

A SURVEY OF MEDICINAL PLANTS OF THE KARACHI AREA

A.B. MALLIK AND A. R. MOHAJIR*

Department of Botany, University of Karachi, Karachi

Under the present economic conditions of this country and in the interest of the general welfare of the people, all possible resources need to be fully exploited. In particular the growing interest in the pharmaceutical industries necessitates a comprehensive study of the crude drug resources of our country. An attempt is made in the present work to study the possibilities of the medicinal plants available in the area within a radius of about 20 miles around Karachi, bounded to the south and west by the sea coast, with Manghopir to the north and Landhi and Malir in the east. Many of the plants of this region are being locally used in the treatment of certain ailments. Some of these plants are found wild in the natural vegetation, and some as weeds in the cultivated fields.¹ Of these, a few have received world wide recognition as medicinal plants and references will be made to them in this discussion.

A. Waste Lands

The soil condition of the waste lands in this region is not uniform and therefore there is considerable variation in the natural vegetation of this region. At least three different types of soil conditions are apparent.

(i) **Sand Dunes of the Sea Coast.**—The vegetation in this area is typically xerophytic. Among the natural flora there are a good number of plants that are used by local country doctors for medicinal purposes. An important medicinal plant, *Citrullus colocynthis* (Indrain, Sindhi), a reputed purgative, grows in abundance and can be collected in sufficient quantities. As this is a very good sand dune binder, its artificial regeneration in this region can serve a dual purpose. At present the fruits are collected on a small scale by the local drug dealers and are sold unpeeled. The peeled fruit was described in the British Pharmacopoeia, 1948.

Another very common plant of this region, *Cressa critica*, is valued for its alterative, anthelmintic and stomachic properties. *Tamarix troupii* is yet another plant that has received recognition as a medicinal herb; the leaves, bark, fruits and galls are used for their astringent properties in intestinal disorders. *Capparis aphylla* (Kureer, Punjabi), a dominant species in desert areas, is a popular drug plant among the local hakims

for its diaphoretic, laxative and anthelmintic properties. It is also said to be useful in curing cough and asthma.

(ii) **The Calcareous Hilly Tracts.**—This area covers the hillocks of North Nazimabad, Manghopir, Country Club Road and its adjacent localities. In this region are found two most important medicinal plants—*Acacia senegal* (Khair, Sindhi) and *Commiphora mukul* (Guggal, Sindhi) (*Balsamodendron mukul*). *Acacia senegal* is a recognised source of gum, which finds extensive use as an emulsifying agent. The gum is also used as a demulcent in medicine. *Commiphora mukul*, commonly known as myrrh, produces an important oleoresinous substance. It is mildly disinfectant and acts as a local stimulant of the mucous membranes. Tincture murrhae is a B.P. preparation and is commonly used in mouth washes.

Unfortunately, at present no gum or resin is being extracted from these two important plants and people in the drug industry seem to be unaware that they are available in our country. *Acacia senegal* is found in profusion by the sides of the Karachi-Hyderabad road beyond Landhi, but the distribution of *Commiphora mukul* seems to be limited and large scale commercial exploitation of this plant may not be very profitable for some time to come because of its scanty growth. Systematised cultivation and propagation of these two plants in this region is likely to yield good results. It may be noted that India has been successful in propagating *Commiphora mukul*, from which the oleoresin is being exported by her under the name of Indian myrrh.

Small quantities of *Cymbopogon jwarancusa* (rosha grass), used in perfumery, can also be collected from the hilly regions. The white latex obtained from *Euphorbia tirucalli* (Sair, Sindhi), common in this area, is often used for its carminative and purgative properties by the local people. It is also said to be useful in jaundice, cough and leprosy.

A few other plants, viz., *Periploca aphylla*, (Barraree, Urdu), *Zygophyllum simplex* (Aletthi, Sindhi) and *Cordia rothii* (Gondnee, Urdu) are valued for their various medicinal properties by the local hakims, but these properties have yet to be established on a scientific basis. The milky juice of *Periploca aphylla* is used for external application to tumours and swellings, and a decoction of the bark serves as a purgative. It is reported that the Arabs

* Now at Pakistan National Scientific and Technical Documentation Centre (PANSDOC), Karachi.

beat up the leaves and the seeds of *Zygophyllum simplex* in water and apply the infusion in ophthalmia and leucoma. The bark and seeds of *Cordia rothii* are said to be useful in the treatment of ringworm.

(iii) **Alluvial Tracts.**—This is a very widespread area covering the whole of fallow uncultivated land in the plain. That part, which has been brought under cultivation, is rich in a number of medicinal plants. *Asparagus demosus*, *Boerhaavia diffusa* (Shothagni, Sindhi), *Calotropis procera*, (Ak, Urdu), *Cassia angustifolia* (Senna, Urdu), *Cleome viscosa* (Hurhur, Urdu), *Gynandropsis pentaphylla* (Hool-Hool-Sufaid, Urdu), *Salvadora persica* (Peelo, Sindhi), *Solanum xanthocarpum* (Kateli), *Peganum harmala*, (Hurmur, Urdu), and *Withania somnifera* (Ashvagandha, Hindi) are most common in this area.

Among these plants, *Cassia angustifolia* (senna) offers great commercial possibilities. Both the leaves and the fruits (pods) are used for purgative and laxative purposes and are recognised by the B.P.² At present the total requirements for these two purposes are imported from outside. This plant is cultivated in some south Indian states and the drugs are exported by India under the name Tinnevely senna. The active principles of these drugs available locally should be compared with those of Tinnevely and with those produced in Egypt. The possibilities for commercial exploitation of other plants are limited, because at present these are being used only in the indigenous and Ayurvedic systems of medicine where they are of importance in the treatment of ailments.

In indigenous medicine, the fasciculated roots of *Asparagus demosus* are largely used as diuretic, aphrodisiac and antispasmodic. *Boerhaavia diffusa*, a noted drug in the Ayurveda, is used in a number of ailments. An infusion of the herb is regarded as a mild laxative. The root is used as diuretic, laxative, stomachic and diaphoretic. The juice of the leaves is said to be efficacious in liver complaints. A number of therapeutic properties are attributed to *Calotropis procera* in the indigenous system of medicine.^{2,3} The bark is found useful in inflammatory swellings, in cough, asthma and rheumatic pains. The root is considered to be a good substitute for ipecacuanha in dysentery, and is used as diaphoretic, emetic and alterative. It is reported that the seeds of *Cleome viscosa* have carminative and anthelmintic properties and are used as vermifuge and sinapism. A decoction of the root of *Gynandropsis pentaphylla* is considered to be a mild febrifuge and effective in tumours, ulcers and pain. The expressed juice of the root is considered to be good as a local application in otalgia.^{2,3} *Peganum harmala* is

quite often found to possess anthelmintic properties; this is attributed to the two alkaloids harmaline and harmine obtained from the seeds.^{2,3} A preparation of the powdered seeds mixed with mustard oil is used for killing vermin infesting the hair. In Persian works, the fruit of *Salvadora persica* is valued for its carminative and diuretic properties.^{2,4} *Solanum xanthocarpum* is used by local hakims in a number of ailments; the roots are considered valuable as expectorant, diuretic, febrifuge, and anodyne. The stem, flowers and fruits are carminative. The root of *Withania somnifera* is commonly used as alterative or diuretic and in rheumatic affections. An alkaloid, somniferine, is obtained from the root.

B. Cultivated Areas

These areas are located in the Malir, Memongot and its adjacent localities. It seems that the edaphic conditions of this region are well suited for growing the castor oil plant (*Ricinus communis*), which is found not only in this region but also as a very common weed throughout the plains of West and East Pakistan. No systematic effort has so far been made for its cultivation, and at present the total requirements of this important oil are imported. The oil from the seeds is the most widely used among purgatives.

Aloe vera (Gaekwar, Urdu), a plant of North African origin, is found cultivated almost everywhere in graveyards and seems to have been naturalized successfully. If necessary protection is provided, its cultivation can be extended to the adjoining waste lands. There is no doubt that, in the waste land of this region, the possibility of developing this important medicinal plant is immense. The drug, which is the crystallized juice obtained from the cut leaves, is the basis of more than one popular brand of laxative pill.

Among the weeds of this area may be mentioned *Abutilon indicum* (Peeli booti, Punjabi), *Achyranthus aspera*, (Putkunda, Punjabi), *Argemone mexicana*, *Caesalpinia bonducella* (Gujga, Urdu), *Datura alba*, (Datura, Urdu), *Phyllanthus niruri* (Neruri, Hindi), *Portulaca oleracea* (Khoolfa, Urdu), which are at present only of local importance.

The importance of *Abutilon indicum* is due to the sedative and diuretic properties exhibited by its roots. A decoction of the leaves is used in chest affections and in bronchitis. *Achyranthus aspera* is said to be used as a laxative and stomachic. However, a decoction of the herb is found useful in dropsical affections and it is recognised as a medicinal plant due to the presence of an alkaloid (berberine) in the yellow glutinous juice. The juice

is diuretic and alterative and is also found useful in dropsy, jaundice and skin diseases. *Caesalpinia bonducella*, found as hedge in cultivated fields, is a popular drug plant. The seeds are used as antiperiodic, antipyretic, and as bitter tonic in the Ayurvedic system of medicine. *Datura alba* is an important medicinal plant, and the alkaloidal contents and its properties are said to be not inferior to the species recognised in the British Pharmacopoeia. The leaves and the seeds of *Datura stramonium* contain two important alkaloids, hyoscyamine and atropine. The dried leaves and stems are smoked as an antiperiodic in asthma and whooping cough. *Phyllanthus niruri* is found useful as astringent, diuretic, stomachic and laxative. It is also used in many intestinal diseases. Another weed *Portulaca oleracea* is valued by local hakims for its alterative and refrigerant properties. It is also recommended in diseases of the bladder, kidneys and liver.

Conclusion

From the above discussion it is clear that some medicinal plants of universal reputation are avail-

able in this region. It is therefore suggested that some efforts should be made on scientific lines for their exploitation. The possibilities of commercial exploitation regarding *Acacia*, *Aloe vera*, *Citrullus colocynthis* and *Commiphora mukul* are particularly very great. The other drugs, such as *Boerhaavia diffusa*, *Calotropis procera*, *Cassia angustifolia*, *Caesalpinia bonducella* and *Withania somnifera*, which are at present used only by local hakims, as well as other drugs mentioned, may also be expected to yield good results on thorough investigation.

References

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