



INDIGENOUS USES OF MEDICINAL PLANTS IN RURAL AREAS OF DERA GHAZI KHAN, PUNJAB, PAKISTAN

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ABSTRACT

In D. G. Khan, like other underdeveloped areas of the world, plants are traditionally used as medicines by herbsman (Hakims), plant traders or village elders to cure various infectious as well as functional human diseases. These preserved tribal practices are found suitable and helpful in treatment of the poor and illiterate people on low cost basis. To collect the first hand knowledge of local medicinal plants and their usage, one hundred pertinent people including herbsman (Hakims), plant traders or village elders were interviewed by using a semi structured-questionnaire. Group discussions were also arranged to collect the data. According to the respondent, 8 species belonging to 4 (6%) monocotyledon families and 58 species belonging to 26 (44%) dicotyledonous families are in use for medicinal purposes. The dominant families are Fabaceae with 8 species, followed by Solanaceae and Asteraceae with 7 species each, Poaceae with 5 and Brassicaceae with 4 species. These medicinal plants are used to cure about 30 various types of diseases. The common disease of the area is stomach related like ulcer and dysentery. Cough, headache, jaundice, toothache, sores, wounds and skin diseases are the other prevalent diseases. Peoples' dependency on traditional medicine is still high as in rural areas modern or allopathic medicines are hard to find and certain stigmas like side effects related to these modern medicines hinders people to use them. Most of the species used for medicinal purposes are wild and expert herb-men collect them. Special attention is needed to be taken for the conservation of these plants. This study is carried out for the first time in this area, gathered information are documented about traditional remedies before they are lost.

Keywords: medicinal plants, customary uses, herbs, ethnobotany, medicinal properties, hakim.

INTRODUCTION

Plants have great economic and medicinal importance throughout the world. Almost all daily human basic and luxurious requirements like feeding, clothing, sheltering, nursing and hunting are fulfilled by plants. As source of medicines, plants have formed the basis for innovative and traditional systems and continuously providing mankind with new remedies. In recent years, the interest in traditional medicine has highly increased. This discipline is gaining the scientific basis for its appropriate application (Ullah *et al.*, 2010). The knowledge of herbal remedies, developed through trial and error over the centuries, is being used by the chemists to synthesize different useful compounds. That is why 25% of all medical prescriptions are based on substances derived from plants or plant-derived synthetic analogues (Sara *et al.*, 2009).

Due to absence of health amenities, people living in remote rural/tribal areas are using indigenous plants as medicines from long ago because this knowledge reaches them through experiences of parental generations (Shinwari *et al.*, 2006).

Indigenous medicine is now recognized by WHO (2002, 1978) as an important healthcare resource due to its effectiveness and affordable cost. But traditional use of medicinal plants is continuously decreasing with the easy availability of the modern medicines and unavailability of information of local flora of medicinal importance.

Furthermore, about 74% of all plant-derived drugs in worldwide clinical uses have been discovered through follow-up investigation of the ethno medicinal uses of plants. Therefore, it is essential for drug discovery to record and preserve the traditional knowledge of medicinal plants that mostly depends on local practitioners and field surveys (Azaizeh *et al.*, 2003). Many surveys have been reported in the literature of such nature from Pakistan but nothing from this region (Islam *et al.*, 2006; Ahmad *et al.*, 2009).

Most of the rural population of Pakistani lives below poverty level and depend on traditional medicine for all or most of their medicinal needs. In this paper, our investigation is mainly focused on information about traditional uses of medicinal plants in the remote rural areas of District, Dera Ghazi Khan, Pakistan.

MATERIALS AND METHODS

Study area

The study area comprised rural areas of District-Dera Ghazi Khan, Pakistan. The total area of the district is 11,922 km², lies between 29° 34' to 31-20° North latitudes and 69° 53' to 70-54° East longitudes. Its altitude ranges from 122-213 metres above the sea level. The greater part of the area was flat alluvium of the Indus River and its tributaries but extends over the lower hills to the west. There is considerable variation found in the soil of the



area, which is from heavy clay in depression to loose sand in the dunes. Depressions are often saline due to accumulation of saline water. Blown up sand has accumulated locally to form dunes of moderate height. However, soil is mostly sandy clay texture in nature. Climatically the area is classified as an arid, subtropical, continental low land characterized by uncertain, erratic and unevenly distributed low rainfall (average annual rainfall 102mm-254mm), low humidity (46 %), dry winds, short cold winter and long dry summer (Bakhsh *et al.*, 2006).

Data collection

Interviews were carried out at several time intervals during the period 2008 - 2010. We visited the different rural areas of Dera Ghazi Khan in different seasons of the year performing the work in various phases. Data was collected from each site by using a semi-structured questionnaire. More than 300 individuals were interviewed to collect the information about the use of medicinal plants. Only 100 locals were selected for this study on the basis of their knowledge regarding people, plants and their uses. They were plant collectors, housewives, shopkeepers, elders, plant traders and Hakims, who are the actual users and have a lot of indigenous knowledge about the plants. Analysis of data was made with the help of group discussions among different age classes that include both genders, village chief (Mukadim) and herbals men (Hakims) of the society.

The data was classified, analyzed and concluded for final report.

RESULTS

Selected 100 local respondents were categorized in four categories. Old men (28, 28.00%), old women (10, 10.00%), hakims (35, 35.00%) and plant traders (27, 27.00%) represent in Table-3 and Figure-1. A total of 66 different plant species are documented. 8 species (6%, Tables 1, 4 and Figure-2) belongs to monocotyledon and 58 species (44%, Tables, 2, 4 and Figure-2) belongs to dicotyledons. These plants belong to 30 different families. Highest numbers of plants are of Fabaceae family (12.12 %) followed by Solanaceae family and Asteraceae family (10.60 %). According to the local people these plants are used for the treatments of variety of diseases like fever, tonsillitis, hepatitis, benign breast tumors, cystitis, eczema, psoriasis, externally for swollen lymph glands, breast lump, ulcers, skin inflammations, minor injurious, psoriasis, dysentery, acute enteritis, appendicitis, mastitis, Haemorrhoids, asthma dropsy, jaundice, intestinal inflammation, gonorrhoea and urinary related disease etc. In treating these diseases whole or certain parts of the plants are in use. 37 plants (40.00%, Table-5 and Figure-3) out of 66 are used as a whole for the treatment. The part of plant that is used most frequently for treatment is leaves (17.00 %, Table-5 and Figure-3).

Table-1. Monocotyledon species and their medicinal uses

Scientific name	Family name	Local name	Parts used	Medicinal value
<i>Cyperus rotundus</i> Linn.	Cyperaceae	kaloora or kal	Rhizome, roots tubers	This herb is used for relieving spasm and pain particularly of digestive and uterus. Roots and tubers are grinded into a powder that is used with water only.
<i>Asphodelus tenuifolius</i> Cavan	Liliaceae	Piyazi	Whole plant.	The whole plant is used as a laxative, diuretic and to treat ulcer.
<i>Avena fatua</i> Linn.	Poaceae	Jodal or Jangli jai.	Seeds	This is a nutritive herb considered very well for the heart, nerves and thymus glands. This also reduces the cholesterol levels in blood. Seeds are used as medicine internally for depression, nervous exhaustion, shingles, herpes, menopausal symptoms, and debility following illness. Externally powder of grinded seeds used for eczema and dry skin.
<i>Phalaris minor</i> Retz.	Poaceae	Dumbi Sitti	Leaves, seed and Fruit.	A laxative used for cough and dysentery. A 'Joshanda' made out of dry leaves is considered helpful for cough, cold and asthma.
<i>Cynodon dactylon</i> (Linn.); Pers.	Poaceae	Lawn grass	Whole plant.	The plant is used for the treatment of many problems like thirst, biliousness, and vomiting, leprosy, and scabies, skin diseases, fever, dysentery and blood diseases. Extracted juice of the plant is used for hysteric and epilepsy.
<i>Cenchrus ciliaris</i> Linn.	Poaceae	Dhaman grass	Whole plant.	<i>Cenchrus ciliaris</i> is reported to be lactagogue, kidney pains, tumors, sores and wounds.



<i>Panicum turgidum</i> Forssk	Poaceae	Cheena	Whole plant.	The plant is a disinfectant in small pox. The smoke is used for fumigating wounds and the drug is used for throat infections.
<i>Typha elephantina</i> Pers.	Typhaceae	koondar	Fruit, leaves and underground stout	This plant is used reproductive system related problems like haemorrhage, painful menstruation, abnormal uterine bleeding, and post partum pains. Not given to pregnant women.

Table-2. Dicotyledon species and their medicinal uses

Scientific name	Family name	Local name	Parts used	Medicinal value
<i>Trianthema portulacastrum</i> Linn.	Aizoaceae	It Sit	Leaves	The leaves have medicinal properties which contain punarnavine alkaloid, it is used to promote urination and useful in dropsy and kidney disease.
<i>Achyranthes aspera</i> Linn.	Amaranthaceae	Phut kanda	Roots, leaves and stems	This herb is used for different systems related problems like the circulatory and digestive system, liver and kidneys, lowering blood pressure and relieving pain. Roots, leaves and stems are very useful in different kinds of bleeding problems e.g. nose bleeds and bleeding gums, blood in urine, lower back and joint pains, hypertension, menstrual and post-partum pain..
<i>Aerva persica</i> (Burm.f.); Juss.	Amaranthaceae	Bui	Whole plant	The plant is used as a diuretic, vomiting, paralysis and diseases of spleen. Paste of this plant is used on open wounds and other skin diseases.
<i>Amaranthus viridis</i> Linn.	Amaranthaceae	Phut booti	Whole plant	An astringent, soothing, cooling herb that controls bleeding. Internally used for diarrhea and excessive menstruation. Externally for ulcerated mouth and throat, vaginal discharge, wounds and nose bleeds.
<i>Anethum graveolens</i> Linn	Ammiaceae	Soayai	Leaves, seeds, and oils	Internally for digestive disorders, including indigestion, colic (especially as an ingredient of gripe water for babies) and hiatus hernia.
<i>Rhazya stricta</i> Decne	Apocynaceae	Siwanar	Whole plant	The plant steeped in H ₂ O is used to be used to treat indigestion, inflammation of intestines, intestinal worms, fever, asthma, pneumonia and dysentery.
<i>Calotropis procera</i> (Willd.); R.Br.	Asclepiadaceae	Ak	Root, leaves, bark and flowers	The plant is bitter in taste and used as tonic. It is used for treatment of asthma, coughs, piles, fevers, headache, muscle pain, taints chest, inflammatory swelling, wounds, toothache, leprosy skin eruptions, syphilis, ulcers, malaria fever, abdominal pains, as a dressing on paralyzed parts, the milky juice (latex) is irritant and applied as a cure against thorn pricking. The latex when allowed to fall on sand is taken as a cure against snake bite. The powder flower is used in cold in cold and cough, the root, leaves and bark paste are used in elephantiasis.
<i>Leptadenia pyrotechnica</i> (Forssk.); Decne	Asclepiadaceae	kehp	Root, bark and leaves	Branches are diuretic; the juice of the leaves is used as expectorant in catarrh infections, infantile diarrhea, asthma and rheumatism. The root bark mixed with cow's milk is used as purgative. It has been reported to exert a stimulating effect on the smooth muscles of the intestine and the gastric secretions are stimulated.
<i>Carthamus oxycantha</i> M.B.	Asteraceae	kandiyari	Flowers, seeds.	It is laxative, stimulates menstrual flow, and induces perspiration; paste made from flower is applied to boils. Tea made from flower is used to treat fever and skin eruption. The plant is used to dry up the skin symptoms of measles.
<i>Conyza bonariensis</i> (Linn.); Cronq.	Asteraceae	Chabal grass	Whole plants, oil	A slightly aromatic, bitter, tonic herb that acts as a diuretic, and cheeks bleeding, internally for diarrhea, haemorrhage, excessive menstruation. Haemorrhoids, Kidney disorders and bronchial complaints. Externally used for eczema and ringworm.
<i>Eclipta prostrata</i> (Linn.); Linn.	Asteraceae	Patrati	Whole plant	A bitter, sweet and sour, cooling herb that has a tonic effect on the circulatory, nervous and digestive system and cheeks bleeding, internally for kidneys and liver weakness (manifesting as tinnitus, premature graying of hair, poor teeth and eyesight, nervous disorder), cirrhosis, hepatitis, complaints involving bleeding (especially post-partum and abnormal uterine bleeding), anemia and diphtheria, used in Chinese folk medicine for eczema, athlete's foot dermatitis and child malnutrition.



<i>Gnaphalium luteoalbum</i> Linn.	Asteraceae	Sanwari	Whole plant	As astringent, slightly aromatic herb, diuretic-inflammatory and increases perspiration. Extract combination with <i>Galium aparine</i> used for throat infections.
<i>Launaea procumbens</i> (Roxb.); Ramayya and Rajagopal.	Asteraceae	Bhathala	Whole plant	The plant increases the secretion of the milk and is also taken during constipation. Leaves are applied to children in fever.
<i>Sonchus asper</i> (Linn.); Hill	Asteraceae	Bathal	Whole plants	All parts of the plants are used as coolant, diuretic, laxative and as a general tonic. An infusion is made of the entire plant and taken as a drink. The roots and leaves are used as a tonic and febrifuge.
<i>Xanthium strumarium</i> Linn.	Asteraceae	Put kunda	Whole plants	Internally for allergic rhinitis, sinusitis, catarrh, rheumatism, rheumatoid arthritis, lumbago, leprosy, and purities, externally for pruritus, A pleasant-tasting, warming herb that relieves pain, relaxes spasm, and has antibacterial, anti-fungal and anti rheumatic effects.
<i>Heliotropium strigosum</i> Willd	Boraginaceae	Saloonak booti	Whole plant	The plant is laxative and diuretic. It is used for the treatment of sore eyes, boils, sores, wounds, ulcer and snake bite. The plant is bitter in taste and mostly used as stimulant and tonic.
<i>Brassica campestris</i> Linn.	Brassicaceae	Sarsoon or Saag	Leaves, seeds and oils	A warming stimulant herb with antibiotic effects. Externally in poultices mustard plasters, and baths for rheumatism, muscular pain, chilblains and respiratory tract infections. A mustard footbath is a traditional remedy for colds and headaches. Skin contact with mustard causes reddening, thus increasing blood flow and removal of toxins. Prolonged contact may result in blistering, especially in those with sensitive skin.
<i>Capsella bursa-pastoris</i> (Linn.); Medik.	Brassicaceae	Chattri	Whole plant	An astringent. Diuretic herb acts as a urinary antiseptic and blood coagulant. Internally and externally to stop bleeding, especially excessive menstruation, blood in urine, Haemorrhoids, nose bleed and wounds also internally for cystitis and externally for varicose veins.
<i>Eruca sativa</i> Mill; Gard	Brassicaceae	Tara mera	Leaves and seeds	A bitter, pungent, tonic herb with a peppery flavour. Oils are used for muscles pull.
<i>Sisymbrium irio</i> Linn.	Brassicaceae	khobalai	whole plant	A tonic herb with a mustard-like aroma. It has laxative, diuretic, and expectorant effect, and benefits the digestion, internally use for bronchitis, coughs, laryngitis and bronchial catarrh. Excess may affect the heart.
<i>Stellaria media</i> (Linn.); Vill.	Caryophyllaceae	Salooni booti	Whole plant	A soothing, cooling slightly saline herb that relieves itching. Promotes healing and has alterative, anti-rheumatic effects. Internally used for rheumatism. Externally used for itching-skin condition, eczema, ulcers, boils, and abscesses.
<i>Chenopodium album</i> Linn.	Chenopodiaceae	Bathu or Batoon	whole plant	An acrid, astringent, strongly aromatic herb that destroys intestinal parasites, increases perspiration and relaxes spasms. It also has expectorant, antifungal and insecticidal effects.
<i>Convolvulus arvensis</i> Linn.	Convolvulaceae	Wun weehry	Whole plants	The plant possesses cooling and purgative properties. It is used for the preparation of sharbat (Syrup) as a cooling drink.
<i>Ipomoea eriocarpa</i> R.Br.	Convolvulaceae	Wanweer bail	Resin, tuber	A resinous, acrid herb with an unpleasant taste, which acts as a purgative internally for constipation, colic and intestinal parasites.
<i>Citrullus colocynthis</i> (Linn.); Schrad.	Cucurbitaceae	Buranmba	Fruit	The fruit pulp contains colocynthin which is a combination of an unnamed alkaloid and citrullol. Fruit pulp is used in dried form. It is powerful hydragogue cathartic, in large doses, it is toxic, and the fruit pulp is used as a purgative.
<i>Citrullus lanatus</i> (Thumb.); Mats. and Nakai	Cucurbitaceae	Cheebur	Fruits and seeds	Fruits and seeds are used as a diuretic and laxative. Fresh fruit and seeds are eaten as an effective laxative and for removing kidney stones. It is also used to reposition bones which have been incorrectly set in traditional bone setting.
<i>Euphorbia helioscopia</i> Linn.	Euphorbiaceae	Chatri doodhak	Whole plant, juice	An acrid, bitter, antiseptic herb that expels phlegm and relieves spasms. Internally for asthma, bronchitis, emphysema, nervous cough, catarrh, hay fever and amoebic dysentery, externally for burns and warts.
<i>Euphorbia prostrata</i> Ait; Hort	Euphorbiaceae	Hazar dani	Leaves, roots and latex	Leaves roots and latex are used for treating constipation and for removing thorns from skin.



<i>Alhagi maurorum</i> Medic.	Fabaceae	Jawansa	Legume (Seed)	The plant is used as an anti-asthmatic, aphrodisiac, antipyretic, appetizer and rheumatic, digestion tonic, diuretic, demulcent, expectorant, laxative, cholagogue and refrigerant. It is mostly used for the treatment of asthma, coughs bronchitis, skin diseases, piles and urinary troubles.
<i>Lathyrus aphaca</i> Linn.	Fabaceae	Jangli matter or Pattrari	Unripe seeds	The unripe seeds of this common species, while still young and tender are claimed to be a useful substitute for our garden Pease; when ripe they are narcotic and if eaten then produce excessive headache.
<i>Melilotus alba</i> Desr.	Fabaceae	Sinje	Whole plant	Internally for tension, headache. Painful congestive menstruation and to prevent thrombosis, externally for eye diseases, rheumatic pain swollen joints, severe bruising, boils the infusion and distilled water have been recommended for eye diseases. It is vermifuge and carminative. Locally the extracts of leaves/juice are used as eye drops. Leaves grinded and paste is applied on forehead for headache.
<i>Medicago denticulata</i> Willd.	Fabaceae	Mehna	Seeds and oils	Internally for debility in convalescence of anemia, Haemorrhage, menopausal complaints, premenstrual tension, fibroids and other conditions indicating hormonal imbalance. (Not given to patients with auto immune diseases such as rheumatoid arthritis).
<i>Sophora mollis</i> (Royle); Baker.	Fabaceae	Phagan booti	Root	A bitter, cooling, diuretic herb that controls itching and has antibacterial, anti-fungal and anti tumor effects. Internally use for jaundice, dysentery, diarrhea, and urinary infections. Internally and externally for vaginitis, eczema, pruritus, ringworm, leprosy, syphilis, scabies and itching, allergic.
<i>Trigonella corniculata</i> (Linn.); Linn.	Fabaceae	Meethi	Whole plant	Dried plants are used as a remedy for painful menstruation labour pains and in sufficient lactation. Internally for late onset diabetes, poor digestion, gastric inflammation, digestive disorder, tuberculosis. Not given to pregnant woman. In Chinese medicine used for kidney related disorder such as back pain, premature ejaculation and hernia. Local use-people used the leaves of the species for distention laxative.
<i>Trifolium resupinatum</i> Linn.	Fabaceae	Loosin	Whole plant	Plant in bloom constitutes the drug. Flowers are used as sedative and to treat coughs. The plant is used to cure liver ailment, digestive disorder and increase in appetite an infusion of plant is used to treat whooping. Cough, skin sores and ulcer. Local people use the whole plant with water was boiled and externally it was used for whooping cough and digestive disorder.
<i>Vicia sativa</i> Linn.	Fabaceae	Mattri	Whole plant	The plant is used as an anti-asthmatic, aphrodisiac, antipyretic, appetizer anti rheumatic, digestion tonic, diuretic, demulcent, expectorant, laxative, cholagogue and refrigerant. It is mostly used for the treatment of asthma, coughs bronchitis, skin diseases, pipes and urinary troubles.
<i>Fumaria indica</i> Haussk	Fumariaceae	Pit papra	Whole plant	A bitter tonic herb, with mild diuretic and laxative effects, that improves liver and gall bladder function and reduces inflorescence internally for colic and migraine with digestive disturbances. Internally and externally used for skin complaints including eczema and dermatitis, excess cause, drowsiness.
<i>Abutilon indicum</i> (Linn.); Sweet.	Malvaceae	Giddar war	Whole plants	The plant possesses diuretic, demulcent and laxative properties. It is also used to treat fever.
<i>Malva neglecta</i> Wallr.	Malvaceae	Malook booti	Leaves, flowers, fruits	A mucilaginous, slightly astringent herb that in expectorant soothes irritated tissues and reduces inflammation internally use for bronchitis, coughs, throat infections. Catarrh, asthma, emphysema and gastritis, large doses are laxative externally for weeping eczema, boils, abscesses and insect bites.
<i>Boerhaavia coccinea</i> Mill; Gard.	Nyctaginaceae	IT Sit	Whole plant	All parts of the plant constitute the drug. Which contain alkaloids? It is diuretic and laxative. It is also used to treat asthma dropsy, jaundice, intestinal inflammation and gonorrhoea; tender shorts are eaten as potherb. Root powder preparation is used in eye diseases. The plant juice is antidote to rat-poisoning.
<i>Oxalis corniculata</i> Linn.	Oxalidaceae	Patri	Leaves, roots	The plant is used as a cure for scurvy. It is a good appetizer. Leaf juice is used locally in removing of the warts and also known as useful in cataract of the eyes. Paste of top shoots along with a few fruits of black pepper is applied to boils, abscesses, wound and



				weeping eczema, leaves and roots are used to treat dysentery and diarrhea.
<i>Rumex obtusifolius</i> Linn.	Polygonaceae	Jangli palak	Roots, leaves	A bitter astringent, cooling herb that stimulates the liver and gallbladder, cleanses toxins and has a laxative effect, internally use of chronic skin diseases, jaundice, constipation, liver disorders and anemia, excess may cause nausea and dermatitis.
<i>Protulaca oleracea</i> Linn.	Portulacaceae	Loonrak	Whole plants, leaves	A sour, diuretic, cooling herb. That lowers fever and clears toxins. It is effective against many bacterial infections internally use for dysentery, acute enteritis, appendicitis, mastitis, Haemorrhoids and post-partum bleeding. Not given to pregnant women or to patients with digestive problems externally for boils, snakebite, bee stings and eczema.
<i>Anagallis arvensis</i> Linn.	Primulaceae	Neeli booti	Whole plant	Acrid, mucilaginous herbs that lowers fever and has diuretic and expectorant effects. Internally used for depression, tuberculosis, liver complaints, epilepsy, dropsy, and rheumatism. Externally extract of this species used for improving the complexion, especially for freckles.
<i>Ranunculus scleratus</i> Linn.	Ranunculaceae	Gul-e-ashrafi	Whole plant	An astringent, slightly bitter herb that is specifically anti-haemorrhoidal internally and externally use for Haemorrhoids, externally for perineal damage after child birth.
<i>Galium aparine</i> Linn;	Rubiaceae	Wanwair booti	Whole plants, seeds	Internally for glandular fever, tonsillitis, hepatitis, benign breast tumors and cysts, cystitis, eczema, and psoriasis, externally for swollen lymph glands, breast lump, ulcers, skin inflammations, minor injurious, and psoriasis. During flowering, entire plant is useful, it is used to treat vitamin C deficiency, fever and also to stimulate appetite and increase urine flow.
<i>Veronica anagallis</i> Linn.	Scrophulariaceae	Hazar booti	Whole plant	Formally; in internally for bronchial, arthritic, rheumatic and skin complaints, and stomach upset; externally for minor injuries, dried herb may be added to tea blends.
<i>Datura metel</i> Linn.	Solanaceae	Datura	Whole plant	The whole plant is antiseptic, narcotic, sedative and is useful in asthma, the dried leaves are smoked in a pipe or home made cigarettes to treat asthma. It was a source of atropine. It is antispasmodic in asthma and Parkinson's disease.
<i>Datura stramonium</i> Linn.	Solanaceae	Datura	Leaves, flowering tops, seeds	Leaves flowers are used as medicine. Internally used for asthma and Parkinson's disease. Excess causes digginess.
<i>Hyocymus niger</i> Linn.	Solanaceae	Khoob kalan	Whole plant	Internally for asthma, whooping cough, motion sickness, meniere's syndrome, tremor in senility or paralysis, and as pre-operative medication. Excess impaired vision. Convulsions, coma and death heart or respiratory failure, externally for neuralgia, dental and rheumatic pain.
<i>Solanum nigrum</i> Linn.	Solanaceae	Mako	Juice, whole plant	The juice of the plant is useful on ulcer and other skin diseases. The infusion of plant is useful is dysentery and fever. The drug made from this plant act as laxative, improve appetite and this is administered against asthma.
<i>Solanum surrettense</i> Burm.	Solanaceae	Kandiyari	Fruit and root	It is used for the treatment of coughs, dropsy, asthma, fever pain in chest, bronchitis, lumbago, piles, thirst, bladder stones, catarrh, diseases of the heart rheumatism, gonorrhoea, pains, sore throat, toothache, water eyes uumitiag, and snakebite. The stem, flowers and fruit are carminative. The fruit is tied as garland to relieve jaundice. The dried root is used in cough, asthma, pain in chest and fevers. The plant is carminative and diuretic. The roots are used to increase fertility in women.
<i>Withania coagulans</i> Dunnal.	Solanaceae	Askand	Fruit	The fruit of these plants are administered in digestive and liver complaints. It is also used to prepare cheese.
<i>Withania somnifera</i> (Linn.); Dunnal.	Solanaceae	Jangli paneer	Fruit and roots	Internally for debility, convalescence, nervous exhaustion, insomnia, geriatric complaints, failure to thrive in children, impotence, infertility, joint and nerve pains and multiple sclerosis, usually given as a milk decoction, often with raw sugar, or honey.
<i>Verbena officinalis</i> Linn.	Verbenaceae	Chandni	Whole plant	A very bitter, aromatic, cooling herb that is diuretic, calms the nerves, increases perspiration and lactation, reduces inflammation and relives pains. It controls bleeding improve liver and gall bladder function and stimulates the uterus, regarded as anti-malarial in Chinese medicine. Internally for nervous exhaustion depression,



				convalescent debility, asthma, migraine, jaundice, gall bladder problems.
<i>Fagonia indica</i> Burm. F.	Zygophyllaceae	Dhaman	Whole plant	The plant is bitter and used for the treatment of fever, thirst, vomiting, dysentery asthma, urinary discharges, liver trouble, typhoid, toothache, stomach troubles and skin diseases. The plant is prophylactic against small pox. Boiled residue of the plant in water is used to induce abortion externally applied as a paste on tumors and other swellings of neck. Leaves and twigs are used for snake bite.
<i>Peganum hermala</i> Linn.	Zygophyllaceae	Harmal	Fruit, seeds and oil	A bitter spicy, diuretic herb that stimulates the uterus and digestive system. The plant and dried seeds are used as drugs. It has narcotic, emetic and anthelmintic properties. It is used in the treatments of jaundice, fever, painful menstruation, gallstones, hysterics and asthma.
<i>Tribulus terrestris</i> Linn.	Zygophyllaceae	Bakhra	Leaves	The leaves increase the menstrual flow, cure gonorrhoea, fruits are used to treat coughs, scabies, the roots are said to be stomachic, appetizer, diuretic and carminative.

Table-3. Various respondents that were interviewed in the study area

Respondents	Age/Years	Numbers	% age
Old man	40-60	28	28.00
Old women	40-60	10	10.00
Hakims	40-60	35	35.00
Plant trader	40-60	27	27.00

Table-4. Total number of species and their percentage locally used for medicine

Group of species	Number of species used as medicine	% age used
Monocotyledon	8	6.00%
Dicotyledon	58	44.00%
Total species	66	50.00%

Table-5. Source of knowledge on the parts of plant species

S. No.	Parts of plants used in medicine	Frequency	% age
1	Whole plant	37	40.00
2	Roots	09	9.00
3	Leaves	16	17.00
4	Fruits	09	9.00
5	Flower	04	4.00
6	Seeds	13	14.00
7	Bark	02	2.00
8	Oil	05	5.00



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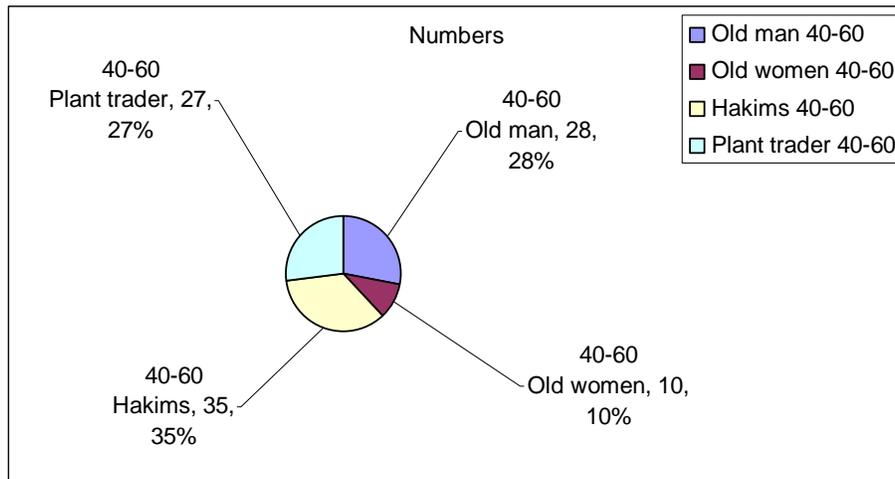


Figure-1. Frequency and percentage of various respondents of different age groups interviewed at study area.

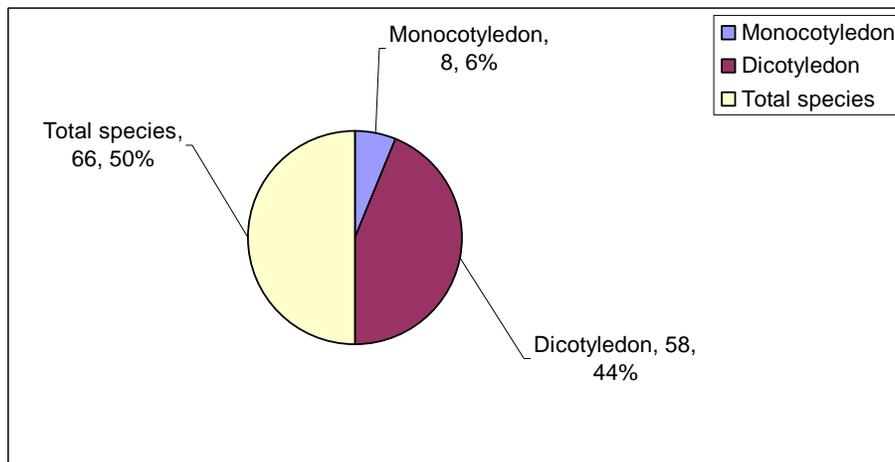


Figure-2. Frequency and percentage of different groups used in local herbal medicine.

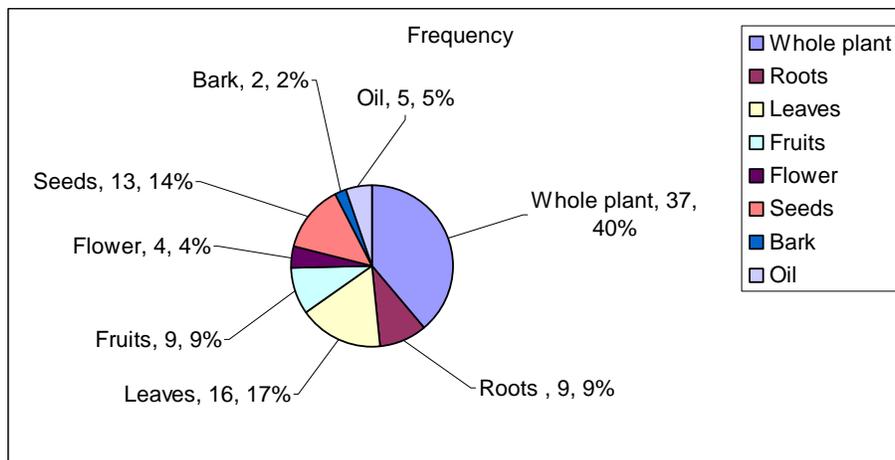


Figure-3. Frequency and percentage of different parts of plant species used as local medicine.



DISCUSSIONS

To our knowledge this is the first report of this kind from this remote and economically backward region of the Pakistan. District Dera Ghazi Khan is divided into two geographical distinct regions i.e., Tribal control area (PATA) and settled area. Tribal control area (PATA) harbors different tribes having a rich culture with indigenous medicinal practices. The healthcare system is either lack infrastructure or absent all together therefore, people of PATA region almost always rely on these indigenous medicinal plants. Though in settled rural and urban areas, health care infrastructure is available but due to heavy economic cost of allopathic medicines and a stigma of side effects has kept people suspicious of these drugs. Thus a large percentage of people of this area still heavily depend upon these indigenous medicinal plants. In this report we focus herbaceous plants only and realized there is an urgent need of conserving these medicinal plants that are over harvested so that in future the coming generations could be benefited from these precious plants that are a real gift of nature for the mankind in such deprived areas of the world. A tragedy of the modernization is that the precious ethnobotanical knowledge is disappearing very fast. A chief goal of present study is to ensure that local natural history may be preserved and local medicinal knowledge could be shared. Most of the plants used by the local people are not conserved but are over exploited. It is also noticed during investigation that *Fagonia indica* and *Peganum hermala* are the endangered species in the area and special care is needed to preserve them. It is therefore necessary to find the ways of promoting the local people towards conservation as Shenji (1994) suggested that ethnobotany is the science of documenting the traditional knowledge on the use of plants by the indigenous people and for further assessing human interactions with the natural environment.

A total of 66 herbaceous species belonging to 30 different families are documented. Out of these 8 (6.00%, Table-4 and Figure-2) are monocotyledons and remaining 58 (44.00%, Table-4 and Figure-2) are dicotyledons. Interestingly most of the plants documented in this study have also been reported earlier for their medicinal properties. This strongly suggests that indigenous medicinal knowledge is not that useless after all. List of these reports is given in (Table-1) with each species. Such related reports of medicinal usage about various plants species in the world are available (Agbor and Naidoo 2011, Kunwar *et al.*, 2010). Like these reports the inhabitants of present study area also used various parts of presented herbs as local medicine for treatment of many diseases such as stomach problem, ulcer, dysentery, cough, diabetes, headache, jaundice, toothache, sores, wounds and skin diseases etc. We specifically targeted those people who are directly involved in this practice. Majority of our respondents were Hakims (Herbs man) (n=35, 35.00% Table-3 and Figure-1) and Plant traders (n=27, 27.00% Table-3 and Figure-1) who specifically know about these plants and their usage. The maximum

respondent indicated that whole plant (40.00 %, Table-5 and Figure-3) is used and bark of the plants (2.00%, Table-5 and Figure-3) is being used least in preparation of medicines. This might be due to the fact that we only documented herbaceous plants. We have given the details of process of drug formation of species in Table-1, whom methods explained by the respondents.

Various herbal reports and literature were available previously in many scientific journals about monocotyledon and dicotyledon herbaceous species from all the corner of the globe by the following researcher Puratchikody *et al.* (2006); Gurbuz *et al.* (2002); Chopra *et al.* (1986); Batish *et al.* (2007); Santosh *et al.* (2007); Mubarak *et al.* (2011); Selim *et al.* (2007); Nijsiri and Gordon (1986); Sumeet *et al.* (2008); Ejaz (2006); Bagepalli *et al.* (2010); Avad *et al.* (2007); Syed *et al.* (2007); Sarder *et al.* (2008); Amal *et al.* (2009); Ellahi *et al.* (2007); Nazim *et al.* (2010); Jigna and Sumitra (2006); Florence *et al.* (2011); Scherer *et al.* (2009); Hussain *et al.* (2010); Jabeen *et al.* (2010); Swain (1963); Alam *et al.* (2007); Vohora *et al.* (1980); Shan *et al.* (2010); Yadav *et al.* (2007); Nicholas Calvino (2002); Karuppusamy *et al.* (2009); Marzouk *et al.* (2009); Wani *et al.* (2011); Muzair *et al.* (2009); Yoshida *et al.* (1990); Naseri *et al.* (2007); Shinwari *et al.* (2000); Anwer *et al.* (2008); Zhang *et al.* (2009); Pribac *et al.* (2009); Janda *et al.* (2009); Jabeen *et al.* (2009); Sarma *et al.* (1999); Mubarak *et al.* (2011); Mavi *et al.* (2004); Osuna *et al.* (2005); Rahman *et al.* (2010); Evans (2009); Lim *et al.* (2007); López *et al.* (2011); Prieto *et al.* (2003); Lal *et al.* (2008); Su *et al.* (2000); Wannang *et al.* (2009); Gidado *et al.* (2007); Gilani *et al.* (2008); Sheeba (2010); Jaiswal *et al.* (2010); Mishra *et al.* (2010); Lai *et al.* (2006); ALAM (2010); Lamchouri *et al.* (1999); Yang *et al.* (2009). But here in this remote area this report about medicinal use of herbaceous species by the poor people was first time high lighted. This brief discussion also supports the findings of the above reference literature and plays a significant role in sustain the herbal approach of the scientist in future.

CONCLUSIONS

The richness of medicinal plant species was diversity of the area. The percentage of plants used as medicine steadily increased with increasing the distance from Dera Ghazi Khan City. Most of the inhabitants of rural areas still practice traditional knowledge of medicinal plants. It revealed that the people of the area possessing good knowledge of herbal drugs but as people are going to modernization; their knowledge of traditional uses of plants may be lost in due course. So it is important to study and keep the record of the uses of plants by different tribes for studies on scientific basis. Such studies may also provide some information to biochemist and pharmacologist in screening of individual species and in rapid assessing of phyto-chemical constituent and bioanalysis for authentic treatment of various diseases.



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