Flora of Egypt

Practical Part

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Plants of the The Nile Region

I THE DELTAIC MEDITERREAN COAST

Silene succulenta associate with *Cakile maritima , Cynodon dactylon , Polygonum equisetiforme , Alhagi maurorum , Melilotus indica , Erodium hirtum , Cyperus capitatus , Acacia saligna , Paspalidium geminatum , Dactyloctenium aegyptium , Lippia nodiflora , Ricinus communis (semi-wild) , Senecto desfontainei Mesembryanthemurn crystallinum , Parapholis marginata, Launaea angustifolia , Polypogon maritimus , Emex spinosus , Amaranthus sp ., Salsola kali, Malva parviflora, Ifloga spicata, Cutandia memphitica, Lotus halophilus, Euphorbia sp* . etc. *Figs (Ficus carica) and water melon (Citrullus vulgaris)* are cultivated by the natives in this zone.

Gebel El - Nargis sand dunes occupy the third zone of Baltim coast. dominated by *Silene succulenta* . The floristic composion of these dunes include : *Lolium rigidum , Phoenix dactylifera* (semi - wild) , *Alhagi maurorum , Melilotus indica , Erodium hirtum , Lycopersicum esculentum , Cynodon dactylon Desmostachya bipinnata , Imperata cylindrica , Polygonum equisetiforme , Ipomaea stolonifera , Pancratium arabicum , Stipagrostis ciliaris , Echinops spinosissimus , Salsola kali , Ifloga spicata , Bromus rubens , Cakile maritima, Rumex pictus , Plantago indica , Malva parviflora , Ononis serrata , Pseudorlaya pumila , Carthamus glaucus , Polypogon monspeliensis , Daucus bicolor*

Cyperus capitatus and the cultivated plants Ficus carica, Vitis vinifera and Citrullus vulgaris. The fourth zone is a salt marsh habitat dominated by *Arthrocnemum glaucum* with *Halocnemum strobilaceum* as abundant associate species. The other plants of this zone are: *Cressa cretica, Zygophyllum aegyptiurn, Frankenia revoluta, Sporobolus spicatus, Cyperus conglomeratus, Limonium pruinosum, Limoniastrum monopetalum, Cynodon dactylon, Polygonum equisetiform, Spergularia sp.,*

Moltkiopsis ciliats, Aetheorhiza sp., Lippia nodiflora, Reichardia tingitana, Mesembryantemum crystallinum , Chenopodium sp . etc.

The fifth zone is another zone of huge sand dunes dominated by the semi - wild palm trees *Phoenix dactylifera (zone* of palms). In the depressed areas within these dunes the underground water is exposed forming local swampy habitat where *Typha domingensis* predominates. In the saline patches of the runnels within these dunes there are societies dominated by *Arthrocnemum glaucum, Schoenus nigricans, Sporobolus viginicus, Imperta cylindrica* and *Zygophyllum aegyptium.* The other societies of the palm dunes include: *Pancratium arabicum* (abundant), *Erodium hirtum Alhagi maurorum, Cyperus capitatus, Desnmostachya bipinnata, Rumex pictus, Ononis serrata, Pseudorlaya pumila, Launaea angustifolia, Malva parviflora , Sinapis arvensis, Adonis dentatus, Lobularia libyca, Plantago* sp. etc.

The innermost zone is a depression which receives the drainage water seeped from the cultivated lands of Baltim villages and from Lake Burullus. *Typha domingensis* is the dominant reed of these swamps associated with: *Phragmites australis.* In the saline banks of these swamps grow: *Juncus rigidus, J acutus, Cyperus conglomeratus, Cressa cretica, Suaeda pruiosa , Tamarix tetragyna , Halimione portulacoides, Inula crithmoides, Mesembryanthemum crystallinum, Frankenia revoluta, Polygonum equisetiform* etc.

II THE AQUTIC HABITAT

The aquatic plants of the Nile System of Egypt comprise 35 species belonging to 19 genera and 15 families as follows.

1. Family Araceae

Pistia stratiotes: Free floating weed present only in the calm and stagnant water canals of Faraskur (20 km south of Damitta) absence elsewhere in Egypt

2. Family Ceratophyllaceae

Ceratophyllum demersum is very common and dangerous submerged weed. *C. submersum* and *C. muricatum* are rare in Egypt.

3. Family Haloragidadceae

Myriophyllum spicatum has been recently recorded invading the River Nile System, never seen before the establishent of Aswan high Dam. It is a submerged weed.

4. Family Hydrocharitaceae

To this family belongs three submerged plants, namely: *Ottelia alismoides, Elodea canadensis and Vallisneria spiralis* .

5. Family Lemnaceae

This family comprises a group of very small floating water plants without distinct stem and leaves but with tiny leaf -like fronds forming green masses on the surface of stagnant waters. In the Nile system there are 6 species belonging to 3 genera namely: *Spirodela punctata , S . polyrrhiza. Lemna gibba, L .minor, L. perpusilla* and *Wollfia hyalina.*

6. Family Lentibulariaceae

Utricularia inflexa floating plant with finely dissected leaves carrying bladders in which small animals are caught (insectivorous water weed) It usually grows in the rice fields of the Nile Delta.

7. Family Marseliaceae

Marselia aegyptiaca is an aquatic fern common in all waters of the Nile System of Egypt. *Marselia capensis* is rare and present only in the Nile Delta.

8. Family Najadaceae

Najas spp. is submerged water plants. *N. pectinatus*, N. minor and *N.graminea* are very rare in the Nile Delta, absent from other parts of the Nile System. *N. armata* is common in the Nile delta and Fayium

9. Family Nymphaeaceae

Nymphaea coerulea (blue water Lily) and N. louts (White water Lily) are the sacred water lilies of the ancient Egyptians. They are floating plants common in the Nile Delta, rare or absent in the Nile valley.

10. Family Onangaraceae

Jussiaea repens very rare free floating weed.

11. Family Pontederiaceae

The genus *Eichhornia* includes free floating plants that occur in Egypt in two species: *E. crassipes* and *E. azurea.* The second is very rare and grows (cultivated) in the gardens of Cairo, it causes no trouble. *Crassipes,* on the other hand, is the most dangerous water weed in Egypt (water Hyacinth or Ward El - Nil).

12. Family Potamogetonaceae

Potamogeton spp. are submerged weeds and include :

(i) P. crispus very common.

(ii) P. pictinatus very common

(iii) P. nodosus common

(iv) P. peifoliatus rare (in Nile Nubia only) All *Potamogeton* spp. are dangerous hydophytes.

13. Family Ranunculaceae

Ranunculus saniculifolius, R.rionii R,trichophyllus **and** *R. sphaerospermus* is rare in the Nile Delta absent from Upper Egypt.

14. Family Ruppiaceae

Ruppia maritima var. *spiralis, R.maritima* var. *rostrata* **are** submerged hydrophytes.

15. Family Zannichelliaceae

Zannichellia Palustris is very common water weed in all water bodies of Nubia and Lake Nasser.

III THE SWAMPY HABITAT

The weeds of the swampy habitat are immersed plants with roots, rhizomes and lower parts of their aerial shoots are under water. These include *Phragnzites australis* the most serious and very common reed in Egypt. It belongs to grass family Gramineae. *Typha domingensis (Typhaceae*) is another dangerous reed very common in Egypt.

The other swampy plants comprise the following: *Echinochloa staginum, E.crusgalli, Paspalidium geminatum, Polypogon monspeliensis, Diplacahne fusca* etc. (Gramineae), *Polygonum salicifolium, P. senegalensis, (Polygonaceae), Veronica anagallis - aquatica* (Schrophulariaceae), *Cyperus articulates C. longus, C. difformis, Scirpus litoralis,* (Cyperaceae) *Juncus subulatus* (Juncaceae) etc. *Cyprus papyrus* was very common is the Nile Delta swamps during ancient time. Its culms were used is making papers. Nowadays it is eliminated from the swampy habitats of Egypt. Few individuals are growing in Chaman Garden of Cairo.

IV CANAL BANK HABITAT

These include cultivated and naturally growing trees, shrubs, under shrubs and herbs . The important species are:

a) Cultivated plants .

Ficus sycomors, Morus alba , M. nigra , Acacia nilotica , Melia azederach , Parkensonia aculeata , Salix safsaf , S. babylionica , Zizyphus spina - cristi , Casuarina equisetifolia , Dalbergia sisso , Eucalyptus rostrata , E. citriodora , Ricinus communis , Opuntia ficus - indica etc .

b) Wild Plants

Tamarix arborea, Conyza dioscoridis, Desmostachya bipinnata, Imperata cylindrica, Inula crithmoides, Suaeda vermiculata. Arthrocnemum glaucum, Arundo donax, Alhagi maurorum, Dichanthium annulatum, Panicum maximum, Kochia. indica , Mentha silvestris, Lippia nodiflora, Silybum marianum, Sphaeranthus suaveolens, Canna indica, Saccharum spontaneum, Cyperus laevigatus, Trifolium resupinatum, Nitraria retusa,

Ambrosia maritima, Andropogon annularis, Urospermum picroides, Halimione portulacoides , Glinus lotoides , Ethulia conyzoides , Verbena supina etc.

V. WEEDS OF THE CULTIVATED LANDS

Weed flora of the cultivated lands of Egypt are mainly ephemeral, and annual herbs. Perennial herbs, under shrubs and shrubs may also be present. These weeds are associated with the summer and winter crops. Weeds of common occurrence in winter crops are : *Melilotus indicus, Cynodon dactylon, Sonchus oleraaceus, Chenopodium murale, Trifolium resupinatum, Anagallis arvensis, Chenopodium album, Brassica nigra, Polypogon monspeliensis, Vicia calcarata, Malva parviflora, Emex spinosus, Solanum nigrum, Polygonum equisetiforme, Xanthium brasillicum, Urochloa reptans, Cichorium pumilum, Dactyloctenium aegypticum, Eragrostis pilosa* etc .

The weeds of summer crops include. *Echinochloa colonum , Cynodon dactylon, Portulaca oleracea , Convolvulus arvensis , Cyperus rotundus , Sonchus , oleraceus , Solanum nigrum , Xanthium spinosum , Silene rubelaa , Amaranthus chlorostachys , Beta vulgaris , Rumex dentatus , Ammi majus , Euphorbia peplus , P lantago lagopus , Lotus corniculatus and Reichardia orientalis*

VI. THE NOTHERN LAKES

The northern lakes of the Nile Delta namely: Lake Manzala , Lake Burullus and Lake Idku are located very close to the Mediterranean Sea . They are separated from it by strip of land that are very narrow in several places and in the same time are connected with the sea through outlets (straits).

Lake Manzala is the largest (= 300,000 feddans). It lies between the Mediterranean Sea to the north, the Suez Canal to the east, the damietta Branch and the povinces of Sharkiya and Dakahlya to the west. Thus, Lake Manzala serves 5 provinces of Egypt namely: Ismaillia, Port Said, Damietta, Sharkiya and Dakhaliya. It is shallow lake with depth not exceed one meter. It is characted by a large number of Islands (about 1022).

The plant life of Lake Manzala comprises halophytic elements that grow mainly on the shores of the islands. These include 26 species belonging to all families as follows : *Artrocnemum glaucum, Atriplex fahnosa , Halimione portulacoides , Halocnemum strobilaceum , Halopeplis perfoliata , Salicornia fruticosa , S.herbaces , Salsola kali , S.longifolia, Suaeda pruinosa , S.salsa S.vermiculata and S.vera (chenopodiaceae), Arundo donax, Phragmites australis and Sporobolus spicatus (* gramieae) , *Cressa cretica (convolvulaceae) Cistanche Phelypaea (* orobanchaceae) *Cyperus Laevigatus (* Cyperaceae) , *Inula crithmoides (* compositae) , *Juncus rigidus (* Juncaceae) , *Tamarix aphylla (tamaricaceae*), *Typha domingensis (Typhaceae) and Zygophyllum album (* Zygophyllaceae) .

Fresh water hydrophytes namely: *Eichhornia crassipes. Potamogeton crispus, P.petinatus , Lemna spp., Ceratophyllum demersum* are present in the water of the lake .

VII MAN MADE LAKE

The construction of Aswan High Dam in the most southern part of Egypt resulted in the formation of a huge man-made lake : High Dam, Lake : mean depth - 24.8 m, mean width = 18 Km .

The shore - line vegetation comprises the following floristic elements *: Tamarix nilotica , Hyoscyamus muticus , Phragmites australis , Salsola baryosma , Francoeuria crispa , Citrullus colocyunthis , Fagonia arabica , Glinus lotoides , Heliotropium supinum , Rumex dentatus, Echium raumolfii , Portulaca oleracea , Pulicaria undulata , Senecio aegyptus , Calotropis procera , Morettia philaena* etc . The shallow waters along the shore line is the habitat of some water plants e.g *Potamogeton trichoides , Najas minor ,N.armata, Portamogeton •nodusus,Zanichellia palustris , Ceratophyllum demersum* etc .

VIII THE NILE ISLANDS

The Nile at Aswan north of the High Dam is interrupted by abotut 30 uninhabited granite islands e.g. Duns islans , Burbur Island, Gezel Island etc . The submerged land of these islands is usually occupied by aquatic flora e.g *Ceratophylum demersum* and *Potamogeton*

crispis . In the partly submerged land *Phragmites australis, Polygonum senegalensis , Panicum repens* and *Cyperus* spp . *Typha domingensis , Veronica anagallis-aquatic* etc grow . The meadow-grass habitat of this island is co-dominated by *Cyperus longus* and panicum repens . The floristion composition : *Cyperus mundtii, Cynodon dactylon , Sesbania sesban , Lotus arabicus , Cyperus rotundus , Tamara- nilotica, Trigonella hamosa, Mimosa Pigra, Salix subserrata, Cajanus Cajan , Saccharum spontaneum , Senecio aegyptus , Gnaphalium luteo-album, Sonchus oleraceus , Plantago major , Trigonella , hamosa , Leptadenia pyrotechinca, Francoeuria crispa* etc.

PLANTS OF GARDENS AND STREET TREES

- *Duranta plumieri (*Verbenaceae)
- *Clerodendron inerme (*Verbenaceae)
- *Lantana camara (*Verbenaceae)
-. *Bougainvillea glabra (* Nyctaginaceae *)*
–- *Schinus terebinthifolius (* Anacardiaceae *)*
–- *Rosa involucrata (Rosaceae)*
- *Myoporum acuminatum (Myoporaceae)*
–Ipomoea palmata (Convolvulaceae)
–sit el-Husn and Ipomoea tricolor.
*–Jasminum gradiflorum (*0leaceae*), J. sambac and J .primulinum Known "Foll ".*
- *Hibiscus rosa-sinensis (*Malvaceae*)*
- *Lawsonia inermis (*Lythraceae*).*
–Callistemon lanceolatus (Myrtaceae)
– Nerium oleander (Apocynaceae)
– - Plumbago capensis (Plumbaginaceae)
– Plumeria acutifolia (Apocynaceae) Jasmin Hindy

– Plumeria acutifolia (Bignoniaceae)

– -▪ Vitex agnus castus (Verbenaceae) Kaff Mariam

–Datura arborea (Solanaceae)

- Euphorbia pukherrima (Euphorbiaceae) Bint El-Onsul

– Myrtus communis (Myrtaceae)

– Opuntia ficus-indica (Cactaceae)

–Aloe vera (Liliaceae)

–Agave americana (Agavaceae)

—- Amaryllis vittata (Amaryllidaceae)

–Anemone coronaria (Ranunculaceae)

- Canna indica (Cannaceae)

- Dahlia variabilis (Compositae)

- Gladiolus gandavensis (Iridaceae)

- Iris xiphium (Iridaceae)

- Narcissus tazetta (Amaryllidaceae)

- Ranunculus asiaticus (Ranuculaceae)

- Oxalis cernua (Oxalidaceae)

- Albizzia lebbekh (Leguminosae , Dakn elBasha)

- Acacia fornesiana (Leguminosae)

- Cassia artemisioides (Leguminosae)

- Cassia disymobtrya (Leguminosae)

- Hemerocallis flova (Liliaceae)

–Pelargonium graveolens (Geraniaceae) Etr

—- Viola odorata (Violaceae) -Beneffig

—- Centaurea moschata (Compositae , Anber Baladi)

- Cheiranthus cheiri (Cruciferae , Mantour Asfar)

–Lathyrus odoratus (Leguminosae - Bissila Zohour)

–- Matthiola incana (Cruciferae , Mantour)

–- Thuja orientalis (Coniferae)

Vinca rosa (Verbenaceae, Al-Wenka)

- Adiantum capillus-veneris (Fern, Adiantaceae)

- Thevetia peruviana (Apocynaceae)

Important Egyptian Crops and Vegetables

A. Cereals (Gramineae)
Hordeum vulgare
Oryza sativa
Saccharwm officinarum
Sorghum durra
Triticum vulgare
T. durum
T. pryramidale
Zea mays
B. Crops of Leguminosae
Arachis hypogaea

Cicer arietinum

Dolichos lablab

Lathyrus sativus

Lens esculenta

Lupinus termis

Medicago sativa

Phaseolus vulgaris

Pisum sativum

Trifolium alexandrinum

Trigonella foenum – graecum

Faba vulgaris (Vicia faba)

Vigna sienensis

c. Vegetables of Liliaceae

Allium cepa

A. kurrat

A. porrum

A. sativum

D. Vegetables of Cucurbitaceae

Citrullus vulgaris البطيخ/

Cucurbita pepo القرع

Cucumis melo الشمام

Cucumis sativus الخيار

Citrullus vulgaris v. colocynthoides

E. *Vegetables of Umbelliferae*

Anethum graveolens

Apium graveolens

Carum carvi

Carum carvi

Coriandrum sativum

Cuminum sativum

Petroselinum sativum

Pimpeniella anisum

F. Species of Labiatae

Origanum majorana مردقوش زعتر

Mentha sativa النعناع

Rosmarinus officinalis حصا اللبان

Ocimum basilicum الريحان

G. Species of Pedaliaceae

Sesamum indicum /لسمسم

H. Root crops

Beta vulgaris (chenopodiaceae) البنجر

Brassica rapa (Cruciferae) الفجل

Colocasia antiquorum (Araceae) القلقاس

Cyperus esculentus (Cyperaceae) السعد اللذيذ

Daucus boissieri (Umbelliferae) الجذر

Species

Helianthus tuberosus (Compositae)

Raphanus sativus v.aegyptiacus (Cruciferae) الفجل الابيض

Solanum tuberosum (Solanaceae) البطاطس

F. Fruits Used As Vegetables

Capsicum annuum (Solanaceae) فلفل احمر

C. frutescens (Solanaceae) الشطة

Solanum Lycopersicum (Solanaceae) الطماطم

S. menlongena (Solanaceae) الباذنجان

Hibiscus esuculentus (Malvaceae) الباميا

1. Inflorescence as Vegetables

Cynara scolymus (Compositae) الخرشوف

Brassica oleraceae v.botrytis (Cruciferae) القرنبيط

J. Shoots As Vegetables

Asparagus officinalis (Liliaceae)

K. Leaves As Vegetables

Spinacia oleraceae (Chenopodiceae)

Beta vulgaris v. Cicla (Chenopodiaceae)

Portulaca oleraceae (Portulacaceae)

Malva parviflora (Malvaceae)

Corchorus olitorius (Tiliaceae)

Brassica oleraceae V. capitata (Crucifere)

Cichorium endivia (compositae)

Lactuca sativa (compositae)

Eruca Sativa (Cruciferae)

L. Oil , Textile and dye Plants

Agave americana (Amaryllidaceae)

Carthamus tinctorius (Compositae)

Gossypium barbadense (Malvaceae ,

Lawsonia inermis (Lytheraceae)
Olea europaea (Oleaceae)
Ricinus communis (Euphorbiaceae)
Linum usitatissimum (Linaceae)

NOTES ON SOME CROPS AND VEGETABLES

The Egyptian Cazzar BaladiDaucus *Boissieri* is only found in Egypt , not in other countries , Also , the Egyptian *Allium kurrat* is cultivated mainly in Egypt and to very small extent in Palestine and Pharaonic times .

The most common used " Libb Asmar " , the brown - small one is obtained from *Citrullus vulgaris v. colocynthoides* . It is a small bitter water - melon , some what larger than Handal (*Citrullus colocynthis)* and it is grown on a small scale in Upper Egypte . The main bulk of it , however , is imported from Sudan .

The white figl represents a variety only found in Egypt , *Raphanus sativus v.agyptiacus* . It is unknown outside Egypt.

All the numerous cucmbers and melons grown in Egypt are also unknown outside the country. Most of them are of very ancient cultivation and have been cultivated since pharaonic times. e. g Clay moddels of Faqqos over 4000 years olds are Kept in Agricultural Museum of Cairo . Also , the typical pointed Abdelllawi melons are depicted in a tomb at Saqqara from old Empire : 4500 Years ago .

Karafs , *Apium graveolens* was the emblem of sorrow in Ancient Egypt . It was used in funeral garlands to decorate the mummies. It was also planted on tombs.

Flax, *Linum usitatissimum ,* was the most important textile plant in Ancient Egypt . All mummy wrappings are made out of lines (flax fiber) . Cotton of late introduction.

The oldest cotton fabrics in Egypt were discovered lately by Prof. Greiss. He found cotton thread in some embroideries from the Monastery of Phoebammon West of Luxor, dating from the 4th century A.D.

Among the oldest Known food staff in Egypt is Habb El - Aziz, *Cyperus esculentus* , which has been found in the intestines of the prehistoric mummies . Also, husks of barley and libb was found in the mummies

Onions have always been connected with superstition not only in Egypt, but all over the civilized world. It was the custom in Ancient Egypt to place one or more onions inside the cavity of the body at the embalming of the dead. Ramses II has an onion in the left armpit and Ramses **II** had anions placed as a sort of artificial eyes. The onion has as ascribed protective properties. The custom among the fellahin of today to suspend a bundle of onions above the doors as a protection certainly originated from ancient traditions.

Henna. *Lawsonia inermis,* has been found in mummy garlands. It has been cultivated since the most ancient times. The same with Qortorn: *Carthamus tinctorius.*

Khass , *Lactuca sativa* , was the symbol of fertility in Ancient Egypt and the God of fertility , is often depicted with a khass in his hand always representing the same variety with very long leaves that is still cultivated in Egypt .

Hordeum and *Triticum* have been cultivated in Egypt suince prehistoric times , of *Hordeum* the same species as tody , *H. vulgare* . of *Triticum* other species , *T. dicoccum* , which is no more grown in the country .

Dura Shami , *Zea mays* , comes from America , Egypt got it shortly after the Turkish conquest in 1517 . Dura Fealadi Dura rafia , *Sorghum durra* , probably comes from Central Africa . It was not known during Pharaonic time .

Orz , Ruzz , *Oryza sativa* , is late . It was introduced during the time of Caliphs .

Qassab el - Sukkar , *Saccharum officinarum* , has been cultivated in India since remote trimes and became known to the Europeans during the expedition of Alexander , 127 **B . C .** It was introduced to Egypt during the Caliphate of Omar , 634 - 644 A . D .

Corchorus olitorius , Melokhia , is a native of India although widely naturalized in the tropices and also in Egypt . In other countries it is grown mainly for its fibre " Jute " .

Mustared , Khardal is obtained from two plants of Cruciferae *Sinapis alba* , the seeds of which yield white mustard , and *Brassica nigra* , the source of the blak mustard , The latter is called in Arabic *kaber* and often occurs as a weed in the fields . Its yellow flowers are sold by the florists as a cut - flower for their sweet smell.

A very peculiar plant is *Arachis hypogaea,* Peanut or Fool Sudani . Its Yellow papilionaceous flowers are almost sessil. After flowering the pedicel elongates and carries the young fruits beneath the ground.

Where it matures into the reticulated indehiscent pod. Hence its name hypogaea (meaning subterranean or underground).

N . B .

sativus = Cultivated

esculentus = edible

vulgaris = common

Officinalis = of medicinal use

Oleraceus = vegetable garden herb used in Cooking

tuberosus = tuberous

tinctorius = of dyes

annuus = annual

Olitorius = belonging to vegetable gardens or gardeners

PHARAONIC PLANTS

Egypt is the only country in the world where we have remains of ancient " tomb plants " . At the excavations of archaeological sites , one frequently finds fruits or vegetables or ornamental flowers placed with the mummy to serve him as food or pleasure in the hereafter . Due to the dry and hot climate these plants have remained intact even after an elapse of 5,000 years or more . If they are soaked in hot water , they get soft and could be examined morphologicaly and anatomically like any recent material . Such plants are of utmost importance for tracing the history of our present crops and vegetables . They give witnnes about Egypt's connections in olden days with various countries and they throw light upon the most different fields of Egyptian culture .

In the beginning , Egyptologists paid but little attention to the ancient plant remains . They were thrown away as rubbish , But in the beginning of last century , J. Passalacqua

got the idea of making a little collection of about 20 tomb plants which he submittted to Prof. Kunth in Germany for detrmination (1926) . Kunth's publication about them arose a great interest , and soon other botanists involved themselves in this field . Mention may be made of Prof . F. Unger in Vienna , who got the bright idea of dissolving ancient mud brickls from accurately dated monuments in water and collect the embedded plant remains. He worked on bricks from Lahum at Fayum etc . and succeeded to identify quite a number of different plants .

The most important of all ressearches on pharaonic plants was made towards the end of last centucy by Prof , Georg Schweinfurth . Because of his thorough knowledge of the modern Egyptian flora he succeeded in identifying plants where anybody else would have failed. Often a leaf or a stem fragment or a single seed was all material at his disposal, and yet he succeeded to name it . He listed about 250 different species, and in addition prepared a " Pharaonic herbraium " , unique in its kinds , where every plant fixed on the sheets is about 3 - 4 , 000 years old . This herbarium is at present exhibited in the Agricultural Museumof Cario and constitutes one of the most precious things kept in that museum.

The following are some plants commonly used in different purposes by the ancient Egyptians during the prehistoric (Pharaonic) periods .

- *Nyinphaea* lotus and *N.coerula ,* Nymphalaceae , the sacred flowers (water Lilies) .

– *Hordeum vulgare , Triticum dicoccum , Panicum* spp . etc ., (gramineae) , cereals .

- Palms : *Phoenix dactylifera (* data) , *Hyphaene thebaica (* dom) and *Medemia argun (* argune) , palmae

– Gemmeiz : *Ficus syconiore ,* moraceae .

The sycomore was the tree of love God , Hathor . The young people were used to meet under a sycomore tree to receive the blessings of Hathor to their love .

– Oil was obtained from the seeds of e.g *Olea europaea , (oleaceae) •Linum usitatissimum , (Linaceae) , Ricinus communis , Euphorbiaceae , Carthamus tincatorius and Lactuca sativa , (compositae)* .

- Drugs were obtained from : *Papaver somniferum (papaveraceae)* , *Hyosyamus muticus (* Sakaran) , Solanceae) , *Cassia fistula , (* legutninosae) , *Calotropis procera (* Asclepiadaceae) , Citrullus colocynthis (cucurbitaceae) .*Anastatica hierockuntica (cruciferae)* .

– Linen was made from the flex : *Linum usitatissimum*

- Mummy backets were made from *Ceruana pratensis (* compositae) - Wine was made from *Vitis vinifera (vitaceae*) .

- Leguminous foods were including: *Lens esculenta , Lupinus termis , Lathyrus sativus , Vicia faba , Cicer arietinum* .

- *Allium* spp . (*A.cepa , **A.kurrat** A.sativum) (* cruciferae) , were popular foods .

– Papyrus (Burdy) , *Cyperus papyrus* was one of the most famous plants in ancient Egypt . It was sacred plant and the symbol of Lower Egypt . It was used for making boats , baskets etc . but its main use was for manufacturing paper .

- *juncus rigidus , J. acutus* etc . , family juncaceae, were used in making baskets , pens , sandals etc .

- *Cyperus esculentus* , Habb el aziz , is the oldest known food stuff in Egypt . It has been found in the intestines of prehistoric mummies.

DRUG PLANTS

Since ancient days Egypt has been famous for its pharmacognosy. There has been found several papyrus documents dealing with drugs, and Egypt has two gods of Medical Science. One was Amenhotpe, son of Hapu and the otherImhotep. The most famous was the latter. He was originally prime minister to Pharaoh Zoser, physician, architect, and builder of the Step Pyramid at Saqqara, which dates from

the 3rd Dynasty, c.3000 B.C. He was later declared the God of Medical Science and as such was adopted also by the Greeks who called him "Aesculapios".

During the Greek period, c.2000 years ago, there were many famous herbalists dealing with the drug plants of Egypt.

THEOPHRASTOS from Lesbos (d.285 B.C.). He wrote a famous "Enquiry into Plants" which has given us many valuable information about the plant drugs at that period.

DIOSCORIDES was another famous Greek herbalist. His "Materia Medica" appeared in 78 A.D. The Islamic world got acquainted with it when a copy was presented to Abdel Rahman III in Spain by the Roman Emperor in 948 A.D., who sent the monk Nicholas to explain it to the learned world.In A.D. 512 a Byzantine illustrated his book with drawings. These are among the oldest known botanical illustrations, and they have given us the key to which plants the Greek names refer. This valuable manuscript is kept in Vienna.

CALENOS : of Pergamos (Asia Minor) (120-200 A.D.) and ORt' BASIUS, physician to the Roman Emperor, c. 390 A.D.. are two other famous herbalists who have publications from this early period on medicinal plants .

During the early Islamic period we have several great names among oriental herbalists . In the beginning the Christian physicians were the leading, :

THIYADUQ : (d. 708 A.D.) and HUNAIN BEN ISHA) (809877 A.D.) . The latter wrote about 100 original books and 150 translations. He is especially known for his translations of Galleons and Disocrides into Arabic.

From the 10 th cent . onwards the Muslim scholars started leading . Among the most famous of this century are :

RAZI or RAZES (865 - 925 A.D.), a persian muslim who lived in Rayy in Persia, and who together with Ibn Sina are considered the greatest physicain of the Islamic world.

He is the author of not less than 250 books on various subjects, among which 20 volumes on Therapeutics .

From the 10th century are also known IBN GULCUL, Hispano -Moorish physicain of the Caliph Hisham II in Cordoba . And Al MAGUSI (d. 994), Persian-Muslim physician who worte a fine encyclopdia on Medicine , in Arabic called " The Royal" (El-Malaki), later translated into Latin .

From the 11th certury two great scientists should be remembered :

IBN SINA : (980 - 1036), Persian Muslim and among the greates physicians and philosophers of the Islamic world . He wrote a work on medicine with a section on drugs, that has been reprinted in Arabic in modern times .

El - BIRUNI : (963 - 1048), a Muslim at the court of the Sultans of Afghanistan, is considered the most original of all Islamic scientists . He worte an important Materia Medica with plant names in various oriental languages .

In the 12th cent ., there are several outstanding scientists .. The following should be remembered :

MATIMONIDES : (1135 - 1204), from Cordoba. He went to Morocco, later to Egypt as physician to Sultan and his sons . He wrote a book in poisons etc. which was edited in 1940 by M. Meyrhof .

EL I RISI (1100 - 1166), a Muslium prince and famous geographer, who lived as a refugee at the court of the Norman Kings of Sicily . Wrote a phaemacognosy " The Universal Collection " , of which a part has recently been discovered in Istanbul .

AHMAD EL GHAFIOI (d. 1164), from Andalusia, physician, excellent scholar, the most important of all Islamic phramacognosists. Wrote a book on simple drugs gased on own observations and also with quotations from all pharmacological authors at his time . The original book is lost , but an abbreviated copy was found in Cairo and has been puplished by M. Meyerhof and G.P. Sobhy .

In the 13th cent . The most important scholar is :

IBN EL BEITAR : (d. 1248), from Malaga. Travelled in North Africa, died in Damascus, has written a large phamacopoeia in Arabic which has been translated into several European languages . He was considered the greates Islamic phar-macognosist until it was discovered recently that his book is copied almost entirely from that of El-Gfirqi

The phamacopoeias used at present by the Egyptian Attareen .

IBN Sina : (980 - 1036) , see above .

KOHEN EL-ATTAR • Worte in 1245 " The management of the shop " in 25 chapters . Reprinted in numerous editions and still frequently used .

DAWUD OMAR EL ANTAKI (d. 1599). Wrote di!- Meth6- randum for intelligent people " with a list of drugs and medical terms . Reprinted in numerous editions and much favour among Oriental druggists .

There is a modern Egyptian Pharmacopoeia, huge book printed at Cairo University by the Faculty of Pharmacy . This is employed by the modern drug shops in Cairo and deals with the ordinary official drugs, sold in th internationl market . This pharmacopoeia is not yet known by the Attareen who prefer their old traditional books .

SOME COMMON DRUGS ON SALE AT THE ATTAREEN

About 250 drugs are found on sale . Many of then have certainly no value but are merely connected with superstition and ancient traditions . Some of them , however , may have great value . In the Egyption research laboratories investigations of the native drugs is getting on at present in order to discover whether they contain any active principles or not .

During these investigations, the active principle of the seeds of e.g. *Ammi majus* was discovered . The discovery led to the inclusion of the plant in European Pharmacopoeias.

A few of the most well - known drugs on sale at the Attareen are enumerated here .

For fever :

CINCHONA CALISAYA : (Rubiaceae), Qishr el kina , the bark. Exists in red, brown and yellow varieties, the brown is considered the best

For headache :

ECBALLIUM ELATERIUM : (Cucurbitaceae), Faqus al Ho-mar, the root.

Purges : *RICINUS COMMUNIS* (Euphorbiaceae), Kharwa, oil from the seeds . *CASSIA ACUTIFOLIA (Leguminosae),* Senna mekky, leaves, legumes .

SOLENOSTEMMA ARGEL : (Asclepiadaceae), Argel, leaves used for the falsification of the true senna .

CASSIA FISTULA : (Leguminosae), Khiar shanbar, the pulp of the legume .

BRYONIA CRETICA and B. DIOICA (Cucurbitaceae) , Laeba morra, root .

TAMARIND US INDICA : (Leguminosae), Tamr hindy, pulp of legume .

CITRULLUS COLOCYNTHS : (Cucurbitaceae), Handhal, the fruit **Refreshing drinks**

HIBISCUS SABADARIFFA : (Malvaceae) Karkade, calyx and fruits .

ORCHID : (Orchidaceae), Sahleb, the tuberous root .

SALVIA TRILOBA : (Labiatae) and PULICARIA UNDULATA (Compositae); Shy gebl, the leaves a good tea .

ROSA GALLICA : (Rosaceae), Zirr ward, the flowers. Also used in sweets and in outward application for eye diseases .

THYMUS CAPITATUS : (Labiatae), Zater, for scenting tea and as chest medicine .

TAMARINDUS INDICA, See above .

Vermifuge :

CHENOPDIUM AMEROSIOIDES : (Chenopodiaceae) , Nitnah. An oil extracted from the plant used for Ancylostomiases

ARTEMISIA HERBA - ALBA : (Compositae), Shih, the whole plant .

LUPINUS TERMIS : (Leguminosea) , Tirmis, the seed . Toothbrushes.

Toothpicks :

SALVADORA PERSICA : (Salvadoracea) , Meswak. Branches used as toothbrushes .

AMMI VISNAGA : (Umbelliferae) , khilla . Umbelrays used as toothpicks .

For washings :

SAPONARIA OFFICINALIS , GYPSOPHILA ROKEJEKA & SILENE SUCCULENTA : (all Caryophyllacea) Erq halawa, the roots .

GNAPHALIUM LUTEO - ALBUM and G. PULVINATUM : (Compositae) , Sabonetel afrit . The whole plant is put in bath water at Sham en-Nessim .

Also known as Ghara Ajub . For chest diseases :

ADIANTUM CAPILLUS - VENERIS: (Polypodiaceae), Kuzbaret et bir, the leaves

GLYCYRRHIZA GLABRA: (Leguminosae), Erq souss, the roots

ALTHAEA OFFICINALIS: (Malvaceae), khattmiya, root and flowers.

PUNICA GRANATUM: (Punicaceae), Qishr roman, bark and flowers.

ZINGIBER OFFICINALE: (Zangabil), and ALPINIA OFFICINARUM. khlingan (both Zingiberaceae) , roots in hot syrup for cold .

For fattening:,

GLOSSOSTEMON BRUGUIERI : (Sterculiaceae), Moghat, the root .

COLCHICUM RITCHII : (Moringaceae). Habb el bann, the seed an oil from it.

PISTACIA LENTISCUS : (Anacardiaceae), Habba khardra, the fruit .

Diuretic and for bladder stones :

AMMI VISNAGA : (Umbelliferae); khilla , the seeds .

ZEA MAYS : (Gramineae), Shawashi ed-dura, the styles . DAUCUS CAROTA : (Umbelliferae), Bizr gazar, the seeds . PIPER CUBEBA : (Piperaceae) , kababa hindi or kababa sini, the fruits .

It also enters in the native spice Bohar .

Toxic mixtures :

DATURA SUAVEOLENS : (Solanaceae) , Tatura . Also smoked for asthma and bronchitis , the whole plant .

PEGANUM HARMALA : (Zygophyllaceae), Bizr harmal, the seeds and capsules. Vomitive, diuretic , somniferous , sudorigic, emmenagogue .

URGINEA MARITIMA : (Liliaceae) Habb el far, Basal el onsul .

The dried sliced bulbs a rat poison. Also expectorant, cardiac. The seeds used for aphrodisiac purpose .

SEMESCAPUS ANACARDIUM : (Anacardiaceae), Baladher. The resin inside the shell of the fruit for intoxication . Also corrosive for warts, tubers .

HYOSCYAMUS MUTICUS : (Solanaceae) , Sakaran . The leave and seeds are smoken mixed with tobacco for asthma . Narcotic , seeds . Also carminative , diuretic , emmenagogue , powdered in honey for leprosy , etc . Important constituent for intoxicating prepartions

For Evil Eve And Protective Purpose :

ABRUS PRECATORIUS : (Leguminosae), Ain el afrit, the red seed with black spot resembles an eye . It is used powdered , dry for eye diseases ; Shishm ahmar , Also enters in the incense Bokhur .

Protective are also ALOE, Sabara, ALLIUM, Bassal, and TRITICUM , Baraqa el qamh . Also all sorts of incence are frequently used for evil spirits .

For dues :

RUBIA TINCTORUM and *R. CORDIFOLIUM :* (Rubiaceae) , Foua, red dye, root . Also tonic , especially after child's birth .

CARTHAMUS TINCTORIUS : (Compositae), Osfur, flowers a yellow dye .

ALKANNA TENCTORIA : (Boraginaceae), Rigl el hammama . Root gives red dye .

LAWSONIA INERMIS : (Lythraceae), Henna . The powdered leaves yield a brown-red colour .

CURCUKA LONGA : (Zingiberaceae), Oruq sofr. Root yellow dye, also diuretic ,

For tanning :

ACACIA ARABICA (Leguminosae) , Qarad , the pods . Decoction of seeds also for diarrhoea and in poultice for wounds .

Emmenagogue and various other purposes :

ANASTATCA HIEROCHUNTICA (Cruciferae) , Kaff Mariam , the whole plant used in connection with child's birth .

ROSMARINUS OFFICINALIS (Labiatae) , Hassalban , the whole plant . Outward in frictions and fumigation . Inward as a tonic , stimulant , especially for epileptic and paralytc dieseaes .

IRIS FLORENTINA (Iridaceae) Qormet el banaffseg . The rhizome in applications , linments , cataplasms . It is irritant , incisive , detersive . Also used for perfume .

ALOE SUCCOTRINA (Liliaceae) , Sabr murr of Sabr soqottry The gum eaten or smoked Drastic , heating , detersive .

BALSAMODENRON sp . (Burseraceae) , Mourr hegazi . The gum stimulant , astringent , expectorant , balsamic , antispasmodic , etc

Bark Condiments.

CINNAMOMUM ZEYLANICUM (Lauraceae) ; Qirfa . *C. CASSIA (Lauraceae)* , Salikha .

Root condiments :

ZINGIBER OFFICINALE , Zangabil or Ganzabil ,see above .

ALPINIA OFFICINARUM (Zingiberacesae) , Kholingan . *CURCUMA ZERUMBER (Zingiberaceae)* , Zoronbad . **Seed condiments :**

NIGELLA SATIVA (Ranunculaceae) , Habba soda , Habbet el baraqa .

SESAMUM INDICUM (Pedaliaceae) , Simsim . *FOENICULUM VULCARE (* Umbelliferae) , Shammar. *CORIANDRUM SATNUM* , (Umbelliferae) Kozbara *CARUM CARVI (* Umbelliferae) , Karawy

MYRISTICA FRAGRANS (Myristicaceae) , Goz el tib,. *ELET7'ARIA MAJOR (Zingiberaceae)* , Habbahann habashy . *E.CARDAMOMUM (* Zingiberaceae) , Habbahann .

LINUM USTATISSIMUM (Liriaceae) , Bizr Kittan . In poultice for wounds , Plasters

EXPLANTION OF PHARMACOLOGICAL TERMS

Purge , Purgative for cleaning the bowel . Same as laxative .

Vermifuge : expelling intestinal worms .

Astringent : binding together

Diuretice , exciting discharge of durin .

Diaphoretic , exciting perspiration . Detersive , cleaning .

Expectorant , promoting ejection from chest or lungs by spitting .

Antispasmodic , remedy for spasms .

Drastic , acting very strongly, especially about purgatices .

Vomitive or Emetic , causing vomiting .

Stimulant , causing rapid increase of vital energy .

Sudorific , as diaphoretic . Tonic , serving to invigorate . Cardiac , heart - stimulating.

Incisive , Sharp .

Corrosive , to corrode , destroy gradually .

Somniferous , inducing sleep . Narcotic , the same .

Aphrodisiac ,producing sexual desire .

Emmenagogue , Promoting menstruation .

Concerning medicinal plants it is of importance to study how their active principles change with various soil and climatic conditions Our common *Hyoscyamus muticus* from the desert , looses much of its alkaloids when grown under irrgation . Datura - species that are grown in Egypt , loose certain of their alkaloids which they possess when grown in other countries .