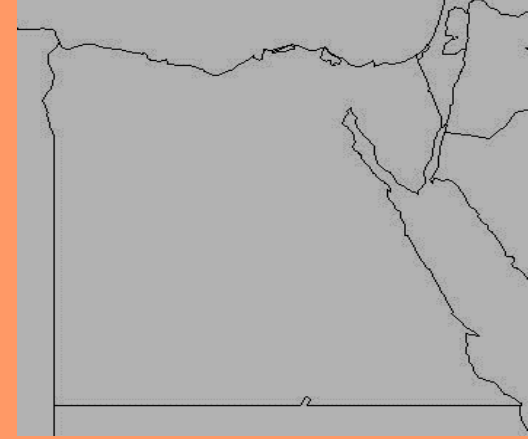


SCIENCE PRESENTATION SERIES

BY

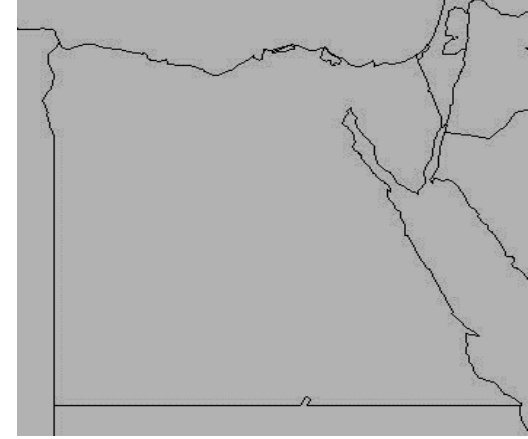
Dr. Rabab A.A. El-Mergawy

© All rights reserved



PALM TREES IN EGYPT





The text of this presentation has been extracted
from

Amer and Zahran (1999). Palm trees in Egypt. The
international conference on Date Palm Nov. 9-11, 1999. Assiut
Univ. 171-189.



1 INTRODUCTION

In Egypt, There are 13 palm species belonging to eight genera.

Palms grow naturally or are cultivated in all coastal & inland desert regions and the Nile Valley & Delta (**Amer and Zahran, 1999**).

Here, I will present a review of :

Naturally growing and cultivated palms in Egypt.

Different localities of date palm cultivation in Egypt.

Different varieties of date palm in Egypt.

Diseases and insects of date palm in Egypt.

Production and needs of date palm in Egypt.

2 NATURALLY GROWING PALMS

Three genera, each is represented by one species:

Hyphaenae thebaica (L.) Mart. (Dom-palm),

Medemia argun (Martius) Wurrtemberg ex H. A. Wendland
(Argune-palm) and

Phoenix dactylifera L. (Date-palm) **(Amer and Zahran, 1999)**.

Hyphaenae thebaica (L.) Mart. (Dom-palm) I

The only representative species of the genus *Hyphaenae* sp. in Egypt.

In the ancient texts , it was mentioned under the name Mana (divided into two) (Amer and Zahran, 1999).

Dom fruits dating back to different ancient periods were excavated from different localities:

Localities	Wadi Kubbanya (northwest of Aswan)	Hierakonopols (Kôm el-Ahmar)	Thebes Tomb	Anna's Tomb	Abu Shaar & Red Sea Coast	South Sinai
Period	18.300 years ago	Predynastic (3500 BC)	18 th dynasty	New Kingdom	Roman time	Islamic period
References	Reviewed in: Amer and Zahran, (1999)					

***Hyphaenae thebaica* (L.) Mart.**
(Dom-palm) II

Nowadays, it is naturally growing in the southern sections of the Eastern Desert, the Western Desert and Sinai Peninsula (Tackholm, 1974; Boulos, 1995).

Cultivated and fruiting in some gardens of Cairo (Amer and Zahran, 1999)..

Uses:

The trunk: Posts, beams, doors, water pipes and furniture.

Leaves and stalks: Roofing, baskets, bags and rope making.

Fruits: Edible and is used in folk medicine (Manniche, 1989) .



Source of the photo:

http://en.wikipedia.org/wiki/Doum_palm

Medemia argun (Martius) Wurrtembergex H. A. Wendland (Argune-palm) I

Argune palm fruits dating back to different ancient periods were excavated from different localities:

Localities	Saqqara tombs	Lahun, Fayyum	Dir El Madina	Thebes
Period	5 th dynasty	12 th dynasty	18 th dynasty	6-7 th century
Reference	Reviewed in Amer and Zahran (1999)			

Medemia argun (Martius)

Wurrtemberg ex H.A. Wendland (Argune-palm) II

It is naturally growing in Dungi Oasis (220 km South West of Aswan) and Nakhila Oasis (200 km West of Aswan) (Tackholm and Drar, 1950; Zahran, 1966; Boulos, 1968; Gibbons and Spanner, 1996).

Now, it is almost extinct in Egypt, there is only one palm in Dungi Oasis of the Nubian desert (Amer and Zahran, 1999).

Uses:

The trunk: Posts, beams, doors, water pipes and furniture.

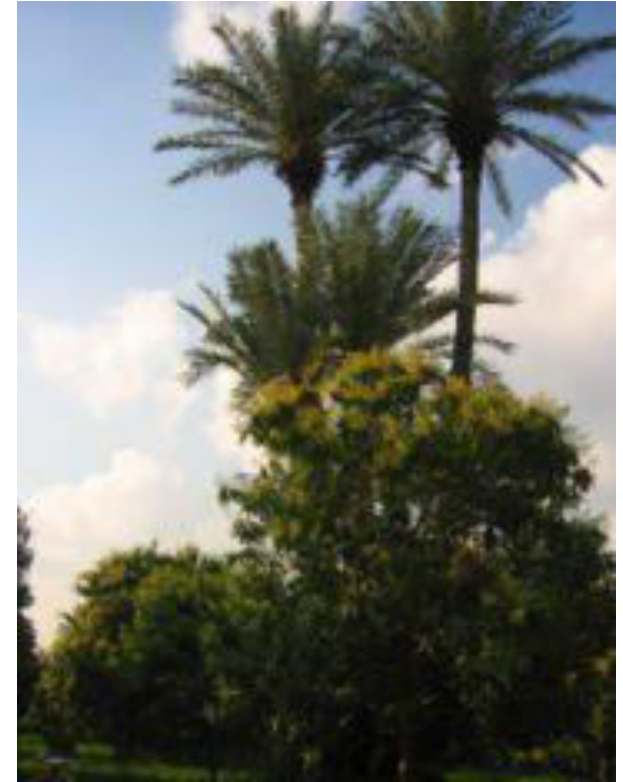
Leaves and stalks: Rope making.

Fruits: Edible (Amer and Zahran, 1999).



Phoenix dactylifera L. (date-palm)

Naturally growing in the Oasis of the Western Desert, Sinai Peninsula, Wadies of the Eastern Desert, Red Sea Coast (**Amer and Zahran, 1999**).



Source of the photos: http://en.wikipedia.org/wiki/Date_palm

3 CULTIVATED PALMS

Introduced palms

18 palm species have been introduced to Egypt since Mohammed Ali time (1805) (Ahmed, 1979).

Only eight feather and two fan palm species succeeded to grow (Amer and Zahran, 1999).

Native palms

Phoenix dactylifera L.

INTRODUCED PALMS

FEATHER PALMS

Syagrus romanzoffianum (formerly *Arecastrum romanzoffianum* Raf., *Cocos plumosa*) Queen Palm

Introduced from Brazil for ornamental purpose.



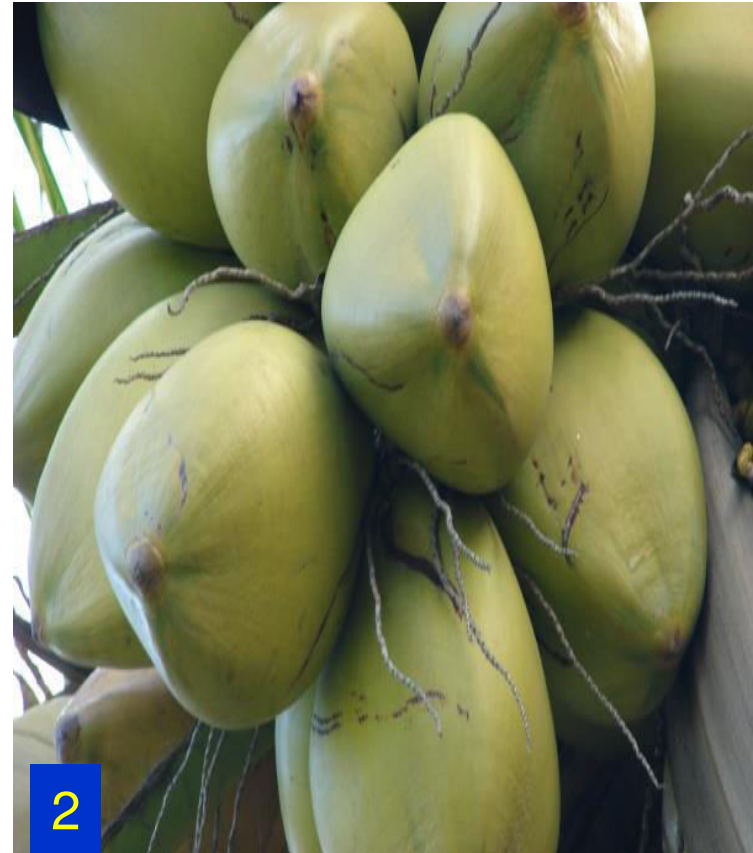
Source of the photos:

1- <http://fr.gardening.eu/plantes/Arbres/Arecastrum-romanzoffianum/87/>

2- <http://floridagardener.com/pom/queenpalm.htm>

Cocos nucifera L. (Coconut palm)

Introduced for its fruit usage



Source of the photos:

1. <http://www.dipbot.unict.it/Les%20Palmiers/Descr01.html>
2. <http://www.hear.org/starr/hiplants>

Elaeis guineensis Jaque. (Oil palm)

Introduced from west tropical Africa for its fruit oil.



Source of the photos:

http://en.wikipedia.org/wiki/Oil_palm

Oreodoxa regia H.B. & K. (Royal palm)

Introduced from Cuba for ornamental purpose



Source of the photo:

http://www.rarexoticseeds.com/Trees_Palms_Shrubs/Graines_Roystonea_Regia_Seeds_Oreodoxa_Regia_Roystonea_Elata_Royal_Palm_Seeds.html

Phoenix canariensis Hort. Ex Chabaud (Canary palm)

Introduced from Canary Island for ornamental purpose.



Source of the photos: http://fr.wikipedia.org/wiki/Phoenix_canariensis

Phoenix loureirii Kunth. (Loureiro's Date Palm)

Introduced from China for ornamental purpose.



Source of the photos: <http://www.pacsoa.org.au/palms/Phoenix/loureirii.html>

Phoenix roebelenii O'Brien (Pygmy Date Palm)

Introduced from Burma for ornamental purpose.



Source of the photos: http://en.wikimedia.org/wiki/Phoenix_roebelenii

Phoenix reclinata Jaq. (wild date palm)

Introduced from Sudan for ornamental purpose.



Source of the photos: http://common.wikipedia.org/wiki/Phoenix_reclinata

FAN PALMS

Washingtonia robusta Wendl.
(Mexican washingtonia)

Introduced from Mexico for ornamental purpose.



Source of the photo: http://fr.wikipedia.org/wiki/Washingtonia_robusta.

Washingtonia filifera (L. Linden) H. Wendl. (American
washingtonia)

Introduced from USA for ornamental purpose.



Source of the photo:

[http://fr.wikipedia.org/wiki/Image:Washingtonia filifera in Palm Canyon.jpg](http://fr.wikipedia.org/wiki/Image:Washingtonia_filifera_in_Palm_Canyon.jpg)

NATIVE PALMS

Phoenix dactylifera L. (date-palm)

In Egypt, date palm tree is the most ancient tree (Bircher, 1990), agricultural operations on date palm, have been known at least since 2500 AC. Its plantation is spread out all over Egypt where irrigated agriculture is possible (Amer and Zahran, 1999).

There are more than 27 cultivars produce different types of dates (Amer and Zahran, 1999).

There are 14 millions trees represent 6.32 % of the fruit cultivated area in Egypt (FAO., 2002).

4 DISTRIBUTION I

The Nile delta:

There is one third of the productive date palm in Egypt (2,000,000 trees).

In this area dates maturation is uncompleted or very slow at the late stage because of the lack of heat and high humidity. For that, dates are harvested in kalal stage when they are still humid and must be eaten rapidly.

The Nile valley (above Cairo to Aswan):

There is half of the productive date palm in Egypt (3,500,000 trees).

More than two-third of these date palms are from seeds, so, they present a high diversity and their date quality is low.

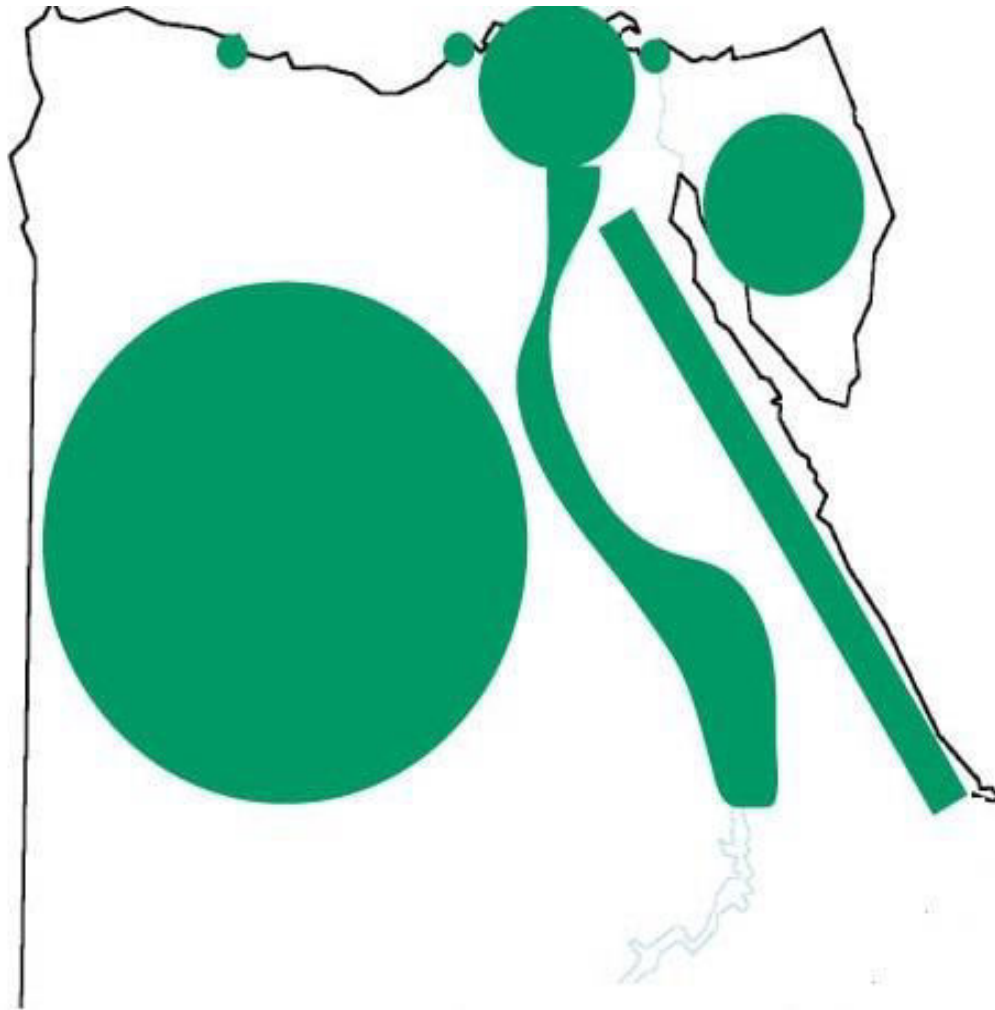
The New valley (succession of depressions extend from the South East to North West of the Western part of Egypt). Various Oasis are located in this valley; Siwa, Al Bahareya, Al Farafra, Al Dakhla, Al Kharga and Al Fayyum.

There are about 700,000 productive date palms. About 50% of them are from seeds. The variety Saidi presents one half of the total number of palms of this area, for its good quality, it is exported to the Nile valley.

Other places: South & North Sinai, along the Red Sea and in Matrouh.

There are about 600,000 trees at these areas (**Amer and Zahran, 1999**).

4 DISTRIBUTION II



5 DATE PALM VARIETIES I

The different varieties of Date palm spread out according to two main different climatic regions:

The Mediterranean region

The Desert region

There are more than 27 native cultivars of date palms in Egypt, They are classified under three types based on the percentage of moisture in the fruits:

Fresh date (Rutab)

Semi-dry date (Agua)

Dry date (Tamr)

5 DATE PALM VARIETIES II

Characterisics	Varieties		
	Fresh date (Rutab)	Semi-dry date (Agua)	Dry date (Tamr)
Moisture content	More than 30%	20-30%	Less than 20%
Majority of sugar contents	Inverted	Inverted	Mainly sucrose
Localities	Nile Delta Mediterranean coast	New valley AlFayyum AlJizah AlSharqiya	Aswan & Qena

Reference: (Amer and Zahran, 1999), <http://www.mazra3a.com/date-palm.html>

Fresh date (Rutab) I

The dates could not be kept at ambient conditions for a long time since they usually deteriorate and ferment.

They are either consumed fresh (Hayany, Zaghloul and Samany), or need to be naturally or artificially matured to become edible (Amhat).

The main varieties are:

Amhat

Bent-Eisha

Hyany

Samany

Zaghlool

Other varieties are:

Bergy

Om-Elferakh

Aloraby (Oraiby)

Holwa (Halawy)

Al-Sergy

Source of the data: (Amer and Zahran, 1999) and <http://www.mazra3a.com/date-palm.html>

Fresh date (Rutab) II

Characteristics	Fresh date varieties				
	Amhat	Smany	Hyany	Bent-Eisha	Zaghlool
Fruit color	Pale yellow turned pale brown	Yellow mottled red	Dark red turned shiny black	Red turned black	Shiny red turned black
Fruit size	3 cm length 2-2.5 cm diameter	5.3-5.8 cm length 2.8-3.5 cm diameter	4-5 cm length 2.5-3 cm diameter	3.5-4 cm length 2.2-2.5 cm diameter	6 cm length 2.5-3 cm diameter
No. of trees	220000	182000	1000000	272000	300000
Average production by tree	70-200 kg	85-300 kg	90-200 kg	80-105 kg	75-130 kg
Marketing	Beginning of September	Mi-September	Mi-August	Beginning of November	Mi-September

Source of the data: (Amer and Zahran, 1999) and <http://aradina.kenanaonline.com/page/3756>.

Fresh date (Rutab) III

Characteristics	Fresh date varieties				
	Bergy	Om-Elferakh	Aloraby (Oraiby)	Holwa (Halawy)	Al-Sergy
Fruit color	Bright Yellow to orange	Dark red	Dark red	Red	Lemon yellow
Average production by tree	> 150 kg	130-180 kg	100-120 kg	120 kg	
Marketing	End-October & November	December	Mi-November		

Source of the data: <http://www.mazra3a.com/date-palm.html>

Fresh date (Rutab) IV



Amhat



Samany



Hyany



Bent-Eisha



Zaghlool

Source of the photos: <http://www.mazra3a.com/date-palm.html>

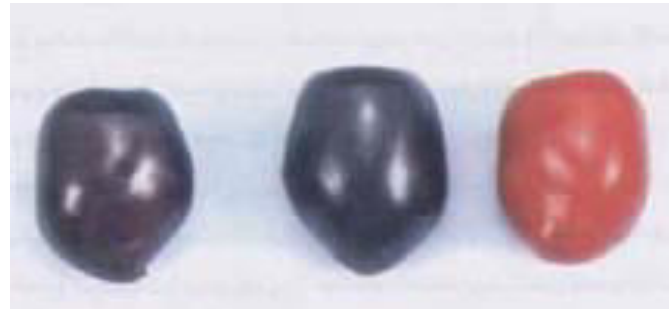
Fresh date (Rutab) V



Bergy



Om-Elferakh



Aloraby

Source of the photos: <http://www.mazra3a.com/date-palm.html>

Semi-dry date (Agua) I

The dates can be preserved longer because of their high content of soluble solids and low moisture content.

The main varieties are:

Siwy or Saidy

located in the New Valley, Al-Bahareya Oasis, Al Fayyum and Al Jizah governorates.

Amry

located around Facous and Abou Kabir, in Ash Sharqiya governorate.

Aglany

principally located in Ash Sharqiya governorate.

Hegazy-Abyad

Located in Al Kharga and Al Dakhla Oases.

Reference: (Amer and Zahran, 1999) and <http://www.mazra3a.com/date-palm.html>

Semi-dry date (Agua) II

Characteristics	Semi-dry Dates Varieties			
	Siwy (Saidy)	Amry	Aglany	Hegazy-Abyad
Fruit color	Yellow	Orange turned dark brown	Lemon yellow turned dark	Dark yellow turned olive yellow
Fruit size	3.5-4 cm length 2-2.5 cm diameter	5-5.5 cm length 2-2.5 cm diameter	3.5-4 cm length 2-2.5 cm diameter	4-4.8 cm length 2.2-2.3 cm diameter
Average production by tree	90-150 kg	70-100 kg	40-80 kg	

Semi-dry date (Agua) III



Siwy (Saidy)



Amry



Aglany



Hegazy-Abyad

Source of the photos: <http://www.mazra3a.com/date-palm.html>

Dry date (Tamr) I

They can be kept for a very long time under normal ambient temperature.

The main varieties are:

Berkawy (Sakkoty or Ebremy)

Gondaila

Gargooda (Qarqouda)

Malkaby

Bartamoda

Shamiya

Dagna

Reference: (Amer and Zahran, 1999) and <http://www.mazra3a.com/date-palm.html>

Dry date (Tamr) II

Reference: Amer and Zahran, 1999 and <http://www.mazra3a.com/date-palm.html>

Characteristics	Dry date varieties						
	Berkawy (Sakkoty or Ebremy)	Gondaila	Gargoada (Qarqouda)	Malkaby	Bartamoda	Shamiya	Dagna
Fruit color	Orange turned brown tip & yellow base	Lemon yellow turned brown	Lemon yellow turned brown	Red	Orange mottled red turned pale brown	Light brown	Lemon yellow turned pale brown
Fruit size	4-5 cm length <1.5 cm diameter	4-4.5 cm length 2.2-2.5 cm diameter	3-4 cm length 1.5-2 cm diameter	5-5.6 cm length 2.5 cm diameter	5-6 cm length 1.6-2 cm diameter	6-8 cm length 2.5-3 cm diameter	2.5-3 cm length 1-1.5 cm diameter
Average production by tree	55 kg	25-35 kg			30-60 kg		

Dry date (Tamr) III

Source of the photos: <http://www.mazra3a.com/date-palm.html>



Berkawy
(Sakkoty or Ebremy)



Gondaila



Gargoada
(Qarqouda)



Malkaby



Bartamoda



Shamiya

6 DISEASES OF DATE PALM IN EGYPT I

Infloriscence rot

Manginiella scaettae Cav.

Thielaviopsis paradoxa

Fusarium moniliform

Leaf spot of date palm

Thielaviopsis paradoxa

Botryodiplodia theobromae

Cladosporium sp.

Alternaria alternata

Fusarium sp.

Fruit rot

Alternaria sp.

Fusarium sp.

Cladosporium sp.

Aspergillus sp.

Penicillium sp.

Botryodiplodia sp.

Rhizopus sp.

Helminthosporium sp.

Thielaviops paradoxa

Diplodia leaf base rot

Botryodiplodia theobromae

Diplodia phoenicum



Source of the photo: <http://aradina.kenanaonline.com/page/3757>

6 DISEASES OF DATE PALM IN EGYPT II

Root rot of date palm

Fusarium sp., *Omphalia* sp.

Armellaria mellea, *Pythium* sp.

Macrophomina sp. & *Rhizoctonia* sp.



Source of the photo: <http://aradina.kenanaonline.com/page/3757>

6 DISEASES OF DATE PALM IN EGYPT III

Bending head

Thielaviopsis paradoxa

Botryodiplodia theobromae



Source of the photos: <http://www.mazra3a.com/date-palm.html>

Graphiola leaf spot

Graphiola phoenicis



Source of the photos: <http://aradina.kenanaonline.com/page/3757>

6 DISEASES OF DATE PALM IN EGYPT IV

Black scorch
Thielaviopsis paradoxa



Source of the photo: <http://aradina.kenanaonline.com/page/3757>

7 INSECT OF DATE PALMS IN EGYPT

Rhynchophorus ferrugineus, Curculionidae, Coleoptera.

Macrotoma palmata, Cerambycidae, Coleoptera.

Phonapate frontalis, Bostrichidae, Coleoptera.

Parlatoria blanchardii, Diaspididae, Homoptera.

Phyllgnathus excavatus, Scarabaeidae, Coleoptera.

Amitermis desertorium, Termitidae.

Psamotermis hypostom, Hodotermitidae.

Batrachedra amydraula, Momphidae, Lepidoptera.

Ephestia Calidella, Pyralidae, Lepidoptera.

Ephestia cautelia, Pyralidae, Lepidoptera.

Coccotrypes dactyliperda, Scolytidae, Coleoptera.

8 PRODUCTION OF DATE PALM IN EGYPT

- *The date palm culture in Egypt is always associated with other crops.
- *The high yield can be explained by two main reasons:
 - A good access to water, particularly because the palm trees in Egypt benefit always from the irrigation of associated crops.
 - The extension of the date palm cultivated areas in Matrouh, New Valley, Sinai, Red Sea, Nobareya, Tushka, Owainat and the new reclamation lands.
- *About half of the production constituted of soft dates, that means fruits that contain more than 50 % of water.
- *Egypt importing dates to answer to its internal demand.
- *As large part of the production is consumed as fresh fruits (soft varieties), an important percentage of the needs cannot be covered outside the short harvest period.

Reference: (Amer and Zahran, 1999), <http://www.mazra3a.com/date-palm.html> and F.A.O., 2002.

9 REFERENCES

- Ahmed MM. (1979). Study on the distribution of indigenous species of Palmae in Africa and adaptation of some African species growing under Cairo environment. Ph.D. thesis, pp. 309. Institute of African Research and Studies. Cairo University, Egypt.
- Bircher WH. (1990). The date palm; A Boon for Mankind. pp. 100; Cairo University Herbarium, Egypt.
- Boulos L. (1968). The discovery of Medemia palm in the Nubian desert of Egypt. Bot. Notiser. 12: 117-120
- Boulos L. (1995). Flora of Egypt. Checklist. P. 208. All Hadara publishing, Cairo, Egypt.
- Gibbons M. and Spanner T.W. (1996). Medemia argun Lives. Principes 40 (2): 65-74.
- Manniche L. (1989). An ancient Egyptian Herbal. P. 133-134. British Museum publication LTD.
- Tackholm V. (1974). Students' flora of Egypt. P. 763, Beirut, Lebanon.
- Tackholm V. and Drar M. (1950). Flora of Egypt. Vol. II: 164-354. Cairo University press.
- Zahran MA. (1966). Ecological study of Wadi Dunql. Bull. Inst. Desert. Egypt. (1): 127-143.
- Amer, WM. And Zahran, MA. (1999). Palm trees in Egypt. The international conference on Date Palm Nov. 9-11, 1999. Assiut Univ. 171-189.
- <http://ressources.ciheam.org/om/pdf/a28/96605879.pdf>
- http://www.pubhort.org/datepalm/datepalm1/datepalm1_21.pdf
- <http://www.mazra3a.com/date-palm.html>
- <http://www.plantsciences.ucdavis.edu/GEPTS/pb143/CROP/Date/Date.htm>
- <http://www.fao.org/docrep/006/y4360e/y4360e00.htm>
- <http://aradina.kenanaonline.com/page/3757>