran Shah, Idar, Mechikhel	Decoction of the leaves is applied externally for swellings
53.	<i>Olea ferruginea</i> Royle Oleaceae	10328	Olive tree	Khu, Kao	-	Shawan	Fruits, leaves, Bark	Razmak, Dossali, Gardai, Shawal	The leaves are used for toothache. Since the leaves are bitter and astringent, thus locally boiled in oil is used as rubefacient. Fruit is used as tonic. Leaves are used in diabetes.
54.	<i>Onosma bracteatum</i> Wall Boraginaceae	10329	Sedge	Gaozaban	Gaozaban	Mahluck	Whole plant	Razmak, Gardai	Decoction is used as tonic also used for urinary problem.
55.	<i>Oxalis corniculata</i> L. Oxalidaceae	10330	Creeping wood sorrel	Khatibuti	Khatta mitha, Chuka	Thurvekai	Whole plant	Wild throughout the area	Juice of the plant is given in stomach troubles. Extract of the plant is applied to scorpion sting.
56.	<i>Papaver dubium</i> L. Papaveraceae	10331	Long headed poppy	Gull-e-Dandi	-	-	Petals	Razmak	Decoction is used for cough.
57.	<i>Peganum harmala</i> L. Zygophyllaceae	10332	Syrian Rue, wild Rue	Harmal	Hurmul	Sponda, Spilanai	Seed, Leaves, Roots	Throughout the area	Seeds are narcotic, antiseptic, and given in colic and fever. Leaves and seeds are used as antiseptic. Seeds are used as stimulant. Decoction of the roots is used for earache.
58.	<i>Periploca aphylla</i> Dcne. Asclepiadaceae	10333	Bata	-	-	Barara	Whole plant	Dossali, Gardai, Razmak, Boya	Milky Juice from tender branches incisions in dried form is used as chewing gum. The plant is boiled in water and used as demulcent, for removing constipation. Milky juice is used for swellings and tumors.
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59.	<i>Pinus gerardiana</i> Wall ex Lamb. Pinaceae	10334	Neoza pine, Edible pine	Chilgoza	Chalgoza	Zanr ghozai	Seed oil, Gum	Shawal	Gum of the plant is used as poultice for swellings, tumors and wounds. Seed oil is applied as a dressing on wounds ulcers.
60.	<i>Pinus wallichiana</i> A.B. Jackson Pinaceae	10335	Buton pine, Blue pine	Chil	-	Nasharq	Resin, wood, oleoresin	Shawal	Resin is used as remedy for gonorrhea. Wood is used as snakebite.
61.	<i>Pistacia integerrima</i> J.L. Stewart ex Brandis Anacardiaceae	10336	Pistachio tree	Kakra-sringi	Kakar, Kakra, Kangar	Shongai, Sarawan	Gall	Razmak	Boiled extraction of bark and fruits roasted in mustard oil is used as refrigerant. Roasted fruits are expectorant in bronchial disorder.
62.	<i>Plantago lanceolata</i> L. Plantaginaceae	10337	Ribgrass, Ribwort, Ripple grass	Bartung	Isobgol	Ghozabai	Leaves, Seeds	Miran Shah	Seeds and leaves are used in dysentery, diarrhea and other stomach troubles.
63.	<i>Plantago major</i> L. Plantaginaceae	10338	Cart tracks, way bread	Ispaghul	Isobgul	Ispaghul	Seeds	Doulat Khel, Mamazai, Khasu Khel	Seeds are used as remedy for dysentery.
64.	<i>Punica granatum</i> L. Punicaceae	10339	Pomegranate	Anaar	Anaar	Anaar	Rind of fruit	Miran Shah, Razmak, Dossali	Rind of fruit used in dysentery and diarrhea. Juice is cooling. Unripe fruits are used in making sausages.
65.	<i>Quercus dilatata</i> Lindl. ex Royle Fagaceae	10340	Moru oak	Banj	-	-	-	Razmak	Bark and acorns are used in the treatment of eczema.
66.	<i>Quercus incana</i> Roxb. Fl. Ind. Fagaceae	10341	Bluejack oak	Banj	Ban	Seri, Banj	Acorn	Razmak	Used as diuretic and astringent
67.	<i>Ricinus communis</i> L. Euphorbiaceae	10342	Castor Bean	Arind	Arand, Bedanjir	Rendi, Reri	Leaves, Seeds, Roots	Mirali, Shadi Khel, Boya, Idar, Khasu Khel	Oil is give to children in case of constipation. Leaves are used as narcotic. also applied to boils in the form of poultice.
68.	<i>Rumex chalepensis</i> Mill. Polygonaceae	10343	Sorrel	Ambavati	-	Tervekai	Roots, Leaves	Common near damp places	Used as vegetable

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69.	<i>Salix tetrasperma</i> Roxb. Salicaceae	10344	Willow	Bed	-	Woola	-	Throughout the area, on stream banks	Leaves are used as poultice for small pox and chicken pox
70.	<i>Salvadora oleoides</i> Dene Salvadoraceae	10345	Vann	Pill	-	Playwon	Seeds, seed oil, bark, roots	Mirali, Miran Shah, Spin Wam, Shewa	Leaves are used as antiseptic. Stem and branches are used to make tooth brush (Miswak)
71.	<i>Salvia aegyptiaca</i> L. Labiatae	10346	Sage	Tukhm Malanga	-	-	Seeds	Boya, Miran Shah, Datta Khel	Seeds are used in making poultice for boils. Plant is used as sex tonic in powdered form.
72.	<i>Salvia moorcroftiana</i> Wall. ex Benth Labiatae	10347	Sage	Kali Jhari	-	Mangora Zakhta, Sheruva	Whole plant	Razmak	Leaves are applied to wounds as poultice. Seeds are given in cough and cold.
73.	<i>Solanum miniatum</i> Bernh ex Willd Solanaceae	10348	Black nightshade, Common nightshade	Mako	-	Kharzob ai	Whole plant	Wild throughout the area	Extract of leaves and stem is used for skin diseases. Leaves are applied to swollen and painful scrotum and testicles. The juice is locally used in chronic skin diseases. Decoction of the plant is used for washing inflamed and painful parts of the body. Leaves are used as antidiabetic agent. Flowers are used in dysentery.
74.	<i>Solanum surattense</i> Burm. F., Solanaceae	10349	Yellow berried nightshade/ Indian solanum	Kateh	Mamoli, Harnauli, Kandari	Marhagh one	Whole plant	Wild throughout the area	Fruit is used for killing intestinal worms. Fruits are used for toothache. Seeds are stomachic. Smoking of seeds is used for the removal of teeth worms. Roots are used in cough, asthma and chest pain.
75.	<i>Sophora mollis</i> Royle, Baker Leguminosae	10350	Himalayan laburnum	-	Banu	Ghogher	Leaves and seeds	Razmak, Shawal, Dossali	Powdered seeds mixed with oil are used in snuff. The roots are used in piles relief.

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76.	<i>Tamarix aphylla</i> (L.) Karst. Tamaricaceae	10351	Athel tamarisk	Lal Jhau, Choti main	Jhau	Ghar	Gall, bark	Wild throughout the area	Bark is used as poultice on wounds. Leaves are used in cold and flu. Also used as antiseptic especially after child birth. Seeds known as Ghazneli are used as coloring agent.
77.		10352	Dandelion	Hand	Dudal	Ziarguley	Leaves, rhizomes, roots	Grows wild in cultivated fields	Local healers give the roots of plant to patients as tonic and diuretic. A coffee prepared from roasted and pulverized rhizome is an appetizer and given to people who cannot digest coffee prepared from <i>Coffea frondosa</i> .
78.	<i>Thymus serpyllum</i> L. Labiatae	10353	Wild thymus, Creeping thyme	Hasha, Ban ajwain	Marizha, Masho	Marvezi sea beeta	Whole plant	Dossali, Razmak, Shawal	Leaves of the herb are used as stimulant, stomachic, digestive, carminative, antispasmodic and for cooling purposes. Green tea, prepared from leaves is used as remedy for cough. Seeds and fruits are used in stomach disorders, and as stomach stimulant and digestive. Also useful in gastric problems.
79.	<i>Trachyspermum ammi</i> L. Umbelliferae	10354	Bishop's weed	Ajwain	Ajowan	Spirkay	Fruit, Root	Razmak, Shawal, Miran Shah	Fruit and roots are used as carminative and diuretic.
80.	<i>Trianthema portulacastrum</i> L. Aizoaceae	10355	Horse purslane	Lalsabuni, Sathi	Wisakh	Nama	Leaves, Roots	Miran Shah	Leaves are used as diuretic. Decoction of leaves and roots is used to reduce tension.
81.	<i>Tribulus terrestris</i> L. Zygophyllaceae	10356	Caltrop, puncture vine	Chota Gokhry	Bhakhra	Maklende i/ Kandalai	Whole plant	Throughout the area	Fruits and roots are used as a remedy for heart discases and cough. Seeds are used as remedy for bleeding from nose, and for diseases of bladder and kidney stone.
82.	<i>Urtica dioica</i> L. Urticaceae	10357	English Nettle	Bichubuti	Bichu	Zozeena	Whole plant	Common in waste places	Juice of the plant is used as an external irritant.

S.No	Species/Family	Voucher No	Vernacular names				Parts used	Occurrence	Folk uses
			English	Urdu	Punjabi	Pushto			
83.	<i>Verbascum thapsus</i> L. Scrophulariaceae	10358	Mullein	Janghi Tambakoo	Gidar tamaku	Mangora zakht, Zakey beta	Leaves, Flowers	Boya, Razmak, Miran Shah	Powdered dust is used for healing wounds.
84.	<i>Vitex trifolia</i> L. Verbenaceae	10359	Simpleleaf Chastetree	Nirgandi	Marwan	Marwan dai	Leaves, flowers, fruits	Mirali, Miran Shah, Khajuri	Leaves powder dust is used as insecticide in the storages of wheat.
85.	<i>Withania coagulans</i> Dunal in D.C. Solanaceae	10360	Vegetable ramet	Panir bani, panir	Panir/Kuti lana/ Khumazare	Shapyan ger	Leaves, fruits, roots stem	Wild throughout the area	Fruits and leaves are used as coagulant of milk (yogurt). Dried powder is used in stomach troubles especially in dysentery.
86.	<i>Withania somnifera</i> L. Dunal Solanaceae	10361	White Cherry	Asgandh	Aksan/ Asgand nagori	Kotilal	Whole plant	Wild throughout the area	Roots are used in rheumatic pains. Ground roots and green leaves are applied locally to painful swellings. Leaves are applied locally to tumors and tubercular glands.
87.	<i>Xanthium strumarium</i> L. Asteraceae	10362	Cocklebur	Chotad tura	Jajre/Sung tu /Gudal	Spazhei	Whole plant	Miran Shah, Idac	Decoction of the plant is given in urinary and renal complaints. Also given in malarial fever.
88.	<i>Ziziphus mauritiana</i> Lam. Rhamnaceae	10363	Jujuber	Ber	Beri	Bera	Fruits, Leaves, Roots Bark	Throughout the area	Locally fruits are used as food. Decoction of the leaves is used as hair tonic wash. Dried fruits are used for diarrhea and dysentery.

In the following enumeration, plants are arranged in alphabetical order, family names, local names, parts used, occurrence, uses and mode of administration.

NORTH WAZIRISTAN AGENCY

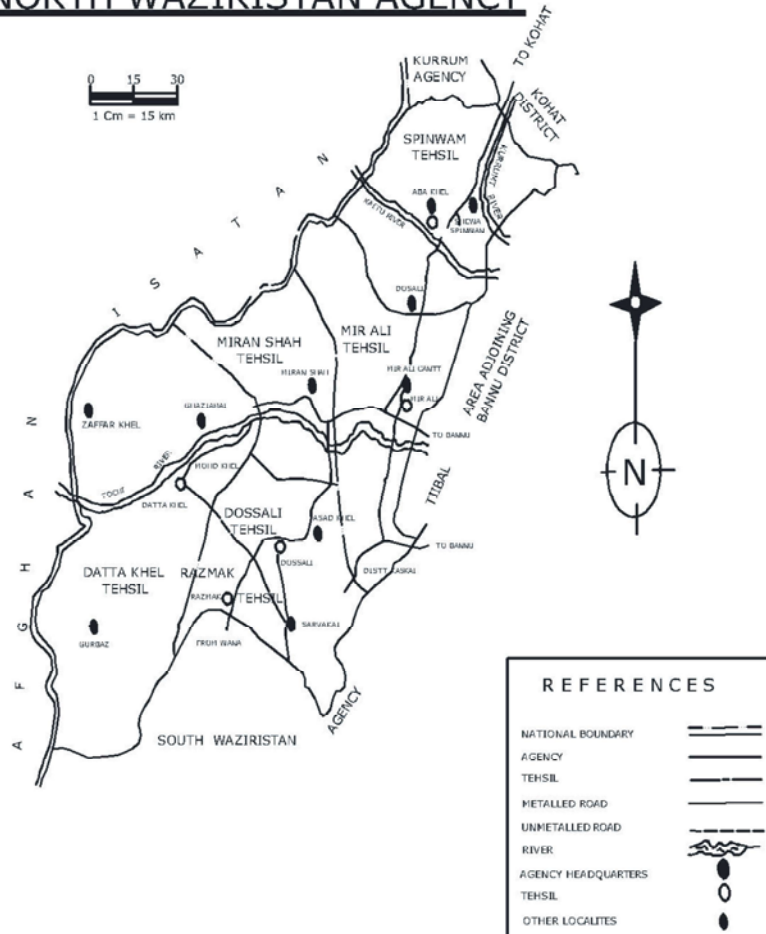


Fig. 1 : Missing

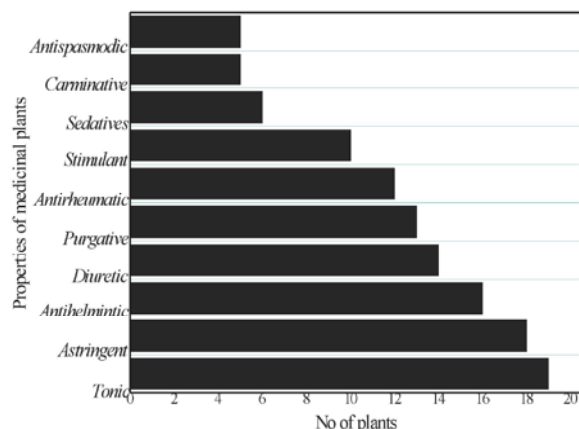


Fig. 2: Number of plants in North Waziristan showing different medicinal properties

RESULTS AND DISCUSSION

Pakistan is endowed with 7000 species. Most of them occur in the north part of the country. According to statistical data approximately about 1500 medicinal plants are known in the flora, out of which about 150 species are found in the north Waziristan. These medicinal plants are a potential source of new and novel biologically active compounds. Moreover the traditional uses of these plants should be documented before the knowledge vanished.

The North Waziristan was selected for the ethanobotanical studies keeping in view its geographic location, climatic conditions, floral biodiversity and mixed customs and cultural traditions of the inhabitants of Afghanistan and Pakistan. The study also provides trans-border ethanobotanical information.

In these studies a total of 88 medicinal and aromatic plants belonging to 53 families were documented. These plants were used as tonic, sedative, astringent, stimulant, purgative, antirheumatic, carminative, diuretic, antispasmodic and anthelmintic. The recipes included decoctions, poultices, infusions, extract and powders. The leaf, young shoot, fruit, seed, stem, root bark, latex, gum and even the whole plant is used in its fresh or dried state.

The information presented in the listing is based on direct field interviews of local men, which have long experience with the use of these plants to cure various types of ailments. They have strong faith in the curative properties of plants. Thus, the acceptability of medicinal plants is quite high among the races. The detailed recording of prescribed doses, administrations and relevant aspects of the prescriptions is expected to lead in

the development of new or alternative drugs through further works on Phytochemistry, Pharmacognosy, Pharmacology, toxicity and clinical research.

REFERENCES

1. Sahu, S.C., N.K. Dahl and R.C. Mohanty, 2010. Medicinal plants diversity and local health among the people living in and around a conservation area of northern Bangladesh *Ethanol Medicine*, 4(1): 53-61.
2. Mukul, S.A., B.U. Mohammad and R.T. Mashiur, 2007. Medicinal plants diversity and local health care among the people living in and around a conservation area of Northern Bangladesh. *International journal of Usuf. Management*, 8(2): 50-63.
3. Manandhar, N.P., 1995. Medicinal folk-lore about the plants used as anthelmintic agents in Nepal. *Fitoterapia* 2: 49-155.
4. Hussain, F., S. Mukaram and H. Sher, 2007. Ethnobotanical studies on plant resources of Ranyal Hills, District Shangla, Pakistan. *Pakistan Journal of Botany*. 39(2): 329-337.
5. Sher, H., Z.U. Ahmad, F.Hussain and S.Ahmad, 2003. Medicinal plants of Udigram district Swat Pakistan. *Pakistan Journal of Forestry*. 53(1): 65-73.
6. Idu, M., O.E Joseph and M.E. Harriet, 2010. Documentation on medicinal plants sold in markets in Abeokuta, Nigeria. *Tropical Journal of Pharmaceutical Resurch*. 9(2): 110-118.
7. Ullah, R.S., G. Hassan, A. Rehman and I. Ahmad, 2006. Ethanobotanical studies of the flora of district Musakhel and Barkhan in Baluchistan, Pakistan.
8. Mufakihira, J.D., M. Misbah and I. Shazia, 2009. Folk uses of some plants of Quetta, Pakistan. *Pakistan Journal of Plants Resurch*. 15(1): 1-6.
9. Muhammad, E.I.D., 2003. Ethanobotanical uses of Lawat district Muzaffarabad Azad Jamu and Kashmir. *Asian Journal of Plants Sciences*. 2(9): 680-82.
10. Nasir, E. and S.I. Ali, 1970-2004. *Flora of Pakistan Fascicles 1-210*. Ferozsons printers Karachi. Pakistan.
11. Trease, G.E. and W.C. Evans, 1989, *Pharmacognosy*, 11th Edtn. Brailiar Tiridel and Macmillian Publishers. London.
12. British herbal Pharmacopia I&II, 1976, 79 Megaron Press ltd Bournemouth. UK.
13. Hutchinson, J., 1967. 68 The genera of flowering plants. Dicotyledones I& II, Oxford at the Clarendon Press.