STUDY OF CHEMICAL CONSTITUENTS AND MEDICINAL USES OF ORNAMENTAL SPECIES OF DISTRICT BANNU

R.U. KHAN
S. MEHMOOD
S.K. SHERWANI
S.U. KHAN
A. KHAN
I. ULLAH
D.K. KHAN
I.A. SHAH
STUDY OF CHEMICAL CONSTITUENTS AND MEDICINAL USES OF ORNAMENTAL SPECIES OF DISTRICT BANNU
Rehman Ullah Khan1, Sultan Mehmood1, Sikandar Khan Sherwani2, Saad Ullah Khan1, Aziz Khan1, Ihsan Ullah1, Dil Khuram Khan1 and Inam Ali Shah1
1Department of Botany, University of Science & Technology Bannu,
2Department of Microbiology, Federal Urdu University of Arts, Science and Technology, Karachi, Pakistan.

ABSTRACT
The present study was carried out to assess record and report the chemical constituents and ethnobotanical knowledge of ornamental species of District Bannu during various months of 2013. Medicinal outlines of about forty seven ornamental plants were documented through interview local inhabitants i.e. hakims, farmers, herbalists, medicinal plant user & dealers. The present investigation comprises the indigenous uses of 47 ornamental species belonging to 33 families. Out of this rich Medicinal germplasm, 6.25% plants are wild while 75.50% species were found to be cultivated, 18.25% species are both wild and cultivated of the total flora of this area. The survey accomplished shows that the collectors of medicinal plants include women folk (48.26%), children (24.74%) and men (27.0%). The most important medicinal families are Apocynaceae, Asteraceae, Rosaceae and Solanaceae with 3 species each (9.091%). Cactaceae, Cupressaceae, Euphorbiaceae, Lamiaceae, Nyctaginaceae and Salicaceae with 2 species each (6.061%). While the remaining 23 families having 1 species each which is 3.031% of all families. The most common medicinally important ornamental plants in the area are Bauhinia variegate L., Bevogenvalia glabra, Bryophyllum pinnatum Lam., Catharanthus roseus (L.) G.Don., Chrysanthemum indicum L., Cistrum diurnum L., Cistrum nocturnum L., Cupressus sempervirens, Cucumis melo L., Euphausia officinalis L., Helianthus annus L., Jasminum officinale L., Magnolia grandifolia L., Mirabilis jalapa L., Narcissus tazetta L., Nerium oleander L., Ocimum basilicum L., Opuntia dillenii Haw., Rosa indica L., Salix babylonica L., and Thuja orientallis L.

Keywords: Ornamental species, chemicals, ethnobotany, Bannu.
INTRODUCTION

District Bannu is situated in the Khyber Pakhtunkhwa Province of Pakistan. It lies between 32.43 to 33.06 North latitude and from 70.22 to 70.57 East longitudes. It is situated at a distance of 190 km, in the south of Peshawar. It is surrounded in the North by Tribal Area and in the East by Karak district, while in the South by Lakki Marwat of Bannu district. The total area of the district is 1227 square kilometers. Its population is more than half a million. Majority of the population live in villages. Ornamental species is a dominant species that provide much of the biomass in an area (Lindenmayer et al., 2002). In Pakistan the filed of ethnobotany is quite virgin. A detailed glance of the ethnobotanical report, disclose that a large number of great botanists led quite a lot of ethnobotanical studies in different areas of Pakistan. Shinwari and Khan in 2000, performed an ethno botanical research survey in Margalla Hills National Park, for the documentation of local uses of the collected herbs. Durrani et al., 2006 have studied the ethnobotanical plants of S.B.K. woman University Quetta, Pakistan. Zabih Ullah et al., 2006 studied the ethnobotanically important plants of Kot Manzary Baba, Malakand Agency. Sultan et al., (2007) published the research paper on salt range plants of District Karak. Hayat et al., (2008) published a research article on ethno-taxonomical approach in the identification of valuable medicinal flora of Pindighab Tehsil of District Attock. Similarly Gul Khan et al. (2008) studied the ethnobotanically important plants which are used to cure two important diseases like diarrhea and dysentery in Dir Kohistan Valley. Saad et al., 2013 studied biodiversity in medicinal plants and its distribution in Village Shahbaz Khel, Lakki Marwat, KPK, and Pakistan and reported a total of 33 plants belonging to 21 families which are commonly used as medicine against different diseases. Bannu is gifted with a diversity of ecological zones and charming plants resources. It has a diver’s ornamental flora possessing economic & medicinal values, and the local inhabitants known, how to use it effectively, for the past many hundred years. People use plant in different ways such as medicinal, Fuel wood, Timber wood, Food and Fodder etc (Hussain et al., 2004). From the literature it reveals that District Bannu with rich ornamental flora has remained ethno medicinally and biochemically unexplored. In vision of the fact mentioned above, in this research work an attempt has been made to record the ethnobotanically important ornamental flora, along with their chemical constituents, of the District Bannu.

MATERIALS AND METHODS

To explore, identify and collecthe important ornamental flora of the area regular trips were arranged during 2013 to different sites like Mandan, Mira Khel, Sokari, Bada Mir Abas, Surani, Mamash khel, Bazar ahmad khan, Domail, Marghali pirbakhel, Paienda Khel, Fathma Khel Khurd, Mosa Khel, Azim Kalla,
Khujari, Bharat, Kakki Ismail Khel, Mandew, Manja khel (ghoriwala), Hati Khel Banochi and Township of the district Bannu. During exploratory trips, a total of 47 medicinally important ornamental flora was carefully collected and were conserved systematically in the herbarium of Botany Department, UST, Bannu, by adopting the recommended procedure used by Ahmad and Zafar, (2005) and Nasir and Ali 1970. Local inhabitants (male, female, old generation and young generation) were interviewed to know about the uses of the indigenous flora for curing different diseases. The information was evaluated and the peoples of other villages of Bannu district were motivated to share and added their experiences. Such types of efforts are required to induce awareness in the local inhabitants about the conservation of the useful plants wealth for their upcoming generations. The knowledge about chemical constituents of ornamental species of District Bannu were recorded from previous research papers, books and other available literature. Repeated inquiry were made to get the correct data about the medicinal uses. Outcome of the results were validated through compared it with the available literature.

RESULTS AND DISCUSSION

The present study was carried out to assess record and report the chemical constituents and ethnomedical knowledge of ornamental species of District Bannu during various months of 2013. Medicinal drafts of about 47 plants were recorded through interview local inhabitants i.e. hakims, farmers, herbalists, medicinal plant user & dealers. The present investigation comprises the indigenous uses of 47 ornamental species belonging to 33 families. The most common medicinally important ornamental plants in the area are Bauhinia variegate L., Bevogenvalia glabra, Bryophyllum pinnatum Lam., Catharanthus roseus (L.) G.Don., Chrysanthemum indicum L., Cisturn diurnum L., Cisturn nocturnum L., Cupressus sempervirens, Cycas revoluta Thunb., Dodonaea viscosa Jaeq., Helianthus annus L., Jasminum officinale L., Magnolia grandifolia L., Mirabilis jalapa L., Narcissus tazetta L., Nerium oleander L., Ocimum basilicum L., Opuntia dillenii Haw., Rosa indica L., Salix babylonica L., and Thuja orientallis L. These plants are most commonly used for curing diseases such as, malaria, fever, cough, dysentery, diarrhorea, abdomen pain, gastric ulcer, snake bite intestinal worms, bronchitis, headache, toothache, asthma, wounds and sores, skin diseases. The most important medicinal families are Apocynaceae, Asteraceae, Rosaceae and Solanaceae with 3 species each (9.091%). Cactaceae, Cupressaceous, Euphorbiaceae, Lamiaeae, Nyctaginaceae and Salicaceae with 2 species each (6.061%). While the remaining 23 families having 1 species each which is 3.031% of all families. Out of this rich Medicinal germplasm, 6.25% plants are wild while 75.50%, species were found to be cultivated, 18.25% species are both wild and
cultivated of the total flora of this area. The survey accomplished shows that the collectors of medicinal plants include women folk (48.26%), children (24.74%) and men (27.0%). Phytochemical compounds have performed an important role in the preparation of many valuable drugs that have saved millions of lives all over the centuries of the world and the search for new plant based medicines is still on. It is found that medicinal plants have a great connection with human health and not only the old Unani and ayurvedic system of medicinal treatment depend on herbal drugs but new systems including homeopathic and allopathic directly or indirectly depend upon the medicinal herbs for the preparation of different well know synthetic drugs (Shahani et al., 1998). Among these various plant species and their parts have been exposed to cure variety of diseases across diverse ethnic communities (Ankli et al., 1999; Bennett & Prance, 2000). In country like Pakistan the filed of ethnobotanical study is fairly virgin. A comprehensive glance of the ethnobotanical studies, disclose that a large number of great botanists led numerous ethnobotanical surveys in different area of Pakistan. It was reported by Shah et al., 2006, that Tribulus terrestris is effective in urino-genital inflammation, Acacia nilotica in cancerous and syphilitic infections and Mentha spicata leaves powder in toothache while Ibrar et al., 2003 reported 35 weed species of crops which are locally used by the local inhabitants of District Abbotabad for common diseases such as cough, fever, diarrhea, pain, worms and skin diseases. In the present research four ornamental plant species like Albizia lebek, Acyranthes aspera, Dodonaea viscosa & Verbena officinalis and Cycas revoluta Thunb are considered to be used against snakebites. In the present work each plant species is cited with Botanical Name (B. Name) Synonym (Syn.), Family, Local name, English Name (Engl.Name), Propagation, used Part, Flowering Period (Fl.Period), Description, Chemical constituents and Medicinal uses in detail below (Table 1).

1. Systematic Position

Bot. Name: Agave americana L.
Syn: Nil
Family: Asparagaceae
Local Name: Aloe
Engl.Name: century plant, maguey
Propagation: seed
Used Part: Whole plant
Fl.Period: February-April

Description:

It is cultivated ornamental plant, commonly known as the century plant, maguey.

Chemical constituents:

Homo-iso-flavanoid, cantalasaponin-1, hydroxyl-chroman, 4-methoxybenzyl-chroman-4-one, and 2-hydroxy-butanedioic.

Medicinal Uses:

The Fibers are produced by the leaves, known as the pita, which are used for the making matting and the ropes. The Agave syrup is sold as a substitute of the natural sugar with little glycemic.
index because of high fructose content.

2. Systematic Position

**Bot. Name:** Albizia lebbeek (L.) Benth  
**Syn:** Nil  
**Family:** Mimosaceae  
**Local Name:** Sreen  
**Engl.Name:** Siris tree  
**Propagation:** By seeds.  
**Used Part:** Bark, Seed, Wood, Flowers  
**Fl.Period:** March-May

**Description:**
A large deciduous cultivated or wild tree, 20m in height. Leaves bipinnate, Flowers white, fragrant, in globes umbellate heads. Fruits long, characteristic pods, smooth, shining, flattened and pale yellow. Seeds 4-12, pale brown, ellipsoid, oblong and compressed.

**Chemical constituents:**
The bark yield tannins, friedelin and β-sitosterol. Seeds gave crude protein, histidine, leucin, isoleucine, calcium, phosphors, iron, niacin and ascorbic acid. 

**Medicinal Uses:**
Bark and seeds are used as restorative, astringent, tonic, diarrea, dysentery and gonorrhea. It is useful in various conditions of cough, asthma, enlarged cervical glands, skin eruption, wounds, ulcers, inflammation, and all type of poisoning including snakebite. A flower past is applied over forehead for getting relief from headache while bark past is applied on face to cure pimples.

3. Systematic Position

**Bot. Name:** Alstonia scholaris L.R Br  
**Syn:** Nil  
**Family:** Apocynaceae  
**Local Name:** Shithan tree  
**Engl.Name:** Devil Tree  
**Propagation:** By seeds  
**Used Part:** Whole plant  
**Fl.Period:** October-November

**Description:**
Devil Tree is elegant evergreen small tree, 40 m tall, glabrous with grayish rough and odorless bark. Upper side of leaves is burnished and underside is grayish. It is leathery, rounded and 3-10 whorls. Inflorescence is dense Cymes with 4–7 cm long peduncle with fragrant flowers. Seeds with ciliated margins, oblong and ends with bunch of 1.5–2 cm hairs.

**Chemical constituents:**
The leaves contain alkaloid; Z-vallesamine, Heterfocycles, E-Vallesamine Heterocycles

**Medicinal uses:** Alstonia scholaris is used for asthma, epilepsy and Malaria. It is bitter herb used for diarrea, chronic dysentery, urticaria, treating skin disorders and for snake bite. Its milky juice is useful for ulcers. All parts of the tree can be considered poisonous.

4. Systematic Position

**Bot. Name:** Aloe barbadensis Miller  
**Syn:** Aloe vera  
**Family:** Liliaceae  
**Local Name:** Zargeia
5. Systematic Position

Bot. Name: *Aristolochia contorta* Bunge

Syn: Nil

Family: Aristolochiaceae

Local Name: Pervothiay

Engl.Name: Birthwort

Propagation: By seeds

Used Part: Bark and root

Fl. Period: July- Dec

Engl.Name: *Aloe vera*

Propagation: Seeds, by offshoots

Used Part: Leaves

Fl. Period: February-March

Description: *Aloe vera* is a xerophytic perennial succulent herb, there is no stem (sometime only start to appear after harvest) and leave grows from the ground level. An extensive underground root system is present. Leaves are sessile, long thick, lanceolate in shape, and brittle leaves with thorny edges. It grows around the stem in a spiral rosette manner. Inflorescence is raceme. Flowers are pedicellate and bright orange yellow in colour. Flowers: resemble a small trumpet with six petals, it is 2 to 4 cm large.

Chemical constituents: mannan, polymannan, anthrones, saponin, anthraquinone C-glycosides, anthraquinones (emodin, lacticins).

Medicinal Uses: It is used as a multipurpose skin treatment, because of Cosmetic and therapeutic effectiveness, soothing, moisturizing, and healing properties and also due to the presence of antimicrobial agent (saponin). *Aloe vera* gel is an important ingredient of yogurt, beverages and lotions. At certain doses, it has toxic properties.

Description: climbing perennial shrub, with stout elongated rhizomes. Stem cylinder. Leaves alternate, cordat, 4-10cm long, 3.5-8cm wide, petioles 1-7cm long. Peduncle is auxiliary, 1-4cm long; the calyx tubular. Stamen is 6, ovary inferior. Fruit a capsule, globose, 3cm in diameter.

Chemical constituents: Aristolactam, Oxoaporphines, lycicamine.

Medicinal uses: Used in cough, sputum, antimicrobial, carcinogen, immune-stimulating, anti tumor, hypertensive. It is also cultivated for ornamental purposes.

6. Systematic Position

Bot. Name: *Bauhinia variegata* L.

Syn: Nil

Family: Fabaceae

Local Name: Kachnar

Engl.Name: Camel's Foot Tree

Propagation: By seeds

Used Part: Bark and seeds

Fl. Period: May-Jun

Description: *Bauhinia variegata* is a very popular small deciduous ornamental tree grown for its scented flowers. 10–12 m tall. The leaves are broad, rounded, 10–20 cm long and bilobed. The flowers are conspicuous, white bright pink, about 12 cm diameter, 5 petals. The fruit is a pod containing numerous seeds.

Chemical constituents: The seed yields fatty oil, while the bark produce fibers and flavonoids (quercetin, apigenin, rutin, and apigenin 7 – O -
glucoside).

**Medicinal Uses:** Kachnar bark is considered to be astringent, blood purifier anthelmintic, alterative, and tonic. The bark is applied externally for skin ulcers and internally administered for treating skin diseases, sore throat, diarrhea, asthma and abdominal discomfort. Roots & buds are excellent for digestive problems. Also used as an ingredient in several recipes especially “Kachnar curry” is prepared by using yogurt, kachnar, chicken, and spiced which is considered to be very delicious and good for health.

7. **Systematic Position**

**Bot. Name:** Bougainvillea glabra Choisy  
**Syn:** Nil  
**Family:** Nyctaginaceae  
**Local Name:** Perwathiey  
**Engl. Name:** Paper Flower  
**Propagation:** By seeds, stem cuttings  
**Used Part:** Leaves, stems, flowers  
**Fl.Period:** October-November  
**Description:** Paper Flower is an evergreen, climbing woody vine, having slightly hairy, shiny green leaves and colored bracts. Height more than 10 meters. Stems/Trunks: twisted, slender, arching stem; well-armed with thorns. Leaf shape: globular, elliptical, obivate, cordate; 4 inch long. Flowers are in groups of threes, purplish, forming clusters at the terminal portion of the branches.

**Chemical constituents:** pinitol, betacyanine, flavonoids, tannins, alkaloids, oxalic acid oxidase, phenolic compounds, ribosome inactivating proteins, amylase inhibitors, oxidase and pinitol.

**Medicinal uses:** Leaves considered having anti-inflammatory, anti-diabetic, antibacterial, and anti-diabetic activity. It is used for diarrhea, to reduce stomach acidity, cough and sore throat. A decoction of dried stems is used for hepatitis, 10 g in 4 glasses of water. An infusion of the flowers is used for low blood pressure.

8. **Systematic Position**

**Bot. Name:** Brassica campestris L  
**Syn:** Nil  
**Family:** Brassicaceae  
**Local Name:** Woeri  
**Engl.Name:** Brassica  
**Propagation:** By seeds  
**Used Part:** Leaves seed and stem.  
**Fl.Period:** February-April  
**Description:** An erect annual cultivated hairy herb. Stem: cylindrical, leaves: simple, alternate extipulate, petiolate, hairy with reticulate venation. The Inflorescence is Corymbose raceme. Flower complete, bisexual, tetramerous and yellow in color.

**Chemical constituents:** 28 polyphenols (17 hydroxycinnamic acid derivatives and 11 flavonoid derivatives) Kaempferol, isorhamnetin, glycosides, malic acid and esters of quinic acid.

**Medicinal Uses:** It is cultivated for ornamental purposes because of attractive flower color. Mostly cooked as a vegetable. Young leaves and flowers are laxative; oil from seeds is used in
cooking, preparation of Achar, also used in massages and hair tonic. Seed-cakes are considered to be increase milk in domestic animals.

9. Systematic Position

Bot. Name: *Bryophyllum pinnatum* Lam

Syn: Nil

Family: Crassulaceae

Local Name: Pather-chatt.

Engl.Name: Bryophyllum

Propagation: By seeds and leaves

Used Part: Leaves

Fl. Period: February-May

Description: Erect tall glabrous, perennial herb with 30-120 cm long stem and simple leaves. Cultivated and naturalized as ornamental plant.

Chemical constituents: bryophillin A, calcium sulphate, oxalate and tartaric acid in Leaves.

Medicinal Uses: It very important ornamental medicinal plant, leaves are eaten for removal of kidney stone, 1-5 leaves are eaten 3 time in 24 hrs.

10. Systematic Position

Bot. Name: *Cassia fistula* L.

Syn: *Cassia rhombifolia* Roxb.

Family: Caeesalpiniaceae

Local Name: Gerdanali


Propagation: By seeds

Used Part: all parts of plants

Fl. Period: April - December

Description: An attractive deciduous tree, height 8-15m. bark; greenish grey smooth (young) and rough (old), leaves pinnatly compound, leaflets 4-8 pairs, bright green, ovate and acute. Flowers are bright yellow in lax pendulous racemes; fruits cylindrical pods 30-60cm long.

Chemical constituents: It contains rhein and its glucosides, barbaloin, aloin, sennosides A and B acetyl acid, formic acid, oxalic acid, butyric acid, their ethyl esters, tannins, and reducing sugars.

Medicinal Uses: The bark is laxative, febrifuge, anthelmintic, emetic, diuretic and is useful in boils, colic, fever, diabetes, ringworm, and cardiopathy. The roots are astringent, cooling, febrifuge, tonic and are used in reducing fever in skin diseases, tuberculosis and burning sensation. Flowers are bitter, demulcent, expectorant and are useful in skin diseases, dry cough, burning sensation and bronchitis. The fruits are sweet, cooling, and diuretic and are useful in burning sensation, skin diseases, inflammations colic, jaundice and cardiac disorder.

11. Systematic Position

Bot. Name: *Calendula officinalis* L.

Syn: Nil

Family: Asteraceae

Local Name: Zair gulai

Engl.Name: Marigold

Propagation: By seeds

Used Part: Leaves flowers

Fl. Period: March-April

Description: An aromatic, erect, annual herb, up to 60cm in height. Stem is angular and hairy. Leaves long, entire with cardate base. Flower heads are terminal, heterogeneous, light yellow to
deep orange, ray florets fertile.

**Chemical constituents:** volatile oil, sterols, flavonoids, Triterpenes, resins, glycosides, mucilaginous and carotene.

**Medicinal uses:** It is cultivated for ornamental purposes and is a honey bee species. The shoot of this plant is useful to wounds. It is Anti-inflammatory, astringent, detoxifying, relieves muscle spasms and prevents hemorrhaging. The flower is said to an excellent first aid for burns and injuries.

**12. Systematic Position**

**Bot. Name:** *Callistemon citrinus* (Curtis) Skeels  
**Syn:** *Callistemon lanceolatus* (Sm.) DC.  
**Family:** Myrtaceae  
**Local Name:** Bottlebrush  
**Engl.Name:** Red/Lemon Bottlebrush  
**Propagation:** By seeds  
**Used Part:** Bark and seeds  
**Fl. Period:** May-Jun  
**Description:** The Bottlebrush is evergreen plant with bright red flower spikes. Offered as a shrub or a tree. Height: 10 to 15 feet. Leaf evergreen, simple, alternate, Leaf margins entire. Leaf shape: lanceolate, linear. Pinnate and green color; Flower color: red, very showy; fruit shape: round, less than .5 inch: brown.  

**Chemical constituents:** contain 1,8-cineol, α-terpinene, linalool, α-pinene, β-pinene, trans-pinocarveol, geraniol, terpinen-4-ol, and α-terpineol.

**Medicinal Uses:** Mostly used for ornamental purposes in parks, school and colleges, parking and lawn. Hummingbirds love its flowers. It makes a nice screen and is also used as a tall unclipped hedge.

**13. Systematic Position**

**Bot. Name:** *Catharanthus roseus* (L).G.Don  
**Syn:** *Vinca rosea*  
**Family:** Apocynaceae  
**Local Name:** Sada Bahar  
**Engl.Name:** Madagascar periwinkle  
**Propagation:** By seeds  
**Used Part:** Whole Plant  
**Fl. Period:** Throughout the year  
**Description:** A cultivated ornamental annual evergreen subshrub growing to 1 m tall. Leaves oval or oblong, glossy green, hairless, arranged in opposite pairs, 2.5–9 cm long and 1–3.5 cm broad, with a short petiole 1–1.8 cm long and pale midrib. Flowers white to dark pink having a darker red centre. The fruit is a pair of follicles 2–4 cm long and 3 mm broad.

**Chemical constituents:** ajmaline, catharanthaine, leurosidine, vincristine, vinblastine  

**Medicinal Uses:** Grow as ornamental plant, and used as an anti-cancer.

**14. Systematic Position**

**Bot. Name:** *Chrysanthemum indicum* L.  
**Syn:** Nil  
**Family:** Asteraceae  
**Local Name:** Guledaudi  
**Engl.Name:** Indian Chrysanthemum  
**Propagation:** By seeds  
**Used Part:** Flowers  
**Fl. Period:** Throughout the year  
**Description:** An annual or perennial herb having 20-50 cm height. Stem is glabrous. Leaves are
alternate, deeply lobed and irregularly toothed. Inflorescence is an auxiliary or terminal corymb of many heads. Flowers yellow.

**Chemical constituents:** The flowers yield the glycoside chrysanthemin that yield glucose and cyaniding on hydrolysis, an essential oil and vitamin A.

**Medicinal uses:** The flower possesses antibacterial and antihypertensive properties. They are utilized in medication for fever, headache and hypertension.

**Description:** It is evergreen, erect woody shrub with many leafy branches. The leaves are simple, ex-stipulate, petiolate, alternate, entire, glabrous, ovate-lanceolate, dark green (above) and pale (below), 5 inches long and 1.5 inches wide. Inflorescence: long axillary peduncle with short clusters of sweet smelling white sessile flowers; Seeds are produces in abundance.

**Chemical constituents:** 27.62% palmitic acid, 4.62% stearic acid and 3.06% oleic acid. Vitamin D3 was also reported.

**Medicinal Uses:** Often used for screens and borders. Leaf is a good source of 1,25 (OH)2 Vitamin D3 that improves egg shell thickness.

**15. Systematic Position**

Bot. Name: *Cestrum diurnum* L.  
Syn: Nil  
Family: Solanaceae  
Local Name: Din ka raja  
Engl.Name: Day-blooming Jasmine  
Propagation: Seeds  
Used Part: Whole plant  
Fl. Period: April-December

**16. Systematic Position**

Bot. Name: *Cestrum nocturnum* L.  
Syn: Nil  
Family: Solanaceae  
Local Name: Raat ki raani  
Engl.Name: queen of the night  
Propagation: seeds  
Used Part: Leaves and flower  
Fl. Period: April-December  
Description: It is an evergreen woody shrub, 13 ft tall. Leaves: simple, narrow lanceolate, smooth and glossy, with an entire margin, 6–20 cm long and 2–4.5 cm broad. The flowers are greenish-white.

**Chemical constituents:** The sapogenin steroids tigogenine, traces of nicotine, yuccagenine & smilagenine have been found in the leaves.

**Medicinal Uses:** Leaves extract is used to cure epilepsy, seizure disorders, nervous imbalances, headaches. Local inhabitants put its leaves and flowers in hot baths to treat night sweats.

**17. Systematic Position**

Bot. Name: *Citrus medica* L.  
Syn: Nil  
Family: Rutaceae  
Local Name: Nemboo.  
Engl.Name: Citron  
Propagation: By seeds  
Used Part: Fruit & roots.  
Fl. Period: May-June  
Description: An evergreen cultivated shrub with thorny branches and smooth yellowish brown bark; leaves oblong with rounded apex, dull dark above; flowers white or pink; fruits
large barriers, flashy, rough irregular, yellow when ripe; seeds few, smooth.

**Chemical constituents:** Campesterol, stigmasterol, sitosterol, cholesterol, & Vitamin C

**Medicinal Uses:** Honey bee species. Roots are laxative, diuretic and are used in constipation. The buds and flowers are useful in asthma, cough, tumors, anorexia, vomiting, abdominal disorders and cardiac stimulant. The fruit cover is used for diarrhea and regulation of digestion. Juice is used as restorative, digestive, if mixed with ark-e-gulab then used on face to cure freckles, sometime used for mosquito bites, hedging and fencing, seeds are used in inflammation, skin diseases and hemorrhoids.

**18. Systematic Position**

**Bot. Name:** Cupressus sempervirens L.

**Syn:** Nil

**Family:** Cupressaceae

**Local Name:** Sarwa

**Engl.Name:** Cypress

**Propagation:** By seeds, veg. methods

**Used Part:** Cones and branches.

**Fl. Period:** March-April

**Description:** Evergreen tree growing to 30 m, and having thin dark green leaves and male and female cones.

**Chemical constituents:** Cypress contains a volatile oil and tannins.

**Medicinal Uses:** Applied externally as lotion or as a diluted essential oil. A footpath of the cones is used to clean the feet and counter excessive sweating. Taken internally for cough, colds, flu, sore throats and pains.

**19. Systematic Position**

**Bot. Name:** Cycas revoluta Thunb.

**Syn:** Cycas miquelii Warb.

**Family:** Cycadaceae

**Local Name:** Cycas

**Engl.Name:** Sago palm

**Propagation:** By seeds or by removal of basal offsets

**Used Part:** Whole parts

**Fl. Period:** in spring

**Description:** Cycas revoluta is a species of gymnosperm with a stout and cylindric trunk marked with prominent scars; height 5 meters. Roots are called coralloid. Leaves are crowded, spreading, numerous, 0.5 to 1.5 meters long. Leaflets are close, very numerous, and linear; Ovules are hairy. Seeds are on loosely arranged leaves around the stem. Seeds are large, plum-like, and pale-yellow to tan.

**Chemical constituents:**

The extract of leaves shows the presence of saponins, alkaloids, steroids, tannins, and sugars. Leaflets contain biflavonoids while cones contain Estragole.

**Medicinal uses:** Cycad seeds are used for high blood pressure, rheumatism, headaches, congestion and bone pain. Leaves are used in the treatment of cancer while the terminal shoots are used as astringent and diuretic. Fruit is used as expectorant and tonic. Sometimes the whole plant is used for paralysis, indigestion, and against snake bites.
### 20. Systematic Position

<table>
<thead>
<tr>
<th>Bot. Name</th>
<th>Cynodon dactylon (L)Pers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syn</td>
<td>Nil</td>
</tr>
<tr>
<td>Family</td>
<td>Poaceae</td>
</tr>
<tr>
<td>Local Name</td>
<td>Barowa</td>
</tr>
<tr>
<td>Engl.Name</td>
<td>Dhub grass, Barmuda grass</td>
</tr>
<tr>
<td>Propagation</td>
<td>By roots, veg methods.</td>
</tr>
<tr>
<td>Used Part</td>
<td>Whole plant.</td>
</tr>
<tr>
<td>Fl. Period</td>
<td>June-July</td>
</tr>
</tbody>
</table>

**Description:** A horizontal, glabrous, widely creeping highly branched perennial grass, forming matted tufts, root are produced from every node; leaves narrow, linear, soft, smooth; inflorescence terminal spikes, green or purplish, rachis slender, involucres glumes; fruits grains, oblonged latterly compressed about 1 mm long.

**Chemical constituents:** β-sitosterol-d-glucoside, β-ionone, 2-propionic, phytol, stigmasteryl acetate, phytone, glycosides, saponins, tannin, flavonoids, 4-hydroxybenzoic, 2-propionic and 3-methoxy-4-hydroxybenzoic acids and carbohydrates.

**Medicinal Uses:** This plant is tonic, cooling, haemostatic, and astringent and is used in healing of wounds. Its juice with milk is curative for irritation of urinary tract, bleeding piles and for vomiting. The fresh stem and leaves are grinds in mouth and is applied on wound to stop bleeding.

### 21. Systematic Position

<table>
<thead>
<tr>
<th>Bot. Name</th>
<th>Dodonaea viscosa Jaq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syn</td>
<td>Nil</td>
</tr>
<tr>
<td>Family</td>
<td>Sapindaceae</td>
</tr>
</tbody>
</table>

**Description:** Dodonaea viscosa (L.) J.C. Decne is an annual or perennial shrub of dry area. It is grown for hedging and ornamental purposes. Leaves are astringent and bitter, used in swelling and burns. The burnt leaf of the plant is mixed with Brassica oil and is used for healing of wound and also for animal's mouth disease. Bark is employed in astringent, bath and fermentation. The dodonaea viscosa oil is used for snake bite. Ash of Dodonaea viscosa is used for healing of wound and also for animal’s mouth disease. Bark is employed in astringent, bath and fermentation. The dodonaea viscosa oil is used for snake bite. Ash of Dodonaea viscosa is used for healing of wound and also for animal’s mouth disease.

**Chemical constituents:** Flavonoids, Saponins, Steroids, Tannins, Alkaloids, Tri-terpenoids, Amino acid, Proteins, Anthraquinones and Cardiac glycosides.

**Medicinal Uses:** It is grown for hedging and ornamental purposes. Leaves are astringent and bitter, used in swelling and burns. The burnt leaf of the plant is mixed with Brassica oil and is used for healing of wound and also for animal’s mouth disease. Bark is employed in astringent, bath and fermentation. The dodonaea viscosa oil is used for snake bite. Ash of Dodonaea viscosa is mixed with grind leaves of Nicotiana tubacum is used for snuff preparation, which is used as narcotic. It is used as fuel.

### 22. Systematic Position

<table>
<thead>
<tr>
<th>Bot. Name</th>
<th>Elaeagnus angustifolia Blanco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syn</td>
<td>Elaeagnus latifolia Miq</td>
</tr>
<tr>
<td>Family</td>
<td>Elaeagnaceae</td>
</tr>
<tr>
<td>Local Name</td>
<td>Horworha</td>
</tr>
<tr>
<td>Engl.Name</td>
<td>Lingaro</td>
</tr>
<tr>
<td>Propagation</td>
<td>By seeds, veg. method</td>
</tr>
<tr>
<td>Used Part</td>
<td>Flowers, fruit</td>
</tr>
<tr>
<td>Fl. Period</td>
<td>October-November</td>
</tr>
</tbody>
</table>

**Description:** Lingaro is a climbing shrub with long branches having brown minute scales.
Leaves are entire, 4 to 9 cm long, 2 to 4 cm wide, subelliptic to ovately oblong, shining and dark green. Flowers are yellow, occurring singly in the axial of the leaf. Fruit is oval, sweet about 1.5 cm long, and juicy when ripe.

**Chemical constituents:** 2-Methyl-1,2,3, 4-Tetrahydro-Beta-Carboline, Alkaloids, Ascorbic-Acid, Caffeic-Acid, Calligonine, Quercetin, Sinapic-Acid, Tocopherol.

**Medicinal uses:** Cultivated as an ornamental plant. Flowers are astringent and cardiac. Fruit is edible and makes a fine jam. Ripen fruit are given to children suffering with amoebic dysentery. Flowers are astringent and cardiac.

**23. Systematic Position**

**Bot. Name:** Euphorbia ligularia Roxb.

**Syn:** Euphorbia neriifolia Hook.

**Family:** Euphorbiaceae

**Local Name:** Lagharh beta

**Engl.Name:** Common milk hedge

**Propagation:** By vegetative methods

**Used Part:** Whole plant

**Fl.Period:** March-April

**Description:** A large flashy, glarous, branched shrub or small tree, 1.8-4.5 m high with pair of stipular spines. Leaves are flashy, deciduous, nerves visible only in transmitted light. Involucres are usually three on short flashy peduncle. Fruit tricoccus. Seeds are greenish brown, about the size of mustard.

**Chemical Constituents:** Triterpinoids, euphol, euphorbol hexacosonat, taraxeol, 12-deoxyphorbol – 1 β - hydroxyphorbol.

**Medicinal uses:** The plant is biter, laxative, digestive, expectorant, carminative, anti-inflammatory and is useful in bronchitis, fever, jaundice and ulcer.

**24. Systematic Position**

**Bot. Name:** Euphorbia milii L.

**Syn:** Nil

**Family:** Euphorbiaceae

**Local Name:** Unknown

**Engl.Name:** Milii

**Propagation:** By vegetative methods

**Used Part:** Whole plant

**Fl.Period:** March-April

**Description:** Euphorbia milii is a potted ornamental plant. It is succulent, branched, very spiny and woody shrub with milky, sticky white sap (latex), up to 1.8m tall. Stem spiny, slender spins up to 3 cm long. The leaves are obovate, up to 3.5cm long and 1.5 cm broad. The flowers are small, variable red, pink or white, up to 12 mm broad with pair of conspicuous petal like bracts.

**Chemical constituents:** Contains tumor promoting chemicals (diterpene esters).

**Medicinal uses:** Used as a potted ornamental plant. Local residents also use it for hedges, and medicinally use it as a cure for cancer and warts.

**25. Systematic Position**

**Bot. Name:** Helianthus annus L.

**Syn:** Nil

**Family:** Asteraceae

**Local Name:** Maera stargay gul.

**Engl.Name:** Sun flower

**Propagation:** By vegetative methods

**Used Part:** Whole plant

**Fl.Period:** March-April
**Propagation:** By seeds & veg. method

**Used Part:** Whole plant.

**Fl. Period:** May-July

**Description:** A cultivated annual herb, 5 m tall with erect rough hirsute stem and only few branches; leaves simple alternate long-stalked, broadly ovate to cardate, coarsely toothed, rough pubescent on both sides; inflorescence; heads (capitulum) with bright yellow flowers, terminal on axis and top of the branches; fruit somewhat compressed cypsela, pappus diminishing early.

**Chemical constituents:** The seed kernel contains albumin, globulin, glutelin and insoluble protein.

**Medicinal uses:** The leaves are used in wounds and bringing sensation, ulcer and malarial fever while roots for strengthening the teeth, flowers in inflammation, skin diseases, ulcer & anemia, seeds yield edible oil. Roasted seeds improve memory.

26. **Systematic Position**

**Bot. Name:** *Heterophragma quadriloculare* K. Schum

**Syn:** *H. roxburghii*

**Family:** Bignoniaceae

**Local Name:** Unknown

**Engl. Name:** Waras

**Propagation:** Seed

**Used Part:** Whole plant

**Fl. Period:** February-April

**Description:** Waras is a large deciduous tree, with brown bark, 5-15 m tall. It has compound leaves 1-2 ft long, crowded near branches, with 3-5 pairs of leaflets. Flowers occur in panicles, 5-6 cm, white, petals 5.4 Stamens with hairy filaments. Fruit is pointed, 20 cm long and 3 to 5 cm broad.

**Chemical constituents:** Important chemicals are Lapachol, Quadrilone, dehydro-lapachone and adenophyllone.

**Medicinal Uses:** *Heterophragma quadrioculare*.

Leaf is considered to be Antiseptic, anti-diabetic and antifungal.

27. **Systematic Position**

**Bot. Name:** *Hibiscus rosa cinensis* L

**Syn:** Nil

**Family:** Malvaceae

**Local Name:** Unknown

**Engl. Name:** Gumamela

**Propagation:** By seeds

**Used Part:** Flowers, roots, leaves

**Fl. Period:** May-Jun

**Description:** It is an erect, glabrous, much-branched shrub, height: 1 to 4 m. Leaves are ovate, alternate, stipulate, green, 7 to 12 cm long. Flowers are very large, solitary, axillary. Calyx is green. Petals are red, orange or rose-white. Stamens form staminal tube enclosing style of pistil and projected out of the corolla. Ovary five celled with 5 styles fused below. The fruits are capsules.

**Chemical constituents:** Hisbiscetin, polyphenols, flavonoids, thiamine, riboflavin anthocyanins, hentriacontane cyanidin, quercetin, niacin, calcium oxalate and ascorbic acid.

**Medicinal uses:** Leaves are laxative. It is considered to be refrigerant, antipyretic,
emollient, anthelmintic, expectorant, diuretic, Antiinfectious, anti-inflammatory, and Hypotensive, Red flowers are purgative; if used with papaya seeds than it may be abortive. Paste of flower buds is applied as poultice to cancerous swellings, boils, and mumps. Decoction of roots are used for coughs while that of flowers for natural diuretic.

28. Systematic Position
Bot. Name: Jasminum officinale L.
Syn: Nil
Family: Oleaceae
Local Name: Rambel
Engl.Name: Common white jasmine
Propagation: By seeds
Used Part: Flowers
Fl.Period: In summer.
Description: Jasminum officinale (the national flower of Pakistan) is a vigorous, twining, deciduous climber shrub with sharply pointed pinnate leaves. The foliage is evergreen, slightly downy with pinnate leaves, having 5 to 9 leaflets. The flowers are showy, white or very pale pink and fragrant. Scented white flowers 2cm in width open in clusters of 3 to 5. Fruit a black berry.

Chemical constituents: The major component of jasmine are benzyl acetate, jaspolyoside, oleoside-7, 11-dimethyl ester jasgranoside, 8-epi-kingiside, 10-hydroxy-oleuropein, 10-hydroxy-ligstroside.

Medicinal uses: It is National flower of Pakistan It attracts Hummingbirds and Butterflies. Mostly used for the treatment of hepatitis, is also used as an essential oil in aromatherapy and as either an antiseptic or anti-inflammatory agent in dermatology. The flowers release their perfume at dusk. A single jasmine vine can perfume an entire room or garden. Mostly jasmine has a reputation as an aphrodisiac and used for all kinds of sexual problems. It is also used in naming like “Jasmeen”

29. Systematic Position
Bot. Name: Magnolia grandiflora L.
Syn: Nil
Family: Magnoliaceae
Local Name: Sock chain
Engl.Name: Southern magnolia
Propagation: By seeds
Used Part: Bark and seeds
Fl.Period: March-April
Description: A large striking evergreen tree, 90 ft in height, with a single stem with pyramidal shape. Leaves broadly ovate simple, dark green, 5–8 inch long with smooth margins. The flowers are large, showy white, fragrant, with 6–12 petals. Fruit rose-colored ovoid, 3–4 inch long and 1.5–2 inch wide.

Chemical constituents: It contains honokiol, Magnolol, and 1-2-hydroxy-4-methoxybiphenyl, coumarins and sesquiterpene lactones (costunolide diepoxide, costunolide, parthenolide, santamarine and reynosin).

Medicinal uses: It is often planted for ornamental purposes. The timber is heavy and hard, used to make pallets, furniture, veneer and doors. They are also said to be used as a spice
and a condiment. An essential oil is obtained from the flowers. The bark is diaphoretic, stimulant, tonic. It is used in the treatment of malaria and rheumatism. An alcoholic extract of the plant reduces the blood pressure.

### 30. Systematic Position

**Bot. Name:** *Melia azedarach* L  
**Syn:** Nil  
**Family:** Meliaceae  
**Local Name:** Bakanrha  
**Engl. Name:** China berry, bead tree  
**Propagation:** By seeds, veg method  
**Used Part:** Whole plant. (Bark)  
**Fl. Period:** March-April.

**Description:** About 10m sized deciduous tree. Pale brown Bark, alternate Leaves, leaflets serrate, opposite, glabrous on both sides. Terminal cyme inflorescence with white-lilac flower. Drupe (Fruit) is ovate having 4 seeds.

**Chemical constituents:** Bark: contains alkaloid azaridine, tennins and sterols. leaves: alkaloid paraizine and the flavonoid rutin. Seeds: fatty oil consisting of palmitic, oleic, stearic, and lioleic.

**Medicinal uses:** The leaves of *Melia* are grind to obtain its juice. This juice is mixed with *Brassica* oil and used as anti-lice. Similarly it is mixed with water and sugar and then is used to expel the worms. This is eaten before meal. The fruit is ground and mix in wheat flour which is given to cattle as tonic. The inside silky layer of root bark is used for vaginal infection and ripens fruit is used against diabetes. Bark is used as cathartic, emetic and also applied as poultice to relieve nervous and headaches. Seeds are used in rheumatism; Gum is used as remedy for spleen enlargement.

### 31. Systematic Position

**Bot. Name:** *Mirabilis jalapa* L.  
**Syn:** Nil  
**Family:** Nyctaginaceae  
**Local Name:** Gule-e-abasi  
**Engl. Name:** four o'clock flower  
**Propagation:** seeds, tuberous roots  
**Used Part:** Whole plant  
**Fl. Period:** In Spring.

**Description:** It is the most commonly grown ornamental species available in a range of colours. Height 0.9 m. Interesting features; a) flowers of diverse colors on same plant. b) Individual flower marked with different colors. c) color-changing phenomenon e.g the yellow variety plant when matures change into dark pink color. Similarly white flowers changed into light violet. Flowers are fragrant in evening. The fruit is single-seeded, spherical, wrinkled, greenish-yellow at start and black upon maturity.

**Chemical constituents:** Astragaloside, astragaloside, stragaloside, astragaloside, 4'-hydroxy-2-, 3-dihydroflavone 7-beta-D-glucopyranoside, gingerglycolipid A, flazin, daucosterol and beta-sitosterol.

**Medicinal Uses:** Flowers used in colouring food especially colouring cakes and jellies. The leaves may be eaten cooked as an emergency food. It is purgative and is used as a diuretic and for wound healing. Its root is purgative, diuretic and an
aphrodisiac and used to treat dropsy. A decoction of leaves is used to treat abscesses and to reduce inflammation. Even though the seeds are considered to be poisonous but still its powder is used as a cosmetic and a dye.

32. Systematic Position

**Bot. Name:** Narcissus tazetta L  
**Syn:** Nil  
**Family:** Amaryllidaceae  
**Local Name:** Nargas gul.  
**Engl.Name:** Daffodil  
**Propagation:** Bulbs  
**Used Part:** Flowers  
**Fl. Period:** February-March

**Description:** A handsome hardly, bulbous plant of decoration, usually cultivated plant.

**Chemical constituents:** dodecane (25%) and Tetradecane (35%)

**Medicinal Uses:** Juice of flowers is purgative and emetic. It is also used for abortion and in naming like “Nargas”. Flower are put into a bottle and placed in room for its pleasant smell.

33. Systematic Position

**Bot. Name:** Nerium oleander L.  
**Syn:** Nerium indicum Mill  
**Family:** Apocynaceae  
**Local Name:** Gandari  
**Engl.Name:** Olerander  
**Propagation:** By cutting.  
**Used Part:** All part of the plant  
**Fl. Period:** April-October.

**Description:** An ornamental evergreen shrub (6.6 m tall) with milky latex, stem erect, woody, cylindrical, glabrous, branched, leaves simple, cauline and ramal, extispulate, 10-15 cm by 8-22 mm, reticulate venation, present three in a whorl, shortly stalked linear dark green and shiny above; inflorescence, cymose, flowers 3.5cm, red, pink or white, fragrant, found in cluster; fruit follicles; seeds 5mm long, oblong, densely villous

**Chemical constituents:** contain toxic chemicals neriodorin, odorin & karabin, leaves contains glycosides, and karabin, glucoside nerin, oleandrin, folinerin. Bark yield glucoside cortenerin.

**Medicinal uses:** All part of the plant is poisonous (Dogs are died by eating its stem) but usually grown for ornamental purposes. Bark is used in skin diseases (leprosy), root for abortion, scorpion sting and snake bite. Root bark for ringworm. Decoction of leaf is applied externally to reduce swellings, used for scabies and haemorrhoids. They are used in cardiac asthma and ulcer.

34. Systematic Position

**Bot. Name:** Ocimum basilicum L.  
**Syn:** Nil  
**Family:** Lamiaceae  
**Local Name:** Bobarai.  
**Engl.Name:** Sweet basil,  
**Propagation:** By seeds, veg. method  
**Used Part:** Flowers, leaves, oil  
**Fl. Period:** Throughout the year.

**Description:** An erect, strongly scented annual wild / cultivated herb, 30-90cm height; leaves...
Chemical constituents: The major component of the essential oil is either methyl cinnamate, linalool acetate, eugnol and trans-anethole.

Medicinal uses: It is used for ear pain; its flower is cooked in oil and then put one or two drops in ear. Its seed are used in dysentery and bleeding piles, used in naming like “Bobrai”. Its oil is used as a flavoring agent in confectionery, ketchups, tomato pastes, pickles, fancy vinegar and beverages. It is an important ingredient of perfumes.

Description: An erect much branched, medium size perennial herb or under shrub, 30-60cm in height with purple or red branches. Leaves simple, elliptic, entire dentate or serrate opposite, oblong, small gland dotted, petiol slender, hairy. Flower purplish in elongated recemes in close whorls. Fruit nutlets and smooth.

Chemicals constituents: linalool, carvacrol, methyl chavicol cineole Eugenol, eugenol methol ether.

Medicinal uses: Its flower is cooked in oil and put in to the ear for relief of ear pain. Juice is dropped in ear for earache. Leaves poultice are used for swellings and inflammation. Decoction is used in regulating menstrual cycle. It is useful in cardiopathy, high cough, and skin diseases.
tumours and leucoderma while flowers are used for bronchitis and asthma. Fruits are refrigerant expectorant, and are useful for gonorrhea, whooping cough and all heart ailments. The leaves poultice are used for inflammation, while leaf pulp for ophthalmia of eyes. The underground roots are used for inducing quick vomiting in someone bitten by poisonous snakes.

37. Systematic Position

Bot. Name: *Opuntia ficus-indica* (L.) Mill
Syn: Nil
Family: Cactaceae
Local Name: Spelaghzai
Engl.Name: Prickly pear.
Propagation: By stem cutting.
Used Part: Flowers, fruit, stems.
Fl. Period: March-jun

Description: Perennial cactus, height 3m. Stem: spatula-shaped covered with spines, flowers brilliant yellow and fruit round purple.

Chemical constituents: Fruit yield vitamin C, sugars, mucilage while flowers yield flavonoid.

Medicinal Uses: Prickly pea flowers are astringent and are used to reduce bleeding, problem of gastro-intestinal tract, chiefly diarrhoea, colitis, treat enlarged prostate gland and irritable bowel syndrome. The juice of the stem is used for prickles. The fruit is nutritious.

38. Systematic Position

Bot. Name: *Petunia integrifolia* alba (Hook.) Schinz & Thell
Syn: *Petunia violacea*
Family: Solanaceae
Local Name: Unknown
Engl.Name: Violet-flowered Petunia
Propagation: By seeds, stem cutting
Used Part: Whole plant
Fl. Period: Late spring or early summer

Description: A dicot annual or perennial herb or shrub, 10" tall and 18" wide with Herbaceous Foliage: Cyme Type Inflorescence. The trailing plants have 2" wide, rosy-purple, trumpet-shaped Showy flowers.start flowering at Late Spring. It blooms quickly from seed.

Chemical constituents: The three dominating compounds were benzaldehyde, benzyl alcohol and methyl benzoate.

Medicinal uses: Mostly used for ornamental purposes also Attracts Bees, Butterflies, and Hummingbirds. Best host for Aphids, caterpillars, leaf miners, gray mold, bacterail soft rot, and viruses.

39. Systematic Position

Syn: *Rosa nepalensis* Lindl
Family: Rosaceae
Local Name: Zangli gul
Engl.Name: Wild Rose
Propagation: By seeds
Used Part: seed  
Fl. Period: Whole plant  
Description:  
It is a climbing perennial shrub, with hooked prickles; leaves 7.5-15 cm; leaflets 3-7, ovate, toothed, glandular, short pointed; stipules united to the leaf-stalk, oval-shaped; flowers yellowish-white, 3-8-5.0 cm in diam., fragrant, calyx small, 5 lobed, 1.2 cm, lanceolate, often pinnately divided; petals 5, large, ovate; style united; fruit many long hairy achenes, 8mm in diam., almost round, dark brown in colour.  
Chemical constituents:  
Linolenic acid (LNA), linoleic acid (LA), oleic acid palmitic acid, citronellol, geraniol, stearoptene, pinene, nerol, linalool, phenyl ethyl alcohol, farnesol, α-terpinene, limonene & p-cymene.  
Medicinal uses:  
Used in skin and eye diseases and also used in perfumes. It has a very strong odor, but is pleasant when diluted and used for perfume.

41. Systematic Position  
Bot. Name: Rosa moschata Herrm  
Syn: Nil  
Family: Rosaceae  
Local Name: Zangley gulap  
Propagation: By seeds  
Used Part: Flowers, branches.  
Fl. Period: March-April  
Description:  
A smooth climbing perennial shrub.  
Chemical constituents: Geranic acid geraniol, citronellol, nerol, other terpenes.  
Medicinal uses:  
Flowers are used for fragrance and in making “Gulkand” which is refrigerant, fattening, tonic and laxative.
different diseases (locally called “Taveez”), it is also used in naming like Gulap Khan.

**42. Systematic Position**

- **Bot. Name:** *Salix babylonica* L  
- **Syn:** Nil  
- **Family:** Salicaceae  
- **Local Name:** Wala  
- **Engl.Name:** Willow  
- **Propagation:** By cutting  
- **Used Part:** Whole tree.  
- **Fl.Period:** March-April  
- **Description:** A medium size deciduous tree with pendulous branches growing to 25m occurs with water courses. Leaves narrow lanceolate, ash grey, silky. Flower in male and female catkins. Seeds are small, ovoid and yellow.

**Chemical constituents:** flavonoids, Phenolic glycosides, salicylic acid and tennins.  
**Medicinal uses:** The leaves extract is used for ear pain usually 1-2 drops three times daily. It is a timber, fuel and shade tree. It serves as a valuable fodder in autumn. Due to its stiff hard wood it is used in making water- mills, it roots are very successful against water erosion.

**43. Systematic Position**

- **Bot. Name:** *Salix tetrasperma* Roxb  
- **Syn:** Nil  
- **Family:** Salicaceae  
- **Local Name:** Wala  
- **Engl.Name:** Willow  
- **Propagation:** By cutting  
- **Used Part:** Whole plant.  
- **Fl.Period:** March-April  
- **Description:** It is a tree, height 30 m, 12 m in diameter. The leaves 15 cm long, composed of numerous small leaflets. Flowers 2.5 cm across and have three golden petals. The flowers are borne on inflorescences up to about 20 cm long. Fruits brown, short-haired, sausage-like

**Chemical constituents:** Thirty two fatty acids, and 12 essential elements (Arsenic, Ca, Cd, Cu, Iron, Na, Mg, K, P, Lead, and Zinc) were isolated.  
**Medicinal uses:** The fruit pulp is edible, can be eaten raw or used as an ingredient in curries, pickles, confectionery and in fermented drinks. Fresh leaves and stem bark’s decoction mixed with potash are used for the treatment of jaundice, general body pain, stomach disorders, skin cleanser, and yellow fever and also as a blood tonic. Tamarind wood is used as timber, firewood and for charcoal. Other uses of the species include planting as an ornamental.

**44. Systematic Position**

- **Bot. Name:** *Tamarindus indica* L  
- **Syn:** Nil  
- **Family:** Leguminosae  
- **Local Name:** Imali  
- **Engl.Name:** Tamarind or Indian date  
- **Propagation:** seeds, internodal cuttings  
- **Used Part:** Whole plant  
- **Fl.Period:** May-Aug  
- **Description:** It is a tree, height 30 m, 12 m in diameter. The leaves 15 cm long, composed of numerous small leaflets. Flowers 2.5 cm across and have three golden petals. The flowers are borne on inflorescences up to about 20 cm long. Fruits brown, short-haired, sausage-like

**Chemical constituents:** Thirty two fatty acids, and 12 essential elements (Arsenic, Ca, Cd, Cu, Iron, Na, Mg, K, P, Lead, and Zinc) were isolated.  
**Medicinal uses:** The fruit pulp is edible, can be eaten raw or used as an ingredient in curries, pickles, confectionery and in fermented drinks. Fresh leaves and stem bark’s decoction mixed with potash are used for the treatment of jaundice, general body pain, stomach disorders, skin cleanser, and yellow fever and also as a blood tonic. Tamarind wood is used as timber, firewood and for charcoal. Other uses of the species include planting as an ornamental.
Family: Tamaricaceae  
Local Name: Ghaz. 
Engl.Name: Tamarix  
Propagation: seeds  
Used Part: Whole tree.  
Fl.Period: March-April  
Description: A large shrub, or small coniferous looking tree with erect trunk.  

Chemical constituents: 3,6-digalloyl glucose (gallotannins) & 2,6-Digalloyl glucose.  

Medicinal Uses: Fumigation of leaves having germicidal effect and used in cold and flue. Grinded bark is used as poultice on wound. The leaves are grind or cooked then used for tetanus and pain.

46.Systematic Position  
Syn: Nil  
Family: Combretaceae  
Local Name: Peshtiey beta  
Engl.Name: Arjun  
Propagation: By seeds  
Used Part: Bark  
Fl.Period: May-Jun  
Description: A large evergreen tree bark smooth, leaves simple, sub opposite, oblong, pale dull green above, pale brown beneath, reticulate; flowers white in panicles of spikes with linear bracteoles; fruit ovoid with 5-7 short, hard angles or wings.  

Chemical constituents: Arjunolic acid, tomentosic acid, -sitosterol, ellagic acid and saponin. Bark contains arjunine, essential oil, calcium salt and tannin.  

Medicinal Uses:  
The bark is sweet, astringent, cooling demulcent, expectorant, cardiotonic, urinary astringent and tonic. It is useful in internal and external hemorrhages, fractures, ulcers, fatigue and asthma.

47.Systematic Position  
Bot. Name: *Thuja orientallis* L  
Syn: Nil  
Family: Cupressaceae  
Local Name: Sarwa  
Propagation: By seeds  
Used Part: Leaf and seeds.  
Fl.Period: April to Aug.  
Description: Coniferous, evergreen, monoecious tree, up to 25m tall. Leaves scale like, less than 3mm long, glandular, grooved. Male cones at terminal of branches or the last year, 2-2.5mm long with 10 scales. Female cones larger, erect, 3-9 pairs of scales, strongly hooked at apex, 15-20mm long; seeds wingless.  

Chemical constituents: Terpenoids: pinusolide, pinusolidic acid, cedrol, totarol. Essential oil, flavonoids and thujic acid.  

Medicinal Use: ant-platelet, anti-inflammatory, expectorant, ant-asthmatic, antibacterial and antifungal. Seeds are used as liver tonic and for weakness of body.

REFERENCES  
the local inhabitants of District Attock, Department of Botany, Arid University Rawalpindi, Pakistan, 2005.


Table 1: 47 Ornamental Species of District Bannu Khyber Pakhtunkwa Pakistan.

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Genus Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agava Americana L.</td>
<td>Citrus medica L.</td>
</tr>
<tr>
<td>Albizia lebbeck (L.) Benth</td>
<td>Cupressus sempervirens L.</td>
</tr>
<tr>
<td>Alstoria scholaris L. R. Br.</td>
<td>Cycas revoluta Thunb</td>
</tr>
<tr>
<td>Aloe barbadensis Miller</td>
<td>Cynodon dactylon (L).Pers</td>
</tr>
<tr>
<td>Aristolochia contorta Bunge</td>
<td>Dodonaea viscosa Jeaq</td>
</tr>
<tr>
<td>Bauhinia variegata L.</td>
<td>Elaeagnus angustifolia Blanco</td>
</tr>
<tr>
<td>Bevogenvalia glabra Choisy</td>
<td>Euphorbia ligularia Roxb</td>
</tr>
<tr>
<td>Brassica campestris L.</td>
<td>Euphorbia milli L.</td>
</tr>
<tr>
<td>Bryophyllum pinnatum Lam.</td>
<td>Helianthus annus L.</td>
</tr>
<tr>
<td>Cassia fistula L.</td>
<td>Heterophragma quadriloculare K.Schum.</td>
</tr>
<tr>
<td>Calendula officinalis L.</td>
<td>Hibiscus rosa-sinensis L.</td>
</tr>
<tr>
<td>Callistemon citrinus (Curtis) Skeels</td>
<td>Jasminum officinale L.</td>
</tr>
<tr>
<td>Catharanthus roseus (L.) G.Don</td>
<td>Magnolia grandifolia L.</td>
</tr>
<tr>
<td>Chrysanthemum indicum L.</td>
<td>Malia azadarch L.</td>
</tr>
<tr>
<td>Cestrum diurnum L.</td>
<td>Mirabilis jalapa L.</td>
</tr>
<tr>
<td>Cestrum nocturnum L.</td>
<td>Narcissus tazetta L.</td>
</tr>
<tr>
<td>Theobroma cacao L.</td>
<td>Opuntia ficus-indica (L). Mill</td>
</tr>
<tr>
<td>Bauhinia variegata L.</td>
<td>Opuntia dillenii Haw</td>
</tr>
<tr>
<td>Bauhinia variegata L.</td>
<td>Petunia integrifolia alba Thell</td>
</tr>
<tr>
<td>Bauhinia variegata L.</td>
<td>Rosa brunonii Lindl.</td>
</tr>
<tr>
<td>Bauhinia variegata L.</td>
<td>Rosa indica L.</td>
</tr>
<tr>
<td>Bauhinia variegata L.</td>
<td>Rosa moschata, J Herrm</td>
</tr>
<tr>
<td>Cestrum nocturnum L.</td>
<td>Salix babylonica L.</td>
</tr>
<tr>
<td>Cestrum nocturnum L.</td>
<td>Salix tetrasperma Roxb L.</td>
</tr>
<tr>
<td>Cestrum nocturnum L.</td>
<td>Tamarandus indica L.</td>
</tr>
<tr>
<td>Cestrum nocturnum L.</td>
<td>Tamarix aphylla(L) Karst</td>
</tr>
<tr>
<td>Cestrum nocturnum L.</td>
<td>Thuja orientallis L.</td>
</tr>
</tbody>
</table>

Figure 1: Graphic representation of percentage of Species distribution among families.
Figure 2: Wild, Cultivated and Mix Species. Figure 3: Medicinal plants collectors.

<table>
<thead>
<tr>
<th>S.N</th>
<th>Families</th>
<th>Spp</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Apocynaceae</td>
<td>3</td>
<td>9.091</td>
</tr>
<tr>
<td>2.</td>
<td>Asteraceae</td>
<td>3</td>
<td>9.091</td>
</tr>
<tr>
<td>3.</td>
<td>Rosaceae</td>
<td>3</td>
<td>9.091</td>
</tr>
<tr>
<td>4.</td>
<td>Solanaceae</td>
<td>3</td>
<td>9.091</td>
</tr>
<tr>
<td>5.</td>
<td>Cactaceae</td>
<td>2</td>
<td>6.061</td>
</tr>
<tr>
<td>6.</td>
<td>Cupressaceae</td>
<td>2</td>
<td>6.061</td>
</tr>
<tr>
<td>7.</td>
<td>Euphorbiaceae</td>
<td>2</td>
<td>6.061</td>
</tr>
<tr>
<td>8.</td>
<td>Lamiaecae</td>
<td>2</td>
<td>6.061</td>
</tr>
<tr>
<td>9.</td>
<td>Nyctaginaceae</td>
<td>2</td>
<td>6.061</td>
</tr>
<tr>
<td>10.</td>
<td>Saliaceae</td>
<td>2</td>
<td>6.061</td>
</tr>
<tr>
<td>11.</td>
<td>Amaryllidaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>12.</td>
<td>Aristolochiaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>13.</td>
<td>Asparagaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>14.</td>
<td>Bignoniaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>15.</td>
<td>Brassicaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>16.</td>
<td>Caesalpiniaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>17.</td>
<td>Combretaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>18.</td>
<td>Crassulaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>19.</td>
<td>Cuculaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>20.</td>
<td>Elaeagnaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>21.</td>
<td>Fabaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>22.</td>
<td>Leguminosae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>23.</td>
<td>Liliaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>24.</td>
<td>Magnoliaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>25.</td>
<td>Malvaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>26.</td>
<td>Meliaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>27.</td>
<td>Mimosaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>28.</td>
<td>Myrtaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>29.</td>
<td>Oleaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>30.</td>
<td>Poaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>31.</td>
<td>Rutaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>32.</td>
<td>Sapindaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
<tr>
<td>33.</td>
<td>Tamaricaceae</td>
<td>1</td>
<td>3.031</td>
</tr>
</tbody>
</table>