

## INDIGENOUS USE OF MEDICINAL TREES AND SHRUBS OF MARGALLA HILLS NATIONAL PARK, ISLAMABAD

Muhammad Ibrar Shinwari<sup>1</sup> and Mir Ajab Khan<sup>1</sup>

### Abstract

The presentation is a part of an ethnobotanical research work conducted in Margalla Hills National Park. The inhabitants of the park have always used medicinal plants for various ailments and have for a long time been dependant on surrounding plant resources for their food, shelter, fodder, health care and other cultural purposes. However, encroaching industrialisation and the accompanying changes in their life styles are responsible for the decline in the local practice of use of plants for medicine. It is, therefore, felt worthwhile to record the native uses of these plants before the information is lost. About 100 informants were interviewed in this regard. In total 27 species of trees and 24 species of shrubs were recorded as used medicinally by inhabitants of the park. Among these 10 species of trees and 5 species of shrubs are being sold in the local market. *Berberis lycium* Royle is found vulnerable to harvesting. *Acacia modesta* Wall, *A. nilotica* (L.) Delile, and *Dodonaea viscosa* (L.) Jacq. are found under pressure of being used as fuelwood.

### Introduction

Margalla Hills National Park (12,605 hectare, 40 Km in length) located between 33° 40' - 33° 44' N and 72° 55' - 73° 20' E and forms the northeastern edge of Islamabad. It spreads in a roughly east-west direction and its altitude varies from 465m to 1600m, having rugged topography comprising mainly of steep slopes and gullies where rock structure is basically limestone. Deforestation and grazing have caused soil erosion leaving little but parent rock with shallow residual soil and silt loess. The average maximum temperature is 34.3°C while the average minimum temperature is 3.4°C. Snow is occasional. Rainfall occurs in the monsoon and winter, the average being 1200 mm per year. The park is under pressure due to illegal settlements, quarries, fires, extensive tree cuttings, Urban encroachment and pollution.

---

<sup>1</sup> Department Of Biological Sciences, Quaid-i-Azam University, Islamabad.



Khattak and Ahmed (1990) compared the vegetation on the north and south facing slopes of Margalla Hills and reported the presence of *Pinus roxburgii*-*Apluda mutica*-*Quercus incana* community on the north facing slopes and *Acacia modesta*-*Woodfordia fruticosa*-*Dodonaea viscosa* community on the south facing slopes. According to them, the north facing slopes showed a greater species diversity as compared to the south facing slopes having the similarity index as 46%.

Margalla Hills National Park has never been explored before ethnobotanically, so it was felt worthwhile to record the native uses of plants in this park before the information is lost. These ethnobotanical informations are aimed to suggest the solution of several problems the park facing in achieving the objectives of conservation of the natural environment since its establishment.

Leporatti and Lattanzi (1994) studied 27 medicinal plants ethnobotanically in Makran (Southern Pakistan). They reported and discussed their traditional medicinal uses. Goodman and Ghafoor (1992) conducted ethnobotanical study in Baluchistan province of southwestern Pakistan, the region, where a heterogeneous cultural group known as the Baloch lives. They collected information about 114 plant species used by nomads and village dwellers for mutational, utilitarian and medicinal purposes; and a total of 56 species prescribed or dispensed by herbalists or herbal doctors residing in population centres. Hocking (1958-62) wrote a series of papers on medicinal plants of Pakistan and included some information on Baluchistan. Shinwari and Malik (1989) concluded a field study of plant utilisation of northeastern Balochistan. Malik *et al.* (1990) gathered some preliminary ethnobotanical information from six district of Baluchistan. Shinwari *et al.* (1995) reported the ethnobotanical information about Kharan district of the same province.

## Methodology

During the fieldwork, trips have been arranged on proper time of plant collection and use by the inhabitants. Interviews were taken and observations were made during guided and transact walks. Plant specimens were collected and preserved in the herbarium of Quaid-i-Azam University, Islamabad. Interviews of about 100 informants including local inhabitants, herbalists, pansaries, park authorities and societies were conducted on random bases. Questionnaires were adopted for interviews. Two girl students were involved for survey in women



communities. Out come of the results were rechecked and compared with literature. Analysis of the data was done and indigenous knowledge was documented.

## Results

### 1. Trees

Among trees, 27 species belonging to 22 genera and 15 families recorded as being used by the indigenous people of the area.

#### *Bombax ceiba* L. (Simbal)

Family:	Bombacaceae
Parts Used:	Root, Fruits, and Fluff of the capsule, Wood.
Folk Medicinal Uses:	Young roots used as astringent, alternative, restorative and as tonic for brain. Young fruits are used as stimulant. (Occurrence: Common)

#### *Bauhinia variegata* L. (Kachnar)

Family:	Caesalpinaceae
Parts Used:	Bark, Flower buds, Root, Wood
Folk Medicinal Uses:	Bark is used as alternative, anthelmintic, tonic, astringent, useful in skin diseases, ulcer and scrofula. Dried buds are used in dysentery, piles, diarrhoea and worms. Decoction of root is given in dyspepsia. Root is an antidote to snake bite. Leaves are used as fodder. Flowering buds are sold in the market as vegetable (Occurrence: Common).

*Cassia fistula* L. (Kinjal, Amaltas)

Family:	Caesalpinaceae
Parts Used:	Leaves, Fruits Bark, Seeds, Wood
Folk Medicinal Uses:	Leaves are used as laxative, emollient, tonic and febrifuge. Pulp of fruit used as a remedy for constipation. Seeds as cathartic, emetic. Root used as tonic, febrifuge, astringent and purgative. The bark and leaves rubbed up and mixed with oil are applied to pustules. Wood is used as fuel while fruit is sold in the market. (Occurrence: Common)

*Maytenus royleanus* (Wall. ex Lawson) Cufodont. (Pattaki)  
(Synonym: *Gymnosporia royleana* Wall.)

Family:	Celastraceae
Parts Used:	Seeds and Stem
Folk Medicinal Uses:	Seeds are smoked to relieve toothache. (Occurrence: Common)

*Mallotus philippensis* (Lam.) Muell.-Arg (Kambela)

Family:	Euphorbiaceae
Parts Used:	Fruits, Leaves, Bark
Folk Medicinal Uses:	Powder obtained from the fruits is used as a vermifuge, purgative and in certain parasitic skin diseases. The leaves and barks are used for poulticing in cutaneous diseases. (Occurrence: Common)



*Phyllanthus emblica* L. (Amla)  
(Synonym: *Emblica officinalis* Gaertn)

Family:	Euphorbiaceae
Parts Used:	Fruits, Flower, Seed, Root bark
Folk Medicinal Uses:	Fresh fruit is used as cooling, refrigerant, diuretic, laxative and astringent. Dried fruit is used in haemorrhage, diarrhoea, dysentery, jaundice, dyspepsia and anaemia. Exhumation from fruit is externally applied on the inflammation of the eye. Seeds are used in asthma, bronchitis and biliousness. Flowers are used as refrigerant, cooling and aperiant. Root and root bark is used as astringent. Wood is used as fuel while fruit is sold in the market. (Occurrence: Not common in immediate area)

*Ricinus communis* Linn. (Arand)

Family:	Euphorbiaceae
Parts Used:	Seed, Leaf, Bark, Root.
Folk Medicinal Uses:	A poultice of leaves is applied to boils, swelling and to relieve pain from the joints. The bark is used for healing wounds and sores. A paste of root is applied for toothache. The dry roots are used as febrifuge, while leaves are warmed over fire and applied to the breasts of women to increase the milk secretion. Oil obtained from the seeds is used as laxative and is also given to children in case of constipation. Some times oil is also used to start labour pain and early delivery (People's practice).

[Occurrence: Fairly Common (escaped)]

*Quercus leucotrichophora* A. camus. (Rein)  
(Synonym: *Q. incana* Roxb)

Family:	Fagaceae
Parts Used:	Stem, Wood, Corm
Folk Medicinal Uses:	Corm is used as astringent and diuretic; also given in diarrhoea, indigestion, asthma and gonorrhoea. Leaves are used as fodder. (Occurrence: Common)

*Flacourtia indica* (Burm.) Merr. (Kakoh)

Family:	Flacourtiaceae
Parts Used:	Fruits and Gum.
Folk Medicinal Uses:	Fruit is normally eaten by people when fully ripped and is recommended in jaundice and enlarged spleen. Unripe fruit is considered to be toxic by the people and is avoided to eat. Gum is used with other ingredient in cholera. Used as fuel wood. (Occurrence: Common)

*Melia azedarach* Linn. (Drek)

Family:	Meliaceae
Parts Used:	Whole plant
Folk Medicinal Uses:	Bark is used as cathartic and emetic. Flowers and leaves are used as emmenagogue and resolvent, also applied as poultice to relieve nervous headaches. A



decoction leaves is employed in hysteria. Seeds are used in rheumatism. Gum used as remedy for spleen enlargement. Ripen fruit is also used against diabetes. (Occurrence: Widely planted)

*Albizia lebbbeck* (L.) Benth. (Shareen, Siris)

Family:	Mimosaceae
Parts Used:	Bark, Seeds, Flowers and Pods
Folk Medicinal Uses:	Bark and seeds are used as restorative, astringent and in piles, diarrhoea, dysentery and gonorrhoea. Flowers are used in carbuncle, boils, swelling and other skin diseases. All parts are used in snakebite. Bark is used in lymphatic gland tuberculosis. (Occurrence: Common)

*Acacia catechu* (L. f.) Willd. (Khair, katha)

Family:	Mimosaceae
Parts Used:	Bark, Wood
Folk Medicinal Uses:	Extract from wood is called "Katha" which is used as astringent in diarrhoea and applied in spongy gums. Katha is also eaten with betel leaf. Leaves are also used as fodder. (Occurrence: Threatened)

*Acacia nilotica* (L.) Delile (Kikar)  
(Synonym: *A. arabica* Lamk.)

Family:	Mimosaceae
Parts Used:	Bark, gum, leaves, seeds, pods, wood

**Folk Medicinal Uses:**

Bark is used in diarrhoea, dysentery, as somachic and as astringent. Stem used to make tooth brush (Miswak) to clean teeth. Pods are used as powerful expectorant. A mixed powder of leaves, flowers, bark, fruit and root to gather used as aphrodisiac. Also used as fuel wood. (Occurrence: Common)

*Acacia modesta* Wall. (Phulahi)

**Family:**

Mimosaceae

**Parts Used:**

Gum from the bark, wood, leaves.

**Folk Medicinal Uses:**

The gum obtained from the bark is used as tonic and stimulant. Ash is used in snuff preparation. The gum (chir) is also used in the preparation of Halwa given as tonic, especially to women in childbirth (The gum is mixed with wheat flour, sugar is added and roasted in ghee is called Halwa). Also used as fuel wood. [Occurrence: Very Common]

*Mimosa rubicaulis* Lam., (Sub sp. Himalayana) [Ral]

**Family:**

Mimosaceae

**Parts Used:**

Leaves, roots, whole plant.

**Folk Medicinal Uses:**

Leaves are used in piles as infusion while the bruised leaves is applied on burns. Root is used as powder to stop vomiting due to weakness. (Occurrence: Common)



*Morus alba* Linn. (Chitta tut)

Family:

Moraceae

Parts Used:

Leaves, stem, bark, fruit.

Folk Medicinal Uses:

Leaves are known as diaphoretic and emollient. A decoction of leaves is used as gargle in inflammation of throat. The fruit is used as cooling and laxative. It is used for sore throat, dyspepsia and melancholia. Roots are known as anthelmintic and astringent. Leaves are used as fodder. (Occurrence: Common)

*Ficus benghalensis* L. (Bohr)

Family:

Moraceae

Parts Used:

Seeds, leaves, root, juice, bark.

Folk Medicinal Uses:

The milky juice is externally applied for pains and bruises, and as an anodyne application in rheumatism and lumbago. The leaves are applied, heated as a poultice to abscesses. The root fibres are said to be given in gonorrhoea. Bark is used as astringent and tonic; used in diabetes and leucorrhoea. Seeds are used as cooling and tonic. The milky juice of fruits, leave buds and the bark of derial roots, is used as aphrodisiac. (Occurrence: Common)

*Ficus religiosa* Linn. (Pipal)

Family:

Moraceae

Parts Used:

Seeds, bark, fruit, wood.



Folk Medicinal Uses: Seed is used as cooling, alternative. Fruit is used as laxative. Bark is known as astringent used in gonorrhoea. Leaves and young shoots are used as purgative. Infusion of bark is given internally in scabies. (Occurrence: Uncommon)

*Ficus virgata* Wall. ex Roxb. (Phagwar)

(Synonym: *F. palmata* Forssk)

Family: Moraceae

Parts Used: Fruits and leaves.

Folk Medicinal Uses: The fruit is known as laxative and demulcent; used as diet in constipation and in lungs and bladder diseases. Leaves are boiled in the milk of goat used to soften the arteries (Gokeena village). [Occurrence: Common]

*Olea ferruginea* Royle. (Kahu, Kao)

(Synonym: *O. cuspidata* Wall)

Family: Oleaceae

Parts Used: Fruit, leaves, bark, wood.

Folk Medicinal Uses: The decoction of leaves is used for toothache. Leaves are bitter, astringent, antiseptic, antiperiodic, and diuretic. The leaves are boiled and used for hoarseness of voice. Oil obtained from the fruit is used as rubefacient. Fruit is known as antidiabetic. Root is useful for asthma (Nurpur village). Also used as fuel wood and fodder. [Occurrence: Common]



*Nannorrhops ritchieana* (Griff.) Aitchison. (Mazari)

Family:	Palmeae
Parts Used:	Leaves
Folk Medicinal Uses:	Leaves are used in diarrhoea, dysentery and also as purgative in case of cattle. (Occurrence: Uncommon)

*Phoenix sylvestris* (L.) Roxb. (Khajoor)

Family:	Palmeae
Parts Used:	Fruit, juice of tree, root, kernel.
Folk Medicinal Uses:	Root is used as toothache. Fruit is known as tonic, cooling and laxative. Juice of tree is used as cooling drink. (Occurrence: Fairly Common)

*Butea monosperma* (Lam.) O.Kuntze (Dhak)

(Synonym: *B. frondosa* Koeing Ex Roxb.)

Family:	Papilionaceae
Parts Used:	Whole plant
Folk Medicinal Uses:	Seed is used as anthelmintic. Gum is as astringent, used in diarrhoea and dysentery. Leaves are used as tonic, astringent. Flowers are astringent, diuretic, depressive, aphrodisiac. Bark and seeds are used in snakebite. Whole plant is used against diabetes. Leaves are used as fodder. (Occurrence: Common)



*Dalbergia sissoo* Roxb. (Shisham, Tali)

Family:	Papilionaceae
Parts Used:	Leaves, roots, wood.
Folk Medicinal Uses:	Leaves are used as stimulant; decoction is used in gonorrhoea, root is used as astringent, wood is used as alternative, also used in leprosy, boils, eruptions and to stop vomiting. Leaves are used as fodder. (Occurrence: Very Common)

*Pinus roxburghii* Sargent. (Chir)  
(Synonym: *P. longifolia* Roxb.)

Family:	Pinaceae
Parts Used:	Leaves, bark, resin, seeds, wood
Folk Medicinal Uses:	Wood is used to cool the burning sensation of the body. Resin is employed as a stimulating application for ulcer and abscesses and as basis for plaster. Paste is used for painful chest. Wood and resin used in snakebite and scorpion sting. Used as fuel wood. (Occurrence: Common)

*Ziziphus mauritiana* Lam. [Var. *Spontanea* (Edg)] (Ber, Beri)  
[Synonym: *Z. jujuba* Lamk. Var. *spontanea* (Edgew)]

Family:	Rhamnaceae
Parts Used:	Fruits, leaves
Folk Medicinal Uses:	Fruits are used as ingredient of joshanda, as blood purifier. Decoction of root is used for fever and intestinal worms. Decoction of

bark and leaves are used in dysentery. Used as fuel wood. (Occurrence: Common)

*Pyrus pashia* Buch. Ham. Ex D. Don. (Batangi)

Family: Rosaceae

Parts Used: Fruit, leaves, wood.

Folk Medicinal Uses: Fruit is used as febrifuge, sedative and astringent. Leaves are used as fodder. (Occurrence: Common)

## 2. Shrubs

About 24 species of shrubs belonging to genera and 13 families are found to be used by local people.

*Barleria cristata* L. (Tadrelu)

Family: Acanthaceae

Parts Used: Whole plant

Folk Medicinal Uses: Roots and leaves are used to reduce swelling. Infusion is given to cough. Root is also used in rheumatism and pneumonia. Decoction of the whole plant is used as a substitute for human milk. Used in snakebite. Leaves are boiled with oil are used in ear and eye ailments (Gokeena village). [Occurrence: Frequent]

*Justicia adhatoda* L. (Bhekkar)

(Synonym: *Adhatoda vasica* Nees in wall.)

Family: Acanthaceae



Parts Used:	Leaves, flowers, roots, stem (wood).
Folk Medicinal Uses:	The leaves and roots are used for cough, bronchitis, asthma and rheumatism. Leaves are also used for stomach-ache, joints and eruption. Used in dysentery, especially in case of cattle. Leaves buds are used in diabetes (Rumli village). Used as fuel wood.[Occurrence: Major constituent of vegetation]

*Carissa opaca* Stapf ex Haines. (Granda)

Family	Apocynaceae
Parts Used:	Whole plant
Folk Medicinal Uses:	Root is granddad and put in worm infested sores of animals. Also used as fly repellent. Fruit and leaves are known as cardiac stimulants. Leaf decoction is used for asthma (Nurpur village). Used as fuel wood, fruit is eaten and sold. [Occurrence: Common]

*Nerium oleander* L. (Kaner)  
(Synonym: *N. indicum* Mill.)

Family	Apocynaceae
Parts Used:	Whole plant
Folk Medicinal Uses:	Bark is used in skin diseases, especially leprosy. Root is used for abortion. Root paste is useful in scorpion sting and snakebite. Decoction of leaves is applied externally to reduce swellings (Rumli village). Dogs are died by eating its stem

(People's observation). [Occurrence:  
Common in streams]

*Calotropis procera* (Willd.) R. Br. (Ak)

- Family: Asclepidaceae
- Parts Used: Whole plant.
- Folk Medicinal Uses: Powdered bark is locally used in dysentery. Roots and bark are used as tonic, sudorific, and alternative, antispasmodic, expectorant, in large disease emetic. Flowers are known as digestive, stomachic, Also used as a purgative and for treatment against guinea worms. (Occurrence: Common in waste areas)

*Berberis lycium* Royle. (Sumbal)

- Family: Berberidaceae
- Parts Used: Whole plant.
- Folk Medicinal Uses: The watery extract from the root and stem is called "Rasout" which is used in opthalmia. Fruit is cooling and laxative, and used for the relief of intestinal colic (antispasmodic) and for the treatment of pharyngitis. Plant bark is used for the improvement of internal wounds, throat pains. The root bark is also used against diabetes. Root powder is used in bone fractures (Gokeena village). Also used as fuel wood. Fruit is sold in the local market.[Occurrence: Common (threatened)]



*Opuntia monacantha* (Willd.) Ham. (Nagphani)

Family:	Cactaceae
Parts Used:	Whole plant
Folk Medicinal Uses:	Fruit is used as laxative while stem is used to make soothing poultice. Fruit is known as an expectorant and is useful remedy in asthma, whooping and spasmodic cough. It is a good remedy in hepatic congestion and in gonorrhoea. (Occurrence: Fairly frequent near villages and field edges)

*Euphorbia royleana* Boiss. (Danda Thor)

Family:	Euphorbiaceae
Parts Used:	Whole plant.
Folk Medicinal Uses:	Milky juice is used as cathartic and anthelmintic. (Occurrence: Common)

*Otostegia limbata* (Benth) Bioss. (Bui, Phutkanda)

Family:	Lamiaceae (Labiatae)
Parts Used:	Leaves.
Folk Medicinal Uses:	Juice of leaves is applied to children's gum and to ophthalmia in man. Powder of the plant is mixed with butter and used for wounds. [Occurrence: Common in drier stony areas (Threatened)]

*Woodfordia fruticosa* (L.) S. Kurz. (Dhawi)

Family:	Lytheraceae
---------	-------------

Parts Used:

Flowers, Leaves

Folk Medicinal Uses:

Dried flowers are used as astringent, stimulant, also used in liver complaints, haemorrhoids, dysentery, menorrhagia and mucus membrane disorders. (Occurrence: Common)

*Embelia ribes* Burm. (Baobirung)

Family:

Myrsinaceae

Parts Used:

Seeds

Folk Medicinal Uses:

Seeds of the plant have been used as anthelmintic, alternative and tonic. It is also used as carminative and stomachic. Seeds are sold in the local market. (Occurrence: Uncommon)

*asminum humile* L. (Peeli chumbelli)

Family:

Oleaceae

Parts Used:

Flower, root, and juice.

Folk Medicinal Uses:

Flowers used as astringent and tonic to heart and bowels. Root is used in ringworm. Milky juice of plant is used for destroying the unhealthy lining walls of chronic sinuses and fistulas. [Occurrence: Common (Threatened)]

*lasminum officinale* L. (Chambeli)

Family:

Oleaceae

Parts Used:

Whole plant.



**Folk Medicinal Uses:** The plant is used as diuretic, emmenagogue, anthelmintic. Flowers are applied in skin diseases, headache and weak eyes and in scorpion sting. Leaves are chewed as a treatment against ulceration or eruptions in the mouth. Fresh juice of leaves is applied to corns. Oil is used in ears in otorrhoea. (Occurrence: Uncommon)

*Dendrocalamus strictus* (Roxb.) Nees (Bems, bas)

**Family:** Poaceae (Gramineae)

**Parts Used:** Leaves and stem.

**Folk Medicinal Uses:** Leaves are used as acholics to animals. The siliceous matter is tonic and astringent, known by the people. (Occurrence: Common)

*Punica granatum* L. (Anar)

**Family:** Punicaceae

**Local Name:** Anar (Urdu, Punjabi, Potohari, Pushto)

**Occurrence:** Common

**Flowering Period:** September-December

**Parts Used:** Fruit, root, bark, rind of fruit, seed

**Folk Medicinal Uses:** The seed is used as stomachic, pulp is used as cardiac and stomachic. Fresh juice is known as cooling and refrigerant. Root and stem bark is used as astringent and anthelmintic for tapeworm. (Occurrence: Common)

*Ziziphus nummularia* Burm. (Jher beri, Mala)(Synonym: *Rhammus hummularia* Burn.)

Family:	Rhamnaceae
Local Name:	Jher beri, Mala (Punjabi. Potohari), Ber (Urdu)
Occurrence:	Common
Flowering Period:	March-June
Parts Used:	Leaves, fruit and whole plant.
Folk Medicinal Uses:	Leaves are applied externally on boils and scabies. Also used for tanning material. Fruit is known as astringent and cooling. Also used as ingredient of Joshanda, as blood purifier. Decoction of root is used for fever and intestinal worms. Decoction of leaves and bark are used in dysentery and diabetes (Nurpur village). [Occurrence: Common]

*Rosa brunonii* Lindle. (Jungli gulab, Kuji, Karir)(Synonym: *R. moschata* auct. non J. Hermann)

Family:	Rosaceae
Parts Used:	Whole plant
Folk Medicinal Uses:	Flower used in skin and eye diseases and is also recommended by indigenous people in biliousness. Flowers are used as heart tonic. (Occurrence: Fairly Common)



*Rubus fruticosus* Linn. (Karwara)

Family:	Rosaceae
Parts Used:	Fruit and leaves.
Folk Medicinal Uses:	The leaves are crushed and squeezed; is used for urticaria. The fruits are made into juice and are also eaten. Old leaves are used in the treatment of diarrhoea, cough, reducing fevers and as diuretic. (Occurrence: Uncommon)

*Zanthoxylum armatum* D.C. Prodr. (Thimber)

Family:	Rutaceae
Parts Used:	Bark, fruit, stem and seeds.
Folk Medicinal Uses:	Fruit and branches are used as stomachic and carminative. Branches are used as toothache and as tooth brush (Miswak) for cleaning the teeth. Seed and bark are used as tonic, aromatic, in fever, cholera and dyspepsia. Leaves are eaten. Stem sticks (not cut with iron) are used for walking to heal piles (Gokeena village). (Occurrence: Common)

*Dodonaea viscosa* (L.) Jacq. (Sanatha)

Family:	Sapindaceae
Parts Used:	Leaves, bark and seeds, wood
Folk Medicinal Uses:	Leaves are known as bitter, astringent, used in gout, rheumatism, swelling and burns. Bark is employed in astringent bath and

fomentation. Major constituent of fuel wood used in the area. (Occurrence: Very common)

*Withania somnifera* (L.) Dinal. (Aksan)

Family: Solanaceae

Parts Used: Whole plant

Folk Medicinal Uses: Green leaves are used to relieve the pain from joints and painful swelling. Roots are used as diuretic and tonic. Juice of the whole plant is useful in rheumatism. (Occurrence: Uncommon)

*Lantana indica* Roxb. (Ghaneri)  
(Synonym: *L. alba* duct. non Mill.)

Family: Verbenaceae

Parts Used: Leaves

Folk Medicinal Uses: Leaves are used to cure snakebite. [Occurrence: Common (Threatened)]

*Lantana camara* L. (Panch phul)

Family: Verbenaceae

Parts Used: Whole plant

Folk Medicinal Uses: The plant is considered as diaphoretic, carminative, antiseptic. The decoction of the plant is given in rheumatism, tetanus, and malaria. It is also considered as tonic and is used in atony of abdominal viscera. (Occurrence: Very Common)



***Vitex negundo* Linn. (Banua/Bana, Marwan)**

Family:	Verbenaceae
Parts Used:	Leaves and Roots.
Folk Medicinal Uses:	Fresh leaves are used in the form of bandage for pain of chest and back. Also used as toothbrush (Miswak) for cleaning teeth. Also used in gum and skin diseases. Dried leaves are smoked for the relief headache. Also used for skin allergy. (Occurrence: Fairly common)

**Indigenous Treatment (Recipes)**

Some of the common recipes used by the people of Margalla Hills are as follows:

1. The rind of fruit of *Punica granatum* (Anar) in powdered form mixed with sugar is used as remedy for diarrhoea and dysentery.
2. The oil of *Ricinus communis* (Arand) is put into ears, if they are invaded by insects' etc.
3. The breast of women are bathed with the decoction of leaves of *Ricinus communis* (Arand) for quarter of an hour and then boiled leaves, in the form of a poultice are spread over them. The juice of leaves is also given internally for increasing the milk flow.
4. The abdomen of cattle like cows, sheep etc., during season, specially when they have over eaten the *Trifolium repens*, swells up due to gases and is fatal. Thus either the leaves or fermented fruits of *Melia azedarach* (Drek) in whey are used to expel the dangerous gases from the belly.
5. Powder of the root of *Withania somnifera* (Aksan) mixed with ghee and honey in equal parts is used for impotence or seminal debility, it is to be taken in evening followed by milk.

6. The roots of *Berberis lycium* (Sumbal) is dried and crushed into powder used to cure mouth diseases "Chall".
7. The bark and leaves of *Cassia fistula* (Kinjal) rubbed up and mixed with oil are applied to pustules.
8. Fruit of *Ricinus communis* (Arand) is roasted in ghee and is used for the remedy of "Chambal" skin diseases.
9. Leaves of *Justicia adhatoda* (Bhekhar) are boiled and are given for throat pain.
10. The bark of *Acacia nilotica* (Kikar) along with *Cascuta reflexa* (Zarbuti) is boiled in water; extract of bark is used for severe toothache, especially when the gums are septic.

## Processing of Medicinal Plants

### 1. Collection and Identification

About 10 species of trees and 5 species of shrubs are being sold in the local market. These species are collected by local inhabitants, drug dealers, village grocers, and local practitioners (Hakims) etc. through traditional knowledge. Most of the collectors are ignorant or have insufficient knowledge about proper time of collection, which is not only essential for maximisation of active ingredients, but also from the viewpoint of sustainability of the resource. Due to unscientific and haphazard collection, which involves rooting upto even some labour of cutting, it is hard to expect recovery.

### 2. Preservation

Medicinal plants are either dried or sold directly to the local grocers in fresh form, in which case the drying is done by the grocer himself. Drying is done by women by spreading the plants on floor in sun. It takes about 2-4 days to complete the drying. In case the village grocers buy fresh collections, they sundry the plants by spreading them on a sheet of cloth or plastic on the ground. The process of drying is generally very crude as dust and other foreign materials get mixed with them.



### 3. Storage

Normally no storage is involved at the collectors level, because they try to sell them as soon as possible. The village grocers have to store small quantities with them for a short while till they are able to dispose them off to the whole sellers. Like drying, the storage is not done in hygienic condition and the crude drug often gets infected with insects and fungi. The storage places are generally dark and ventilation is extremely poor. This results in the deterioration of the dried herbal drugs and ultimately causes financial loss to the traders in order to maintain quality: storage facilities need a definite improvement.

### Discussion

Plants are used as medicine from ancient times. Motley (1994) presented a comprehensive survey of past, present and future uses of Sweet flag-*Acorus calamus* (Araceae). According to him the plant has a rich ethnobotanical history dating back possibly to the time of *Moses [the prophet Musa (peace be upon him)]* in the Old Testament of the Bible and in early Greek and Roman medicines Sweet flag, thought to be indigenous to India and spread along trade routes, has been valued for its rhizome and fragrant oils which have been used medicinally, in alcoholic beverages, as a fragrant essence in perfumes and oils, and for insecticide properties. Current research investigates Sweet flag's value as an insecticide antibacterial and antifungal plant.

One of the objectives of ethnobotanical study is to record the indigenous knowledge about plants. A number of efforts have been done in this regard. Emmerich and Valle (1991) reported the knowledge of plants used by the people in Mato Grosso (Brazil), for birth control. The study was done with the group of the linguistic Aruak family. The plants were collected under the supervision of the least native informant with the contribution of women. Informal conversations with the women confirmed the date and duration use of each plant, as well as the alimentary diet recommended during that period. Bhuyan (1994) studied indigenous medicinal therapies of the Lohit district of Arunachal Pradesh, India. He described 15 drugs of plant origin commonly used in abortion and easy delivery after proper identification with their scientific, local name, part used and method of administration.

Shinwari and Khan (1997) reported that about 35 species of wild trees and



shrubs are used as fuel wood at Margalla Hills National Park, out of which most of the species are medicinal in nature. Similarly, wild medicinal plants of the area are collected by low-income villagers, collectors and concerned drug dealers from the city market without any consideration of age and size of the plants, which result in the depletion of this natural resource from the area. However, with the increasing labour cost and search for better job opportunities by the workers, the collection of plants is slowly declining. This is the necessitating emphasis on their organised cultivation which is virtually absent at present.

Generally, the plants having the perennial nature and require a prolonged period of growth i.e. 6-8 years depending upon the plant species concerned. Some of the plant requires at least three to four years to reach the flowering and fruiting stage and thus minimising its regeneration possibilities. For example, *Berberis lycium* found in the area is normally valued to the people for its important medicinal uses of its root and bark. This plant has a prolong period of growth and due to use of root and bark of this plant, it is vulnerable and is infect rather threatened since its population is thinly scattered and can not be commercially utilised on large scale in the area for future.

Although fruit product of *Cassia fistula* is being sold in the local market but the species have some other pressures like being cut down for fuel, furniture and some other purposes. Yet, the species density in the area is satisfactory and can be sustained if other pressures are removed. same is the case with *Justicia adhatoda* and *Carissa opaca*.

Grafting is found on *Pyrus pashia* to get more fruit production by the villagers for the improvement of their microeconomic and is quite successful. So this species is at the stage have sustain. There is another possibility of grafting *Olea europea* (olive) on the native *Olea ferruginea* (wild olive) to make it more profitable and sustainable species for the local people. In this regard an experimental trial has been already done at National Agricultural Research Centre, Islamabad and was found successful but the results are still not applied practically in the area. Grafting of different strains of *O. europea* from different countries should be used to make grafting successful. The population of *Zizyphus mauritiana* in the area needs to be promoted as this tree has a good economic potential being used as medicinal (fruit as tonic), fuel wood, fodder and in apiculture.



During the survey, a number of informations obtained about the use of plants against different medical problems practised by the people and Hakims. For example, against diabetes ripen fruit of *Melia azedarach*, *Olea ferruginea* are found to be used. Similarly, bark of *Albizia lebbeck* for lymphatic tuberculosis, leaves of *Ficus virgata* to soften the arteries, root of *Olea ferruginea* and leaf decoction of *Carissa opaca* for asthma, root of *Nerium oleander* for abortion, root powder of *Berberis lycium* for bone fracture and stem sticks of *Zanthoxylum armatum* to heal piles.

*Acacia catechu* and *Berberis lycium* are found vulnerable due to their parts used, growth rate, quantity of consumption and pressures like grazing, erosion and fuel wood collection etc. They are particularly needed to be conserved by domestication and regeneration techniques. The flowers of *Jasminum humile* are used to extract oil which is very expensive and useful generally not available in the market. Jasmine oil which is available in the market is extracted from other species of Jasmine which is of inferior quality. This plant also needs to be promoted in this area and should be conserved.

It has been found that the area at the foothill of Margalla near Islamabad Zoo were given the name "Khaira de mori" means "centre of khair (*Acacia catechu*)" by the people due to dominant vegetation of this tree species in this location in the past. At present both the tree species density and the name of the area has not been found due to urbanisation. Similarly, gardening was one of the important hobby of the area in the past but after the acquisition of land by CDA, this useful trend starts decreasing, as the people become unsure about their settlement in future. This trend could be re-encouraged by providing tree seedlings for plantation on private lands and official land on contract bases for this specific activity.

## Conclusion

The results of the survey can be applied to the management plan of the park for conservation. Vulnerable medicinal species should be focussed for regeneration and propagation. Establishment of Botanical garden is suggested in this regard. Afforestation programme should be started and energy efficient stoves must be introduced in the area in order to minimise the fuel wood use pressure on the park. Periodic grazing should be replaced by rotatory grazing. Native species should be given preference in afforestation. Local people should be



involved in decision making.

## References

- Bhuyan, D. K. (1994) Herbal Drugs Used By The Tribal People of Lohit District of Arunachal Pradesh for Abortion and Easy Delivery. A Report on Advances in Plant Science, 7(2): 47-202.
- Chemas, A. and Gray, V. R. (1991) Apiculture and Management of Associated Vegetation By The Maya of Tixcacaltuyub, Yucatam, Mexico. Agroforestry Syst., 13(1): 13-26.
- Goodman, S. M. and Ghafoor, A. (1992) The Ethnobotany of Southern Balochistan, Pakistan, With Particular Reference To Medicinal Plants. Fieldiana Bot. 0(31): I-V, 1-84.
- Emmerich, M. and Valle, L. D. S. (1991) Ethnobotanical Studies In Parque Indigena Do Xingu: VII. Abortive, Contraceptive, Conceptive and Sex-Determinant Plants. Bradea, 6(2): 12-20.
- Hocking, G. M. (1958) Pakistan Medicinal Plants I. Qualitas Plantarum Et Material Vegetabiles, 5: 145-153.
- Hocking, G. M. (1962) Pakistan Medicinal Plants IV. Qualitas Plantarum Et Material Vegetabiles, 9: 103-119.
- Ibrar, M. (1998) Ethnobotanical Studies Of Margalla Hills National Park, Islamabad Pakistan. M. Phil. Thesis. Department Of Biological Sciences, Quaid-i-Azam University, Islamabad.
- Khattak, Z. D., and Ahmed, S. (1990) Phytosociological Studies Of The Vegetation On The North And South Facing Slopes Of The Margalla Hills. J. Sc. & Tech. Univ. Peshawar, 1990, 14. P.p.129-132.
- Leporatti, M. L. and Lattanzi, E. (1994) Traditional Phytotherapy on Coastal Areas of Makran (Southern Pakistan). Fitoterpia 65(2): 158-161.
- Malik, S., Shah, M. and Marwat, Q. (1990) Ethnobotanical Evaluation of Valuable Plants of Baluchistan, Pakistan. Project No. 123, Pak. Sci. Foundation.



Motley, T. J. (1994) The Ethnobotany of Sweet Flag, *Acorus calamus* (Araceae). Econ. Bot. 48(4): 397-412.

Nasir, Y. and Akhtar, R. (1987) Wild Flowers of Rawalpindi-Islamabad Districts. National Herbarium, Islamabad.

Nasir, E. and Ali, S. I. (ed.). (1970) Flora of West Pakistan/Pakistan. Islamabad & Karachi.

Shinwari, M. I. and Khan, M. A. (1997) A Note On Fuel Wood Species of Margalla Hills National Park, Islamabad. The Pakistan Journal of Forestry. Vol. 47 (1-4) Pakistan Forest Institute, Peshawar. Pp. 119-133.

Shinwari, Z. K. & Malik, S. (1989) Plant Wealth of Dera Bugti Area. Progressive Farming 9:39-42.

Shinwari, Z. K., Shah, M. and Awan, R. (1995) The Ethnobotany of Kharan Distt. Baluchistan. Proc. Sym. Med. Pl. Unive. of Peshawar.

Shinwari, Z. K., Khan, B. A. and Khan, A. A.. (Eds.) (1996) Proc. First Train. Workshop on Ethnobotany Appl. Conserv.

Stewart, R. R. (1957-58) Flora of Rawalpindi District. Pak. Journ. For. 7 (4), 8 (1).