

## MITES INHABITING DATE PALMS

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### ABSTRACT

Mites inhabiting date palms in Egypt were studied for two years (1998-2000). During this study, 16 species of mites belonging to 11 families were collected. These mites were classified according to their feeding habits into three categories: 7 species plant feeders, 6 species predacious and 3 species with miscellaneous feeding habits.

### INTRODUCTION

Date palm (*Phoenix dactylifera*) are distributed all over Egypt, reaching about 7.25 million female trees, that produced 677.93 tons of dates. This gives an average of 93.55 Kg. /female palm. According to the geographical variations in Egypt, date palm trees differ within each location Soft dates are distributed in (Behera; Alexandria; Kafr-El-shech; Sharkia and Damiata within Lower Egypt Governorates). They are planted with Zahlol; Samani; Hayyani; bint aisha and Madjoul varieties. Semi-dried dates (Siwi, Amry and Agalani varieties) are planted in Giza; Matroh and El-Wadi El-Gaded Governorates. Dried dates (Apremy; Bracawy; Partomoda; Gondella and Malacapy varieties) are was distributed in Aswan Governorate while, Tammer was planted in El-Wadi El-Gaded Governorate.

In Egypt some trials were carried out by Sayed (1940, 1942 and 1950b) and Attiah (1956) to study incidence of certain mite species on date palm in some Governorates. The aim of this study is to shed more lights on the incidence, distribution, and some ecological aspects of mites inhabiting date palm all over the country.

### MATERIAL AND METHODS

During two successive years, from September 1998 to August 2000, samples of leaves; fibers and dates were collected from date palm orchards, then sent to the laboratory for examination.

## RESULTS AND DISCUSSION

### (1) **Phytophagous mites:**

Members of the families Tetranychidae; Tenuipalpidae and Eriophyidae are plant feeders of considerable economic importance. Of these, 7 mite species belonging to 7 genera and 3 families were recorded (Table 1):

#### **Family- Tetranychidae Donnadieu:**

Two species representing the family Tetranychidae were found. The mite date palm *Oligonychus afrasiaticus* (McGregor), was collected in high numbers all over the country. A heavy deposit of fine webbing collects dust, This species feeds along the midrib on the lower surface of leaves, causing yellowish patches at the points of attack. Feeding on dates produces scar tissue on date skin, causing it to harden, crack and shrivel with subsequent reduction in the grade of the fruit. Population on dates begins to increase in June and Peak in July and August. Number of this species generally decrease during winter. Adults become deep green, while over wintering forms are bright green. Mites live during the cooler winter months on grasses.

The date palm leaf brown mite *Eutetranychus orientalis* (Klein) causes injury to leaf date palm. Feeding by this species on the upper leaf surface produces a multitude of gray spots, which gives leaves a chlorotic appearance. Infested leaves weaken and finally drop. *E. orientalis* was recorded from Giza, Fayome, Matroh. El-Wadi El-Gaded Sinia and Aswan Governorates in moderate number on leaves of date palm.

**Table (1) Incidence of phytophagous mites collected from date palm.**

Families	Species	Governorates	Habital and abundance
Tetranychidae	<i>Oligonychus afrasiaticus</i> McGregor	All Governorates, which planted, date plam.	Lower surface of leaves <sup>+++</sup> - fruit <sup>+++</sup>
	<i>Eutetranychus orientalis</i> (Klein)	Giza, Fayome, Matroh, El-Wadi Elgaded, Sinia and Aswan.	Leaves <sup>++</sup>
Tenuipalpidae	<i>Raoiella indicae</i> Hirst	All Governorates, which planted, date palm.	Leaves <sup>++</sup> Fruit <sup>+++</sup>
	<i>Brevipalpus phoenicis</i> (Geijsk)	Lower Egypt Governorates	Leaves <sup>+++</sup>
	<i>Phyllostetranychus aegypticus</i> Sayed	All Governorates	Leaves <sup>+++</sup>
Eriophyidae	<i>Mackiella phoenicis</i> Keifer	Behera; Alexandria; and Kafre El-Shiech	Leaves <sup>+++</sup> Buds <sup>+++</sup>
	<i>Retracrus johnstoni</i> Keifer	All governorates	Leaves <sup>+++</sup>

+++ High population    ++ Moderate population    + Low population

### **Family Tenuipalpidae Berlese**

The incidence of date mite, *Raoiella indicae* Hirst was recorded in high number on date in all Governorates which planted date palm. While it was observed in low number on leaves of date palm. This species is generally abundant on date palm September to March, except when heavy rains occur during November to January. Starting in April, there is normally a decline in population, which continuous through August. Date palm red flat mite *Brevipalpus phoenicis* (Gijsk), infests leaves, shoots, bunches and fruits. It prefers the lower surface around the midrib or any places which are protected. By sucking the plant sap, the injured areas become pale then change to rusty brown. When infestation is heavy, the leaves become dry and fall off and brownish areas appear

on the fruits of dates. This species was recorded in high number on leaves of date palm in Lower Egypt.

The incidence of mite, *Phyllozetanymus aegypticus* Sayed was observed in high number on leaves of date palm, all over Governorates which planted the date palm in Egypt. Injury to trees by this mite appears as a reddening of the upper surface of the leaf. The reddened area may be either a small blotch or many such blotches that often encompass the entire leaf surface, eventually resulting in complete defoliation of affected trees. Heavy mite infestations produce sufficient webbing. High temperature and limited rainfall favor mite development.

#### **Family – Eriophyidae Nalepa:**

Two species representing the family Eriophyidae were found . Date palm bud mite *Mackiella phoenicis* Keifer, occurs on date palm in folds in emerging fronds and buds. Also, this mite causing malformation for old fronds of date palm, then the leaves become dry and fall off.

*M. phoenicis* was recorded in high number on old fronds and buds in Behera, Alexandria, Kafre El-Shiech Governorates.

The incidence of mite, *Retracrus johnstoni* Keifer makes black blotches on the under sides of fronds. The mite secretes copious amount of flocculent waxy covering, which is usually scattered, on the black blotches of the host. This acarine defaces the fronds of a palm. *R. johnstoni* is an important pest on date palm. This species was observed in all governorates in Egypt in high number on leaves of date palm.

#### **(2) Predaceous mites:**

Predaceous mite species of 5 genera and 5 families were collected Table (2), these are:

#### **Family – Phytoseiidae Berlese**

Members of the family Phytoseiidae are usually, expected to be found associated with both mites and insects infestations Yousef and El-Halawany (1982); Yousef et al. (1984); Kandeel et al. (1994) and Abdel- Samad et al. (1996).

*Amblyseius swirskii* (A.-H.) was recorded in high number associated with phytophagous mites, scale insects and bug in all date palm orchards in Egypt. *Amblyseius cydnodactylon* Shehata and Zaher

was found in moderate number on seedling palm in Governorates of Lower Egypt.

### Family- Stigmaeidae Oudemans

Zaher and El-badry (1962); Yossef and Shehata (1971); El-Halawany and El-Naggar (1984); Yousef (1990) and Abou-Awad and El-Sawi (1993), indicated that members of the family stigmaeidae are associated with phytophagous mites and insects infestations.

**Table (2) Incidence of predaceous mites collected from date palm.**

Families	Species	Governorates	Habital and abundance
Phytoseiidae	<i>Amblyseius swirskii</i>	All Governorates	Leaves <sup>+++</sup>
	<i>Amblyseius cydnodactylon</i>	Lower Egypt	Leaves <sup>++</sup>
Stigmaeidae	<i>Agistemus exsertus</i>	All Governorates	Leaves <sup>+++</sup>
Eupalopsellidae	<i>Saniosulus nudus</i>	All Governorates	Leaves <sup>+++</sup>
Cheyletidae	<i>Cheletogenes ornatus</i>	All Governorates	Leaves <sup>+++</sup>
Hemisarcoptidae	<i>Hemisarcoptes malus</i>	All Governorates	Leaves <sup>++</sup>

+++ High population    ++ Moderate population    + Low population

*Agistemus exsertus* Gonzalez seemed to be the most important stigmaeid mite on date palm trees occurring in all orchards in Egypt. It was recorded in high number.

### Family – Eupalopsellidae Willmann:

*Saniosulus nudus* Summers was found in high number associated with scale insects, in all date palm orchards. (Yossef and Shehata (1971).

### Family- Cheyletidae

A single species, *Cheletogenes ornatus* (C.& F.) was observed with phytophagous mites and scale insects infestation. It was found in high number in all Governorate, which planted date palm.

### Family – Hemisarcoptidae

*Hemisarcoptes malus* Shimer was found in moderate numbers with scale insects in all over Egypt.

### (3) Mites with miscellaneous feeding habits:

During this study, 3 species belonging to 3 genera and 3 families were recorded (Table3).

#### Family –Tarsonemidae Kramer:

*Tarsonemus setifer* Ewing, was recorded in moderate numbers from leaves in different localities which planted date palm.

#### Family – Tydeidae Kramer:

The mite, *Tydeus californicus* Banks was found in high number from leaves on date palm in Egypt.

#### Family- Acaridae Leach:

*Tyrophagous putrescentiae* McGregor was recorded in low number on leaves and fruit in all Governorates.

**Table (3) Incidence of mites of uncertain feeding behavior from date palm**

Families	Species	Governorates	Habital and abundance
Tarsonemidae	<i>Tarsonemus stifer</i> Ewing	All Governorates	Leaves <sup>+++</sup>
Tydeidae	<i>Tydeus californicus</i> (Banks)	All Governorates	Leaves <sup>+++</sup>
Acaridae	<i>Tyrophagous putrescentiae</i> Mc Gregor	All Governorates	Leaves <sup>+</sup> - fruit <sup>+</sup>

+++ High population ++ Moderate population + Low population

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