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NOTE

New data on thrips (Thysanoptera) in male inflorescences of *Phoenix* palms in Israel

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Thrips (Thysanoptera) of the genera *Holarthrothrips* (Stenurothripidae, synonym: Adiheterothripidae) and *Palmiothrips* (Thripidae) are usual inhabitants of *Phoenix* male inflorescences. They feed on pollen, and no damage to trees or decrease in harvest were observed. The biology of these species is not known.

In Israel, the first discovery of *H. tenuicornis* Bagnall, *H. josephi* Bhatti, and *Palmiothrips palmae* (Ramakrishna) was in 2004, on date palms (Blumberg, 2008). *H. josephi* is known from Iraq and Oman (Al-Zadjali et al., 2006); *H. tenuicornis* is known from southern Europe and the Canary Islands on *Ph. canariensis*; *P. palmae* is known from India and the Canary Islands on *Phoenix* palms (zur Strassen, 2003). Moreover, *H. tenuicornis* is found on *Vitis* sp., *Citrus* sp., and *Rubia* sp. (zur Strassen, 2003). *P. palmae* is found on herbs (Berzosa, 2000). We also collected adults of *H. josephi* from young shoots of *Balanites aegyptiaca* (L.) (Zygophyllaceae) in Elat on 15 March 2005. However, the true relationships between these thrips with the non-*Phoenix* plants is not clear.

In order to determine the distribution of these species in Israel and their insect-host plant associations, a survey of thrips in male inflorescences of four *Phoenix* species was conducted from the end of 2004 until the middle of 2007. In 2008 and 2010, an additional species of palm was surveyed. Material was collected from the flowering male inflorescences of the following five species of palms, in the following areas of Israel and during the following periods:

Ph. dactylifera (Date palm)—Tel Aviv, Rehovot, Giv'at Brenner, Bizzaron, 'Enot Zuqim, 'En Gedi, 'Arad, Samar, Elat; 2005–2007.

Ph. canariensis (Canary Island date palm)—'Afula, Tel Aviv, Bet Dagan, Rehovot, Nahal 'Arugot, Ashqelon; 2004–2007.

Ph. reclinata (Senegal date palm)—Giv'at Brenner; 2005–2007.

Ph. roebelenii (Pygmy date palm)—Rehovot, Giv'at Brenner, Rishon leZiyyon: 2005–2007.

Ph. theophrasti (Crete date palm)—Tel Aviv; 2008, 2010.

Table 1
The insect-host associations of five thrips species on *Phoenix* palms male inflorescences

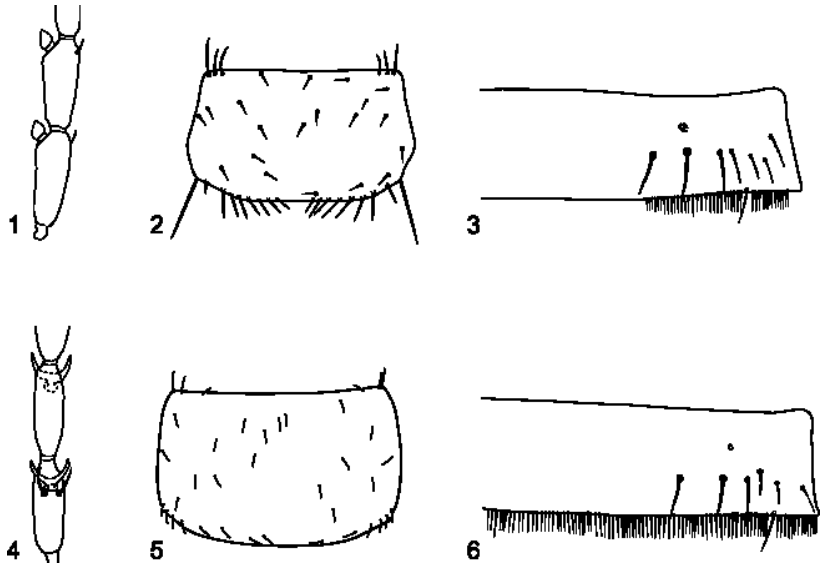
		Number of samples (total)		
Species of palms *Phoenix*	Number of samples with thrips	*Holarthrothrips josephi*	*Holarthrothrips tenuicornis*	*Palmiothrips palmae*
Ph. dactylifera	14	14	4	4
Ph. canariensis	24	0	24	24
Ph. reclinata	5	0	4	5
Ph. roebelenii	10	0	0	0
Ph. theophrasti	2	0	0	0

Each sample with thrips was taken either from a single plant or, occasionally, from several plants, and consisted of no fewer than 50 specimens. Larvae and adults of both sexes were usually found together in the samples.

The insect-host plant associations of the three thrips species are given in Table 1.

All three species of thrips were variously found in Israel, from ‘Afula in the north to Elat in the south. *H. tenuicornis* was found in all samples taken from *Ph. canariensis* and in some samples of *Ph. dactylifera* and *Ph. reclinata*. *H. josephi* was found in all samples from *Ph. dactylifera*, although only from this host palm. *P. palmae* was found in all samples of *Ph. canariensis*, *Ph. reclinata,* and in some samples of *Ph. dactylifera*. All samples from *Ph. roebelenii* and *Ph. theophrasti* were free from these three species of thrips, but in all samples from *Ph. roebelenii* larvae and adults of the polyphagous *Thrips tabaci* Lindeman were abundant. In addition to the above-mentioned species, a small number of adult thrips of various other species were casually present in several samples from male inflorescences of inspected palms.

Recognition of thrips species. All three species are characterized by a 9-segmented antenna and a metasternum furca without spinula. Species of the genus *Holarthrothrips* have a conical sensorium on each of antennal segments iii and iv (Fig. 1), and a pronotum with long posteromarginal setae (Fig. 2). *H. tenuicornis* have the apical half of the forewing infuscate, abdominal sternites lacking discal setae laterally, and a posteromarginal comb of microtrichia is absent medially on abdominal tergites ii–iv (Fig. 3). *H. josephi* has a forewing without obfuscation, abdominal sternites with discal setae laterally, and abdominal tergites ii–iv with complete posteromarginal comb of microtrichia (Fig. 6). *P. palmae* has antennal segments iii and iv each with forked sensorium (Fig. 4) and pronotum without long posteromarginal setae (Fig. 5).



Figs. 1–6. Characters of thrips. 1–3. *Holarthrothrips tenuicornis*. 4, 5. *Palmiothrips palmae*. 6. *H. josephi*.1, 4. Antennal segments iii, iv. 2, 5. Pronotum. 3, 6. Abdominal tergite iv.

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