

MITES ASSOCIATED WITH PEAR TREES IN EGYPT

(*Acarina*)

(with 16 Text-Figures)

by A. K. WAFI, Z. R. SOLIMAN,

Department of Plant Protection, Faculty of Agriculture, Cairo University,

and M. H. EL-KADI,

National Research Centre, Egypt.

INTRODUCTION

Many mite species cause injury to pear trees. Others are predatory and may affect the yield by contributing to the natural control of injurious insects and mites. Some are scavengers and fungus feeders and are relatively important to pear production.

In this paper nine species are recognized from pear trees, including a new species and two others which were unrecorded from Egypt.

Plant feeding mites

Members of this family usually feed on plant leaves. They have needle-like cheliceral stylets that pierce the epidermis and cause a silvery appearance that later becomes rusty.

Two species of this family were recorded.

Panonychus ulmi (Koch) (figs. 1 and 2).

This species represents one of the most important mite infesting deciduous fruit trees in many parts of the world. It can be distinguished in the field by its red body, the dorsal setae set on long white tubercles, 4th. dorsal seta longer than 4th. marginal, clunal (or 5th. dorsal) shorter than 4th. marginal seta, empodium claw-like without tenent hairs. The species lives on the upper surface of the leaves.

Occurs in all fruit growing areas, between 30 and 60° latitude.

Tetranychus cinnabarinus (Boisduval) (fig. 3).

This mite varies in colour from reddish to red. It can be recognized by having two pairs of para-anal setae, a rayed empodium without tenent hairs, the duplex setae of tarsus I well separated, and pad-like claws with tenent hairs.

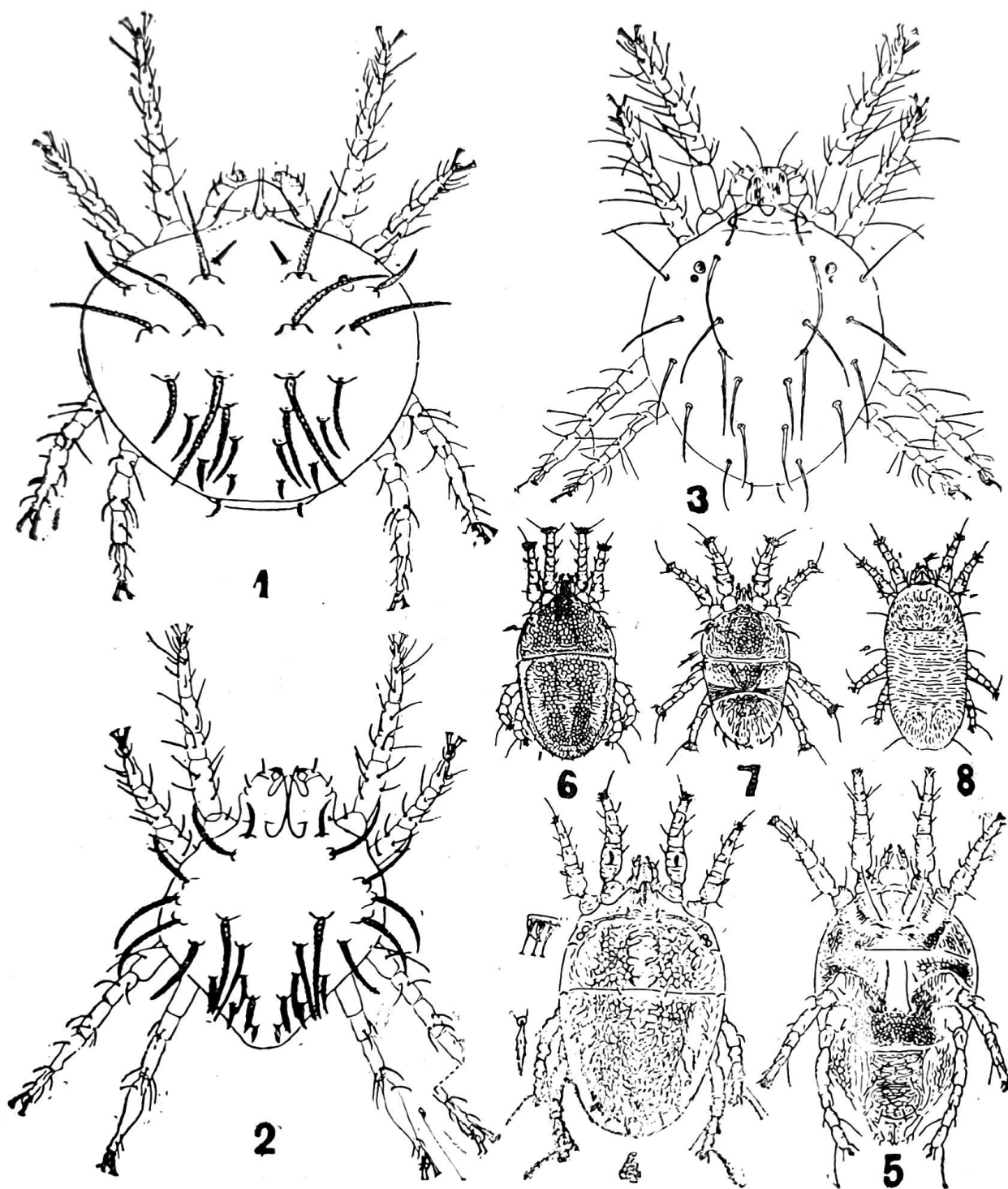


Fig. 1: *Panonychus ulmi* (Koch), adult female. — Fig. 2: The same, adult male. — Fig. 3: *Tetranychus cinnabarinus* (Boisduval), female, dorsal view. — Fig. 4: *Brevipalpus obovatus* (Donnadieu), female, dorsal view. — Fig. 5: The same, ventral view. — Fig. 6: *Cenopalpus pulcher* (C. and F.), female, dorsal view. — Fig. 7: The same, male, dorsal view. — Fig. 8: The same, nymph, dorsal view.

This species is considered to be a serious pest of fruit trees.

Tenuipalpidae

The mites of this family are plant feeders of very small size. A suture may or may not separate the propodosoma and hysterosoma.

Brevipalpus obovatus (Donnadieu) (figs. 4 - 6).

This species may be recognized by having five dorso-lateral hysterosomal setae, the dorsum of the propodosoma with irregular transverse striation medially, and rather even reticulations medio-laterally. The marginal setae are short, lanceolate and serrate. Males are rarely encountered.

The nymph has the third dorsal propodosomal seta and the last three dorso-lateral hysterosomal setae all similar in length, rather broadly lanceolate and serrate.

The larva has the first dorsal propodosomal seta very short ; the second moderately long, lanceolate, and serrate ; the third long, lanceolate and serrate ; humeral seta very small or strongly developed ; the first and second dorso-lateral hysterosomal setae small ; and the first dorso-lateral seta very long and flagelliform.

Cenopalpus pulcher (C. and F.) (figs. 7 and 8).

This species may be distinguished by having the dorsum of the body reticulate and the dorsal setae tapering. Female nymph propodosoma with dorsal setae setiform. Hysterosoma with one pair of dorso-lateral setae and with 0, 1, or two pairs of dorso-sublateral setae.

Predaceous mites

Cheyletidae

The Cheyletidae, as a whole, are free living predators, although some are found in bird feathers. The free-living forms live in association with infestation of other mites, such as Acaridae and Tetranychidae and with scale insects.

This family may be recognized by having the thumb claw complex well developed, cheliceral bases closely fused with gnathosoma and without indication of suture ; peritreme present and usually M-shaped. The single species found on pear is small, broadly spindle to oval in outline and plump in profile.

Cheletogenes ornatus (C. and F.) (fig. 9).

This species is characterized by having two sickle and two comb-like setae on the palpal tarsus ; eyes lens-like ; leg I a sensory organ without claws ; anterior shield covering most of the propodosoma ; hysterosomal shield not touching anterior shield, legs short. The male is similar to the female but has a large rod-like sensory seta on tarsi III and IV.

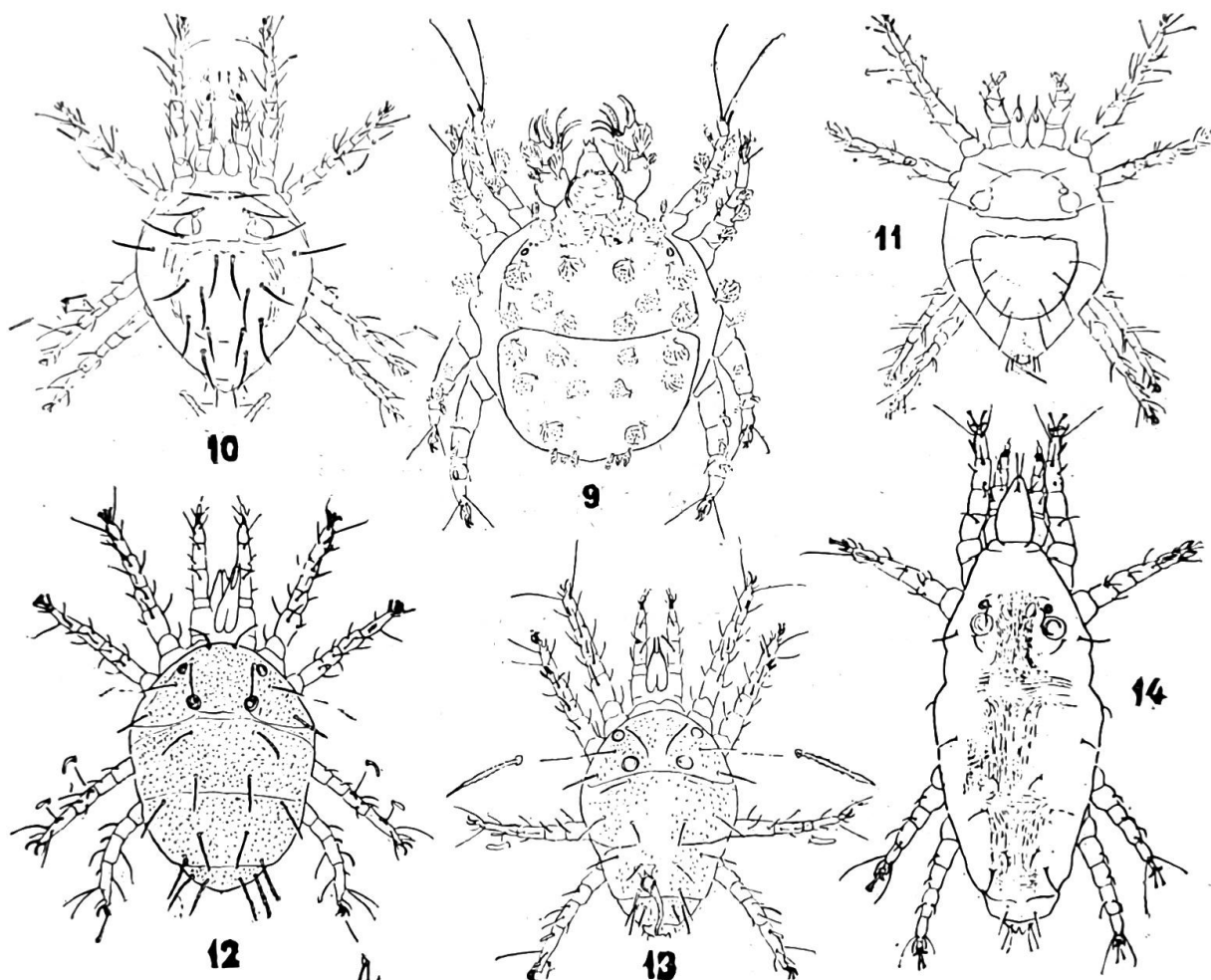


Fig. 9 : *Cheletogenes ornatus* (C. and F.), female, dorsal view. — Fig. 10 : *Agistemus exsertus*, female, dorsal view. — Fig. 11 : The same, male, dorsal view. — Fig. 12 : *Eupalopsis aegyptiaca*, female, dorsal view. — Fig. 13 : The same, male, dorsal view. — Fig. 14 : *Saniosulus nudus* (Summers), female, dorsal view.

Stigmaeidae

This family can be recognized by having the chelicerae short, not curved basally, fused with each other but not with gnathosoma ; gnathosoma with thumb claw complex ; peritreme not extending into chelicerae ; coxae arranged into two distinct groups (I - II and III - V) ; female genital anal openings contiguous. Two species were recorded on pear trees.

Agistemus exsertus (Gonzales) (figs. 10 and 11).

The characters of this species may be found in the long setae on tarsus I, II and III ; dorsal setae are long and serrate and reach the base of the setae of the next row ; the propodosomal shield is wider than long ; the hysterosomal shield is longer than wide, possesses five pairs of setae and other posterior setae set on platlets ; anterior pair of eyes quite small, posterior eyes enormous. The male has an aedeagus, strong tarsal sensory setae on legs I and II, dorsal setae II and III of the hysterosoma shorter than two marginal setae.

Eupalopsis aegyptiaca Zaher and Soliman (figs. 12 and 13).

Anterior eyes relatively small, and small posterior eyes. The cheliceral bases are fused with the anterior inner margin. The propodosomal shield covers the entire propodosoma ; setae are strongly serrate, reaching or surpassing the bases of the setae of the next row ; the hysterosomal setae are similar to those of the propodosoma. The males are similar to the females ; however, in addition to possessing an aedeagus, the sensory rods on tarsus I and II are stronger than those of the female, the sensory organs of tarsi III and IV are as strong or stronger than those of legs I and II, and those of tibiae III and IV are small and of moderate length.

Eupalopsillidae

A group of mites characterized by having the chelicerae bases fused and the distal seta of the palpus single and simple.

Saniosulus nudus (Summers) (fig. 14).

Body striated, without dorsal plates, the striation pattern in general except for the area of the propodosoma and hysterosoma and behind dorsal seta II and between lateral seta III and dorsal seta III. Genital and anal region contiguous. Sensory setae of tarsus I and II strong ; sensory setae of tibia and tarsi III and IV short and strong ; anterior propodosoma setae situated in more lightly striated area. The anterior pair of eyes is small and somewhat elliptical ; the posterior pair is large and round.

Male similar to the female, but differs in narrowing posteriorly and possessing an aedeagus. The tarsal sensory rods are stronger than those of the female in legs I and II. Tarsus I and II each possess a pair of sense organs. The sensory organ on tibia III is small, that on tarsus III is large and similar to the sensory organ of leg IV.

Hemisarcoptidae

Small mites, long, somewhat egg-shaped but with nearly parallel sides in outline and flattened in profile ; body covering soft and body hair hardly

visible. Front legs short, hind legs very short, extending just beyond the sides of the body. Bright yellow in colour and nearly always found under scale insects feeding on them and on their eggs.

Hemisarcoptes malus (Shimer) (fig. 15).

Female first pair of legs with strong, short, distal spines and bell-shaped caruncle without claws; genital and anal openings contiguous, genital discs small; dorsal body setae small; one pair of long posterior setae.

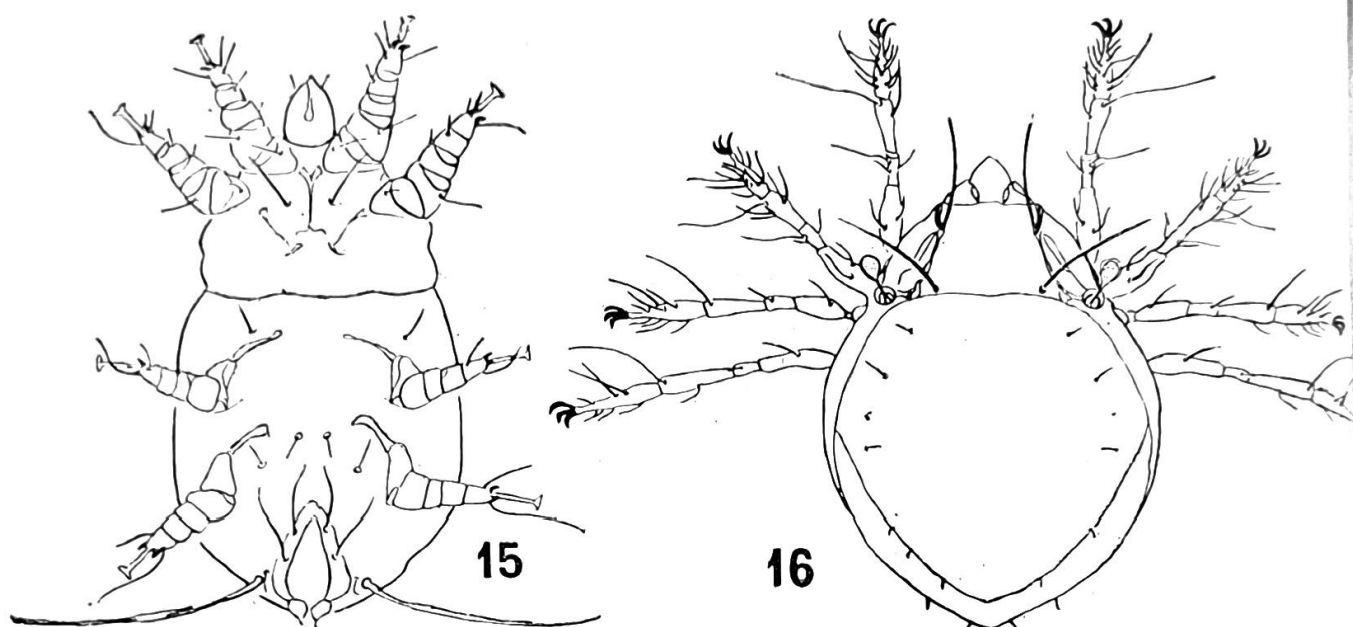


Fig. 15 : *Hemisarcoptes malus* (Shimer), female, ventral view. — Fig. 16 : A sarcoptiform mite, female, dorsal view.

Fungus feeding mites

Sarcoptiformes (fig 16).

Commonly found on trunks or under trees, but several species were found on leaves and fruits of unsprayed pear.

Adults have a shining, leathery body covering and are of moderate to large size. Most individuals are light to dark brown in colour. Body hairs present but hardly visible. Larvae or nymphs lack the hard body covering and frequently have visible hairs.

Members of this group are scavengers or fungus feeders and of economic importance.

Acknowledgments

The authors are grateful to Dr. E. W. Baker, of the U. S. Entomology Research Division, for identifying the specimens and for his helpful suggestions. Thanks are also due to Dr. Francis M. Summers, of Entomology Department of the University of California, for identifying the Rhaphignathoid mites.