First Record in Egypt of two Thrips Species Infesting Cucumber Crop

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Abstract: Field survey was made in four successive cucumber plantations (sown in mid April and mid August, 2010/2011) in Giza, Egypt. Direct inspection of weekly leaf samples revealed that two thrips species *Chirothrips texanus* Andre and *Thrips palmi* Karny were detected for the first time in Egypt, in addition to *Thrips tabaci* Lindeman and *Frankliniella occidentalis* (Pergande). The highest number of thrips species was recorded in August plantations for *Thrips tabaci* (923 individuals/25 leaves) followed by *Ch. texanus* (679 individuals/25 leaves). *F. occidentalis* recorded the lowest number (368 individuals/25 leaves). The present finding updates the list of thrips species in Egypt.

Key words: *Chirothrips texanus* • Cucumber • Thrips • *Thrips palmi*

INTRODUCTION

Cucurbitaceae and especially cucumber are important vegetable crops in Egypt. Approximately 180,000 feddans (one feddan = 0.42 ha) are cultivated with cucumber every year [1]. It is common practice to cultivate cucumber in successive plantations for local consumption as well as export. All plantations are infested with piercing sucking insects such as aphids and thrips. These insects may cause serious damage to host plants either directly by feeding on sap or indirectly through transmitting the causative agents of virus diseases especially thrips-transmitted viruses [2]. Worldwide, out of 5500 thrips species, only one percent is described and about ten species have been confirmed as vectors of plant viruses [3]. Thrips are known as efficient vectors of Tospoviruses, a few species known in Egypt like *Thrips tabaci* Lindeman and *Frankliniella occidentalis* (Pergande) [4]. The present investigation reports a new record in Egypt of two thrips species on cucurbits.

MATERIALS AND METHODS

Thrips specimens were collected at random in the Giza region from cucumber plants during two plantations sown in mid April and mid August, 2011. Samples were made weekly by collecting 25 leaves (5 leaves/plant) and dusting them on a white paper sheet. Thrips were collected, categorized, counted and kept in 70% ethanol until examination by stereo-microscopy [5]. The specimens were prepared by temporarily mounting in Hoyer's medium [6]. Illustrations were made by projecting the specimens under a microscope at magnifications of 10, 40, 100 times. Morphological identification of the adult thrips was carried out with Morphological key (Thrips ID) based on the Lucid professional software [7], as well as the key to the thrips on seedling cotton in the Midsouthern United [8].

RESULTS

Fig. 1a & b shows the seasonal abundance of the surveyed thrips species during 2010/2011 cucumber plantations. The sampling revealed the occurrence of 4 thrips species, namely; *T. tabaci*, *F. occidentalis*, *T. palmi* and *Ch. texanus*. The following are the morphological description upon which the newly recorded thrips, *T. palmi* [7] and *Ch. texanus* [8] are identified.

**Thrips Palmi:** is almost entirely yellow in color (Fig. 2), has a clear yellow body with no dark areas on the head, antenna always seven-segmented, segments I, II pale and III yellow with apex shaded (Fig. 3), postocular setae II and IV much smaller than remaining setae, ocellar setae III
standing either just outside of the ocellar triangle (Fig. 4), IV to VII brown but usually with base of IV–V yellow; forewings uniformly slightly shaded, prominent setae dark (Fig. 5), thorax or abdomen (slightly thickened blackish body setae); Forewing first vein with three (occasionally two) distal setae. Abdominal tergites III to IV with setae, abdominal tergite VIII with complete posteromarginal comb, long and fine, abdominal tergite IX usually with two pairs of pores (campaniform sensilla) (Fig. 6).

**Chirothrips Texanus:** The body is almost dark brown in coloration, head and pronotum with numerous short spines, only the posteroangular setae long (but difficult to see) (Fig. 7), second antennal segment extruded to one side distally (Fig. 8), in the thorax pronotum trapezoidal (Fig. 9), forelegs massive (Fig. 10), Forewing without veins or any seta, the abdominal tergite IX, two pairs of campaniform sensilla (Fig. 11).

**Seasonal Abundance of Thrips in Two Seasons**

The field survey revealed that

*T. Tabaci:* Occurred on cucumber in April plantations and increased gradually to reach its maximum in the end of May (138 and 101 individual/25 leaves, for both seasons respectively). In August plantations, of both seasons, *T. tabaci* recorded their highest number on mid September (110 and 109 individual/25 leaves, for both seasons respectively).
T. Palmi: Appeared on cucumber in April plantations and increased gradually to reach its maximum number in late May, (138 and 101 individual/25 leaves, for both seasons respectively) while August plantation recorded the highest number in early August (91 individual/25 leaves).

Ch. Texanus: Appeared on cucumber in summer plantation and increased gradually to reach its maximum in mid June of both seasons, (100 and 132 individual/25 leaves, respectively) while August plantation of both seasons 2010/2011 recorded the highest number in mid August (92 and 103 individual/25 leaves, respectively).

F. Occidentalis: Was recorded on cucumber in April plantation and increased gradually to reach its maximum in early May of both seasons (139 and 136 individual/25 leaves, respectively) while the August plantation of both seasons 2010/2011 recorded the highest number in early August (69 and 73 individual/25 leaves, respectively).
DISCUSSION

The Obtained results showed that *T. tabaci* has four peaks in the summer plantation in early, mid and the end of May which are parallel to the findings by Afsah [9] El-Dabi [10] and Nour El-Din [11]. However, more than 30 years ago, Yousef [12] mentioned that, in Egypt, *T. tabaci* population was high on May and June. The present change is probably due to the current gradual climate change; which worth further investigation. The present investigation confirms the presence of *T. tabaci* and *F. occidentalis* [4], while the two species; *T. palmi*
and Ch. texanus are detected here for the first time in Egypt according to morphological identification. The results of this study updates the thrips species's list in Egypt and focuses in future studies on their impact as possible vectors too.

REFERENCES