

A NEW *ENCARSIA* (HYMENOPTERA: APHELINIDAE) SPECIES
REARED FROM THE *BEMISIA TABACI* COMPLEX
(HOMOPTERA: ALEYRODIDAE)

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ABSTRACT

Encarsia polaszeki Evans n. sp., reared from the *Bemisia tabaci* complex from Brazil, is described and illustrated.

Key Words: Sweetpotato whitefly, cotton whitefly, silverleaf whitefly, *Bemisia*, *Encarsia*, biological control

RESUMEN

Se describe e ilustra *Encarsia polaszeki* Evans, criada del complejo de *Bemisia tabaci* de Brasil.

The sweetpotato whitefly (SPWF), *Bemisia tabaci* (Gennadius), was described from tobacco in Greece in 1889 and was first reported in the New World (in Florida) by Quaintance in 1900. *B. tabaci* is widely distributed throughout most tropical and subtropical areas of the world. Increasing evidence suggests that there may be several closely related species and/or biotypes (or strains or races) of *B. tabaci* occurring in various parts of the world. The *B. tabaci* species complex is composed of three closely related or sibling species, namely, *B. tabaci*, *B. argentifolii* Perring and Bellows and *B. poinsettiae* Hempel, and their biotypes. Perring et al. (1993) estimated the damage caused by the silverleaf whitefly (SLWF), *B. argentifolia*, to U.S. agriculture at over a half a billion dollars.

Encarsia (Hymenoptera: Aphelinidae) species are among the most common and effective parasitoids of whiteflies and have been used successfully in biological control programs aimed at several different pest species. The greenhouse whitefly, (*Trialeurodes vaporariorum* (Westwood)), citrus blackfly (*Aleurocanthus woglumi* Ashby) and citrus whitefly (*Dialeurodes citri* (Ashmead)), have been brought under biological control in most areas of the world primarily by *Encarsia formosa* Gahan, *E. opulenta* (Silvestri) and *E. lahorensis* (Howard), respectively.

The search for natural enemies of the SPWF has been focused in the Orient and Middle East region, which was believed to be the native home of this pest (Mound 1963); (Lopez-Avila 1986). Gill (1992) provided evidence indicating that the SPWF (or SLWF) may have originated in the New World and suggested that the search for natural enemies of the SPWF species be focused on the Neotropics. *Encarsia polaszeki* was reared from the *B. tabaci* complex in abundant numbers at the two sites where it was collected and may be an effective natural enemy of the SPWF or its relatives in other areas of the world.

Encarsia polaszeki Evans, sp. nov. (Figs. 1-7)

Female

Length: Range = 0.45-0.55 mm, mean = 0.53 mm (based on 10 specimens)

Coloration: (Fig. 1) Body yellowish with head, pronotum, central portion of mesoscutum, axillae apices, metanotum, base of metasomal tergite I, dorsolateral margins of tergites I-V, and transverse band on tergite VI, dark brown; tergite VII dusky; eyes red; legs and antennae pale with F6 slightly darker than other segments; wings hyaline.

Structure: Head - postocellar bars prominent; mandibles tridentate; antenna (Fig. 4) comprised of radicle (R), scape (S), pedicel (P), 3 funicular segments (F1-3) and 3 club segments (F4-6) each having the following length/width ratios: 2.5, 4.6, 1.3, 1.6, 1.8, 2.0, 2.1, 2.0 and 2.5; relative lengths of segments R-F6 to length of F1: 1.1, 3.3, 1.4, 1.0, 1.3, 1.4, 1.5, 1.4 and 1.8; flagellum with the following number of linear sensilla: F1:0, F2:1, F3:2, F4:2, F5:3, F6:3, basiconic setae present on F2-F6. **Mesosoma** - mesoscutum 1.3 times as wide as long with broad hexagonal sculpturing and 2 pairs of slender setae; each parapsis with 2 setae; each axilla with 1 short seta, scutellum with 2 pairs of setae, Sc1 not reaching base of Sc2, distance between placoid sensillae 2.5-3.0 times the diameter of 1 sensillum; endophragma reaching base of metasomal tergite II; tibial spur of middle leg (Fig. 6) 0.7 times as long as corresponding basitarsus; tarsal formula 5-5-5; fore wing (Fig. 3) almond-shaped, with 5-6 costal setae, 2 basal group setae, 2 submarginal setae, marginal vein with 5 long and stout setae along the anterior margin, 2 large setae at its base and 6-8 smaller setae along its interior, alary fringe about 0.6 times as long as greatest width of disk. **Metasoma** - dorsum with imbricate lateral margins on tergites I-V, tergite VI and VII with weak striations; lateral margin of tergites II-V with 1 pair of long, slender setae, tergites V and VII with 1 pair of medial setae, lateral margin of tergite V with an additional pair of short setae, tergite VII with 2 pairs of long, slender setae; venter with 2 pairs of slender setae between the base of the metasoma and the ovipositor, ovipositor arising near the center of tergite III, 0.9 times as long as tibia of middle leg, valvulae III broad, 0.4 times as long as ovipositor.

Male (Fig. 7)

Length: Range = 0.56-0.70 mm, mean = 0.64 mm (based on 10 specimens)

Coloration: Head and mesosoma similar in coloration as that of female except only the basal quarter of each axilla is pale; metasoma dark brown; wings hyaline.

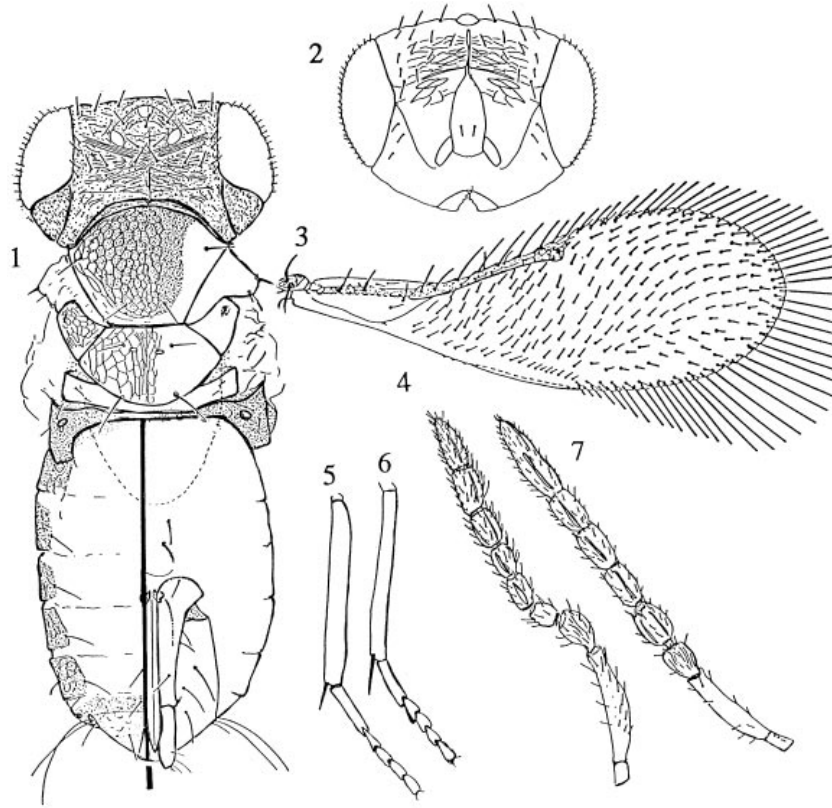
Structure: Similar to that of female except flagellar segments F1-F4 subequal in length and F5 and F6 fused.

Distribution: Brazil.

Host: Bemisia tabaci complex.

Holotype: Female, **Brazil:** Pernambuco, Olinda, 18 v 1991, F. D. Bennett, reared from *Bemisia tabaci* complex on *Chamaesyce* sp. deposited in the USNM. **Paratypes:** 39 females and 19 males with the same data as holotype. **Additional specimens:** 5 females and 2 males, Brazil, Pernambuco, Salvador, 22 V 1991, F. D. Bennett, reared from *Bemisia tabaci* complex on *Chamaesyce* sp. deposited as follows: U.S. National Museum, Washington, D.C. (USNM), Natural History Museum, London, UK (BMNH), Florida State Collection of Arthropods (FSCA), Aligarh Muslim University (AMU) and G.A. Evans personal collection.

Comments: *Encarsia polaszeki* Evans is most similar in structure and coloration to *Encarsia brevivalvula* Hayat and *Encarsia septentrionalis* Hayat, which were both



Figs. 1-7. *Encarsia polaszeki* (1-6 female, 7 male): 1) Habitus, with metasoma divided left side dorsum, right side venter; 2) head, frontal view; 3) fore wing; 4) antenna; 5) hind tibia; 6) middle tibia; 7) antenna.

described from India. *E. polaszeki* may be distinguished from *E. brevivalvula* by its more elongate third valvular segment and having only 2 pairs of setae on the mesoscutum (the third valvular segment of *E. brevivalvula* is very short and the mesoscutum has 4 pairs of setae). *E. polaszeki* differs from *E. septentrionalis* by its short F1 antennal segment which is only slightly longer than wide, and by having the distal submarginal vein seta as long as the proximal submarginal vein seta (the F1 segment of *E. septentrionalis* is approximately 2 times as long as wide, and the distal submarginal vein seta is much longer than the proximal submarginal vein seta).

Etymology: *Encarsia polaszeki* is named in honor and recognition of Dr. Andrew Polaszek for his contribution to the systematics of the genus *Encarsia*.

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