Three new species of *Encarsia* Förster (Hym.: Chalcidoidea).
1. Aphelinidae, Mymaridae, Signiphoridae and Trichogrammatidae of the Cape Verde Islands

During several years Dr. A. van Harten collected interesting Aphelinidae, Mymaridae, Signiphoridae and Trichogrammatidae in the Cape Verde Islands. The new species represented in this material will be described in some notes. A conclusive paper by A. van Harten and the present author, including all available records, is planned.

The type material of the new species will be preserved in the collection of the Department of agricultural Entomology and Zoology, Portici.

*Encarsia longisetae* sp. nov.

**Female.** - Body brown; antennae, scutellum, legs (except coxae and hind femora faintly infuscated), distal part of gaster syntergum, ovipositor (except tip) yellowish; wings slightly infumate at base, below the venation. Length: 0.66 mm.

Head about as wide as thorax; frontovertex with rather long setae; eyes setose; mandibles tridentate; maxillary and labial palpi 1-segmented. Antenna (Fig. I,1; Tav. 1,1) with radicle twice as long as wide; scape narrow, about 4 times as long as wide; pedicel 1.5 times as long as F1; funicle 4-segmented, slightly distinguished from club; F1 subcylindrical, subequal to second, about twice as long as wide; F3 about as long as F4, but slightly narrower; club shorter than funicle (0.7); C1 slightly longer than last funicular segment; C2 1.3 times as long as preceding segment. Linear sensilla distributed as follows: F1, 0; F2, 0; F3, 1; F4, 2; C1, 2; C2, 3. Funicular and club segments with some basiconic, hook-shaped sensilla (Fig. I,2; Tav. 1,2).

Thorax one half shorter than gaster. Mesoscutum (Fig. I,3) with mid lobe 1.3 times wider than long, mostly with sculpture represented by subpoly-
Fig. 1 - *Encarsia longisetae* sp. nov. - Female. 1. Antenna. 2. Hook-shaped sensillum. 3. Mesonotum, metanotum and propodeum. 4. Fore wing. - Male. 5. Antenna. 6. Copulatory organ.
gonal cells not much longer than wide and 4 + 2 + 2 long setae; axillae with shallow sculpture and 1 seta; scutellum twice as long as wide, with a very shallow sculpture and 2 pairs of long setae; metanotum and propodeum very short medially. Fore wings (Fig. 1,4) subtriangular, with 2 setae on submarginal vein; costal cell narrow, 1.1 longer than marginal vein, with a row of a few (3-7) small setae; a few setae (1-2) also basal to parastigma; marginal vein with 6-7 main setae; stigmal vein rather widely naked; ciliation rather scattered on the blade; fringe about one third of maximum width of disc. Legs with 5-segmented tarsi; middle basitarsus 1.3 times longer than

corresponding tibial spur; hind basitarsus twice as long as corresponding tibial spur.

Gaster conical; part of syntergum following the cercoid level sub-triangular, 1.5 times wider than long; ovipositor with base inserted approximately at level of third tergite, slightly exserted, 1.4 times longer than hind tibia; third valvulae about one third of the ovipositor length.

**Male.** - As female in coloration and most other characters. Antennae (Fig. I,5; Tav. 1,3) with scape enlarged at base and in correspondence with a ventral concavity reaching the radicle, 3 times as long as basal width (Tav. 1,4-6); pedicel shorter (0.7) than first flagellar segment; flagellum differentiated in a 4-segmented funicle and a 2-segmented club; all segments about twice as long as wide, each with 5-6 linear and 1-2 basiconeic, hook-shaped sensilla.

Genitalia 0.133 mm long, with a shield-like phallobase and other characters as in Fig. I,6.


**Comments.** - Among the known species *E. longisetae* sp. nov. appears allied to *Encarsia scapeata* Rivnay (RIVNAY & GERLING, 1987), but the two species can be distinguished as follows:

<table>
<thead>
<tr>
<th><em>longisetae</em> sp. nov.</th>
<th><em>scapeata</em> Rivnay</th>
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<tbody>
<tr>
<td><strong>Female</strong></td>
<td><strong>Female</strong></td>
</tr>
<tr>
<td>Scutellum yellowish;</td>
<td>Scutellum pale brown or infusacated;</td>
</tr>
<tr>
<td>F1-F2 subequal;</td>
<td>F1 shorter than F2;</td>
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<tr>
<td>Funicular segments more than 1.5 times as long as wide.</td>
<td>F1 not more than 1.5 times as long as wide.</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td><strong>Male</strong></td>
</tr>
<tr>
<td>Flagellum of antenna distinguished in 4-segmented funicle and 2-segmented club;</td>
<td>Flagellum of antenna undifferentiated;</td>
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<tr>
<td>pedicel of antenna shorter (0.70) than F1, which is cylindrical, 1.8 longer than wide.</td>
<td>pedicel of antenna as long as F1, which is subglobular.</td>
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</table>

The new species *E. longisetae* is included in a new group based on *E. scapeata* Rivnay.
Encarsia minuta sp. nov.

Female. - Blackish, with frontovertex of head, lateral areas of mesoscutellum, scapulae, scutellum, legs (from distal part of tibiae) yellow; antennae and wing venation greyish-yellow; wings faintly infuscated below marginal vein. Length: 0.57 mm.

Head about as wide as thorax; mandible tridentate; maxillary and labial palpi 1-segmented. Antenna (Fig. II,1), with radicle 3.5 times as long as wide; scape not expanded medially, 4 times as long as wide; pedi-

Fig. II - Encarsia minuta sp. nov. - Female. 1. Antenna. 2. Pronotum, mesonotum, metanotum and propodeum. 3. Fore wing. 4. Middle leg. 5. Hind leg.
eel twice as long as F1 and slightly wider; funicle 3-segmented, shorter (0.7) and narrower than club; F1 as long as wide; F2 slightly longer than F1, subcylindrical; F3 1.3-1.4 times as long as wide, 1.2 times longer than preceding segment; C1 and C2 slightly longer than wide, last segment 1.5 longer than wide. Linear sensilla distributed as follows: F1, 0; F2, 0; F3, 2; C1, 4; C2, 5; C3, 3-4.

Thorax shorter (0.7) than gaster. Mesoscutum 1.5 times as long as scutellum, with subpolygonal sculpture well distinguished on the central area and 4+2+2+2 or 4+1+2+2 or 4+2+2 setae; other characters as in Fig. II,2. Fore wings (Fig. II,3) about 2.5 times as long as wide, with rather large disc; submarginal vein with 2 setae; costal cell narrow, as long as marginal vein; with one row of 4-6 setae; 5-6 setae basal to parastigma; marginal vein rather robust, with 7-8 main setae; stigmal vein sessile; ciliation on the blade below marginal vein rather scattered, that on disc more dense; fringe about one fourth of maximum width disc. Legs with 5-segmented tarsi; middle legs with basitarsus as long as corresponding tibial spur (Fig. II,4); hind legs (Fig. II,5) with femora rather large and tibial spur about one half of the corresponding basitarsus.

Gaster ovate; part of syntergum distal to cercoid level subtriangular, 3 times wider than long; ovipositor very short, with base inserted at level of fifth tergite, not exerted, slightly shorter than hind tibia; third valvulae as long as one-third of ovipositor length.

Male. - Unknown.


Comments. - Encarsia minuta sp. nov. appears close to E. perniciosi (Tower) (Vigiani, 1988), but differs as follows:

*minuta* sp. nov.  
Antennae with F2 slightly longer than F1 and without linear sensilla;  
fore wings with 5-6 setae basal to parastigma.

*perniciosi* (Tower)  
Antennae with F2 about twice as long as F1 and with 2 linear sensilla;  
fore wings with 2-3 setae basal to parastigma.

The new species *E. minuta* is placed in the *aurantii* group.

**Encarsia paradiaspidicola** sp. nov.

Female. - Body brown; head frontovertex, antennae, mesoscutum, scutellum and legs (except hind coxae and femora), yellowish; fore wings infuscated below the marginal vein. Length: 0.6 mm.
Head as wide as thorax; mandibles tridentate; maxillary and labial palpi 1-segmented. Antenna (Fig. III,1) with radicle twice as long as wide; scape narrow, about 4 times as long as wide; pedicel 1.5 times longer than F1; F1 as long as wide; F2 slightly longer than wide; F3 larger than F2, subequal to basal club segment; club 3-segmented, slightly distinguished from F3, 5 times as long as wide. Antennal setae rather short; linear sensilla distributed as follows: F1, 0; F2, 1; F3, 2; C1, 3-4; C2, 3-4; C3, 3-4.

Thorax shorter than gaster. Mesoscutum with mid lobe basally one third wider than long, 2 + 2 setae and sculpture as represented in Fig. III,2; axillae each with one seta; scutellum with 2 + 2 setae; distance between the placoidica sensilla twice as long as the length of the basal scutellar setae; metanotum and propodeum very short, each laterally with 2 + 2 short setae. Petiole with transverse, subpolygonal sculpture (5-8 cells) on both sides. Fore wings (Fig. III,3) rather almond-shaped, with 2 setae on submarginal vein; costal cell narrow, as long as marginal vein; with a row of 3-4 small setae; 1-2 setae basal to parastigma; marginal vein with 8 main setae; stigmal vein rather widely naked and with long stigma; ciliation rather scattered on the blade; fringe about two third of maximum disc

Fig. III - Encarsia paradiaspidicola sp. nov. Female. 1. Antenna. 2. Mesonotum, metanotum, propodeum and gaster petiole. 3. Fore wing. 4. Ovipositor.
width. Legs with 5-segmented tarsi; middle basitarsus rather short, less than 3 times as long as wide; middle tibial spur as long as the corresponding basitarsus; hind basitarsus twice as long as the corresponding tibial spur.

Gaster conical; syntergum subtriangular, about twice as long as wide; ovipositor (Fig. III.4) with base inserted at level of third tergite, about one fourth longer than hind tibia; third valvulae one third of ovipositor length.

Male. - Unknown.


Comments. - Encarsia paradiaspidicola sp. nov. appears very close to E. diaspidicola Silvestri (Silvestri, 1930), but differs as follows:

<table>
<thead>
<tr>
<th>Encarsia paradiaspidicola sp. n.</th>
<th>diaspidicola Silvestri</th>
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<tbody>
<tr>
<td>F2-F3 and C1-C2 less than 1.5 times as long as wide;</td>
<td>F2-F3 and C1-C2 at least twice as long as wide;</td>
</tr>
<tr>
<td>gaster petiole with sculpture only on both sides and represented by a few (5-8) transverse cells;</td>
<td>gaster petiole with sculpture extended on all basal margin and represented by 2-3 rows of small cells (30-35), mostly not longer than wide;</td>
</tr>
<tr>
<td>ovipositor one-fourth shorter than hind tibia.</td>
<td>ovipositor as long as or slightly longer than hind tibia.</td>
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</table>

Encarsia inquirenda Silvestri, which shows the same type of sculpture on the gaster petiole of E. paradiaspidicola, and a similar general habitus, can be separated for having F1 and F2 subquadrate, without linear sensilla, and different body coloration.

Encarsia tremblayi Viggiani


Male. - Similar to female, but gaster all brownish. Length: 0.66 mm. Antenna (Fig. IV,1) with radicle 2.5 times as long as wide; scape not expanded, 2.8 times as long as pedicel; the latter rather globular, shorter (0.6) than first flagellar segment; flagellum of 6 segments; first segment slightly larger, about 1.5 times as long as wide; subsequent segments about
of same length. Linear sensilla distributed as follows: F1, 11; F2, 9; F3, 9; F4, 11; F5, 10; F6, 6.

Genitalia, same type as in other Encarsia, 0.133 mm in length; other characters as in Fig. IV,2.

Fig. IV - Encarsia tremblayi Viggiani. - Male. 1. Antenna 2. Copulatory organ.
Material examined - Paratype: 4 males; Cape Verde Islands, S. Jorge, VII-VIII-XI.1987; suction trap; coll. A. van Harten.

Comments. - Encarsia tremblayi Vigg. is considered the type of a new group of Encarsia.

Acknowledgement — The author thanks Mr. Gaetano Coppola, SEM Laboratory, Faculty of Agriculture, Portici, for his help.

SUMMARY

The author describes three new species of Encarsia Förster and the unknown male of Encarsia tremblayi Viggiani (Hymenoptera: Aphelinidae) from Cape Verde Islands.

RIASSUNTO

L’autore descrive tre nuove specie di Encarsia Förster e il maschio non noto di Encarsia tremblayi Viggiani (Hymenoptera: Aphelinidae) dalle Isole di Capo Verde.

REFERENCES

