

PARASITES OF *ALEUROTRACHELUS SOCIALIS*  
(HOMOPTERA: ALEYRODIDAE) FROM COLOMBIA  
INCLUDING DESCRIPTIONS OF TWO NEW SPECIES  
(HYMENOPTERA: APHELINIDAE: PLATYGASTERIDAE)

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ABSTRACT

Five parasite species, including two new species, *Encarsia bellottii* Evans and Castillo, n. sp. and *Amitus macgowni* Evans and Castillo, n. sp. were reared from *Aleurotrachelus socialis* Bondar on cassava, *Manihot esculenta*, in Colombia. *E. bellottii* was also reared from *Trialeurodes variabilis* (Quaintance) on cassava. The new species are described and illustrated.

Key Words: Aphelinidae, parasites, biological control, natural enemy, taxonomy, cassava, *Manihot*, Neotropical

RESUMEN

Se reportan cinco especies de parásitos, incluyendo dos nuevas especies, *Encarsia bellottii* Evans y Castillo y *Amitus macgowni* Evans y Castillo, criados de *Aleurotrachelus socialis* Bondar en plantas de yuca, *Manihot esculenta*, en Colombia. *Encarsia bellottii* también fué criado de *Trialeurodes variabilis* (Quaintance) en yuca. Se describen y se ilustran estas nuevas especies.

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Cassava, *Manihot esculenta* Crantz, is an important staple food in many countries throughout the tropics. Population outbreaks of two whitefly species, *Aleurotrachelus socialis* Bondar and *Trialeurodes variabilis* (Quaintance), sometime occur on cassava in Colombia, reducing crop yields by 60-80% (Bellotti et al., 1983). *A. socialis* is, by far, the more common of the two whitefly species, representing 80% of the whitefly population (Gold et al., 1991).

Bondar (1923) described *A. socialis* on *Cecropia* sp. from Brazil. This species is not known to attack other crops; however, high populations of the whitefly have been observed on wild species of *Manihot* in Colombia.

Natural enemies play an important role in maintaining the whitefly populations below economic levels. Vargas and Bellotti (1983) reported an average of 56% parasitism, and Gold et al. (1991) reported 32% parasite emergence from *A. socialis* pupae and attributed an additional 37% mortality to host feeding and/or unsuccessful parasitism of whiteflies on cassava in Colombia. However, drift of aerial pesticide applications on adjacent commercial crops sometimes reduces parasite effectiveness, and population outbreaks may occur.

Only two parasite species, *Amitus aleurodinus* Haldeman and *Eretmocerus aleyrodiphaga* (Risbec), have been reported from *A. socialis* (Gold et al., 1989). Although

we have not examined the specimens on which this report was based, we consider the identifications of both species to be erroneous. All of the specimens belonging to the genus *Amitus* reared by the second author from *A. socialis* on cassava in Colombia represent a new species, *Amitus macgowni* Evans and Castillo, described herein. *Amitus aleurodinus* is a Nearctic species, primarily known from Canada, and reported from as far south as Virginia, U.S.A. (MacGown and Nebeker, 1978). It is readily distinguishable from *A. macgowni* by the round apex and denser ciliation of its fore wing, and by the short glandular organ on the second flagellar segment of the male antenna. *Eretmocerus aleyrodiphaga* (Risbec) was described from an aleyrodid on "Ricin" (*Ricinus* sp.) from Senegal. The original description and illustrations of this species do not provide sufficient detail to distinguish it from several other species of *Eretmocerus*.

At least five parasite species were reared from *A. socialis* on cassava in Colombia; four of these, *Encarsia hispida* De Santis, *Encarsia pergandiella* Howard, *Encarsia bellottii* Evans and Castillo and *Amitus macgowni* Evans and Castillo, are reported herein; the fifth, and possibly other species, belong to the genus *Eretmocerus* and have been sent to Mike Rose, an expert in the taxonomy of this genus. We are unable, at this time, to determine the identity and the number of different species of the genus *Eretmocerus* that attack *A. socialis*, and thus will limit our discussion of the genus *Eretmocerus* to the generic level.

#### KEY TO THE PARASITES OF *ALEUROTRACHELUS SOCIALIS* IN COLOMBIA

1. Fore wing lacking marginal and stigmal veins (Fig. 7); pronotum reaching tegula; body (Fig. 6) entirely black or dark brown, robust and strongly sclerotized; female antennal flagellum 8-segmented (Fig. 8) with last 3 segments forming large club; male antennal flagellum 8-segmented (Fig. 9) with sensory process on second segment, and 1-segmented club . . . . . *Amitus macgowni* n. sp.
- Fore wing with marginal and stigmal veins (Fig. 5); pronotum separate from tegula; body not entirely black or dark brown, less robust and weakly sclerotized; female antennal flagellum with 3 to 6 segments (Fig. 4), male flagellum with 1 to 6 segments . . . . . 2
2. Female antennal flagellum 3-segmented, namely, 2 funicle segments and one elongate club segment; all tarsi 4-segmented; male antennal flagellum comprised of one very elongate club segment, body yellow or orange . . . . . Genus *Eretmocerus*
- Female antennal flagellum 6-segmented; tarsi 5-4-5 or 5-5-5; male flagellum 5 or 6-segmented, body color variable . . . . . *Encarsia* 3
3. Mid tarsi 4-segmented; body completely yellow (mesoscutum, axillae and base of gaster sometimes lightly infuscate) . . . . . *Encarsia hispida* De Santis
- All tarsi 5-segmented; body partially brown . . . . . 4
4. Fore wing narrow, disc longer than wide with asetose area under stigmal vein, longest seta of marginal fringe longer than greatest width of fore wing . . . . . *Encarsia pergandiella* Howard
- Fore wing broad, disc approximately as wide as long with area under stigmal vein completely setose, longest seta of marginal fringe less than half as long as greatest width of fore wing . . . . . *Encarsia bellottii* Evans and Castillo

*Encarsia bellottii* Evans and Castillo, **n. sp.**  
(Chalcidoidea: Aphelinidae)  
(Figs. 1-5)

FEMALE. *Body length* (8 specimens) Range = 0.65-.80 mm, mean = 0.75. *Color* - Body yellow, area surrounding foramen, pronotum, anterior margin of mesoscutum,

axillae, metanotum, gastral tergites I, IV, V, VI and valvular III, dark brown; legs and antennae yellow; fore wing infusate under the marginal vein. *Structure - Head*: as wide as mesosoma, mandible (Fig. 2) tridentate; antenna (Fig. 4) composed of radicle (R), scape (S), pedicel (P), 3 funicular segments (F1-F3) and 3 club segments (F4-F6), length/width ratio of each segment as follows: R:2.2, S:5.0, P:1.2, F1: 0.8, F2:1.3, F3:1.4, F4:1.5, F5:1.7, and F6:2.1; relative length of each segment to F1 as follows: R:1.4, S:5.0, P:1.8, F1:1.0, F2:1.8, F3:1.9, F4:2.0, F5:2.2, F6:2.8; F1-F6 with 0,2,2,2,3,3 linear sensilla, respectively. *Mesosoma*: (Fig. 1) mesoscutum broad, 1.6 times wider than long with 2 pairs of setae and broad hexagonal sculpturing; each side lobe with 3 setae; each axilla with 1 short seta; scutellum with 2 pairs of setae, anterior pair (Sc1) 0.6 times as long as posterior pair (Sc2); distance between placoid sensillae approximately 6× as wide as the diameter of one sensillum; endophragma rounded, extending to apex of gastral tergite I; tarsal formula 5-5-5, tibial spur of leg II (Fig. 3) as long as corresponding basitarsus; *Fore wing*: (Fig. 5) disc informally setose, 2 basal setae; longest seta of marginal fringe 0.3× as long as greatest width of fore wing; costal cell with 5 setae; marginal vein with 2 pterostigmal setae, 5 elongate setae along its anterior margin and 9 setae along its interior. *Gaster*: with imbricate sculpturing on lateral margins of tergites I-V, tergites VI and VII slightly rugose; tergites I-VII with 0,1,1,1,3,2,2 pairs of setae, respectively; tergite VII (syntergum) expanded, somewhat conical; ovipositor arising at level of tergite II, 1.8× as long as tibia of leg II, valvular III 0.25× as long as ovipositor.

MALE. Not known.

HOSTS. *Aleurotrachelus socialis* and *Trialeurodes variabilis*.

DISTRIBUTION. COLOMBIA.

SPECIMENS EXAMINED. Holotype female and 4 paratype females reared from *Aleurotrachelus socialis* on *Manihot esculenta*, COLOMBIA, Cauca, Buenos Aires, 1.xi.1994, J. A. Castillo. Specimens deposited as follows: holotype - U.S. Museum of Natural History (USNM), Washington, D.C., USA; 1 paratype - Natural History Museum (NHM), London, England; one paratype - Florida State Collection of Arthropods (FSCA), Gainesville, Florida; and 1 paratype Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia. Additional specimens reared from *Trialeurodes variabilis* on *Manihot esculenta*, COLOMBIA, Cauca, Caldono, 3.xi. 1994, J. A. Castillo, deposited in personal collection of G. A. Evans.

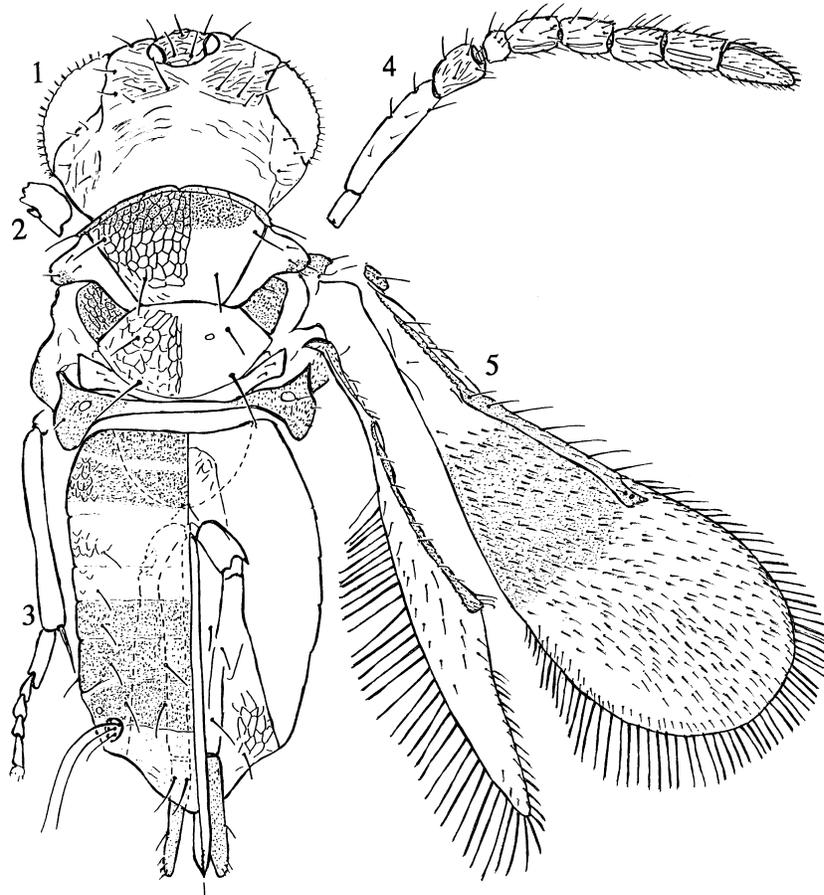
DISCUSSION. *Encarsia bellottii* Evans and Castillo is tentatively placed in the *Encarsia opulenta*-species group (Viggiani and Mazzone, 1979), based upon its 5-5-5 tarsal formula, short F1 antennal segment and conical-shaped gastral tergite VII. Definite placement of this species in the *opulenta*-species group is not possible at this time since we are unable to determine whether the male of this species possesses the expanded F1 antennal segment. *E. bellottii* is most similar in coloration and structure to *Encarsia opulenta* (Silvestri) an Oriental species that has been introduced into many New World countries for control of the citrus blackfly, *Aleurocanthus woglumi* Ashby. *Encarsia bellottii* differs from *Encarsia opulenta* by having only 2 pairs of setae on the mesoscutum and the first two gastral tergites dark brown; *E. opulenta* has 5 pairs of setae on the mesoscutum and the gaster is dark brown except for tergites I and II which are yellow.

ETYMOLOGY. This species is named in honor of Anthony Bellotti for his contribution to entomology in Colombia and other countries.

#### *Encarsia hispida* De Santis

*Encarsia hispida* is the most common parasite reared from *A. socialis* in Colombia.

This species is also often reared from the *Bemisia tabaci* species-complex throughout the Caribbean and Central and South America. The taxonomic status of *E. hisp-*



FIGS. 1-5. *Encarsia bellottii* female. 1) habitus dorsum with gaster divided - right side dorsum, left side venter; 2) mandible; 3) tibia and tarsi of leg II; 4) antenna; 5) fore wing.

*ida* remains controversial. Viggiani (1989) synonymized this species with *Encarsia meritoria* Gahan, but its status was later renewed by Polaszek et al. (1992). Only females of this species were reared from *A. socialis* and *Trialeurodes floridensis* (Quaintance) in this study. *A. socialis* represents a new host record for this parasite.

SPECIMENS EXAMINED. COLOMBIA, Antioquia, San Carlos, 7.iii.1995, J. A. Castillo, ex. *Trialeurodes variabilis* on *Manihot esculenta*; COLOMBIA, Magdalena, Pivijay, 21.i.1994, J. A. Castillo, ex. *Aleurotrachelus socialis* on *Manihot esculenta*; same host and collector as previous record - Magdalena, La Colorada, 21.i.1994; Bolivar, Maria La Baja, 24.i.1994; Cordoba, Chinu, 26.i.1994; Santander, Rio Negro (La Suiza), 25.viii.1994; Santander, Barrancabermeja, 30.viii.1994; Santander, Rio Negro (Corpoica), 25.viii.1994; Huila, Guadalupe, 3.x.1994; Tolima, San Luis, 6.x.1994; Meta, Villaviciencio (La Libertad), 18.i.1995; Meta, Acacias, 19.i.1995; Meta, San

Martin, 20.i.1995; Meta, Cumaral, 24.i.1995; Cundinamarca, Medina, 24.i.1995; Cundinamarca, Paratebuena (Europa), 25.i.1995; Casanare, Barranca de Upia, 25.i.1995.

*Encarsia pergandiella* Howard

One male specimen of *E. pergandiella* was reared from *A. socialis*. Males of *E. pergandiella* are hyperparasitic on the female of the same species (adelphoparasitic) or other primary parasite species that attack whitefly. This species is widespread throughout the New World and has been introduced into Italy and Israel. It attacks a wide variety of whitefly species, and is most commonly reared from *Bemisia* and *Trialeurodes* species (Polaszek et al., 1992). Males and females of this species are often reared from *Trialeurodes variabilis* on cassava in Colombia and other countries.

SPECIMENS EXAMINED. COLOMBIA, Cauca, Cajibío, 3.xi.1994, J. A. Castillo, ex. *Trialeurodes variabilis* on *Manihot esculenta*; same host and collector, Antioquia, Bolívar, 14.iii.1995; COLOMBIA, Cauca, Buenos Aires, 1.xi.1994, J. A. Castillo, ex. *Aleurotrachelus socialis* on *Manihot esculenta*.

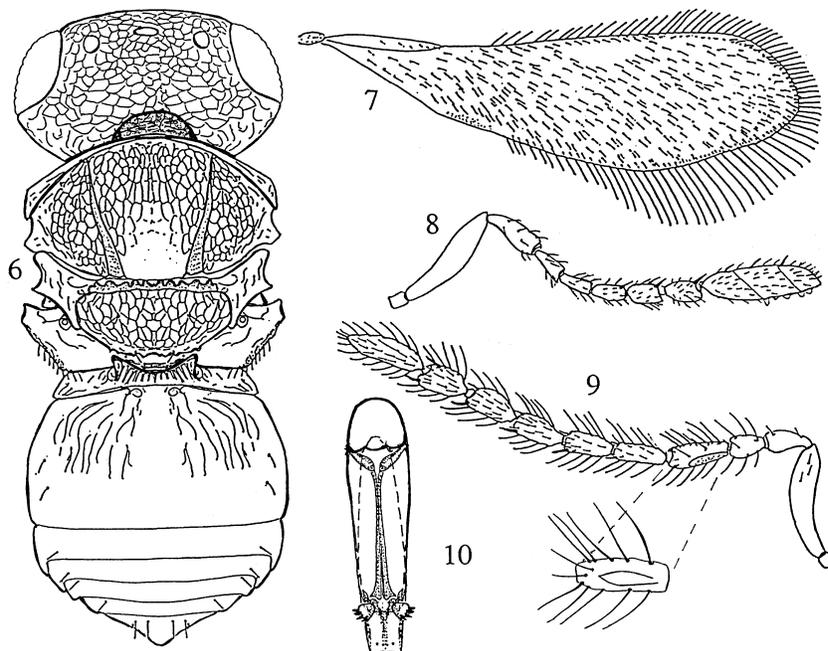
Genus *Eretmocerus*  
(Chalcidoidea: Aphelinidae)

Specimens of the genus *Eretmocerus* were reared from *A. socialis* on cassava, and were sent to Mike Rose at Montana State University, for identification.

SPECIMENS EXAMINED. COLOMBIA, Magdalena, Pivijay, 21.i.1994, J. A. Castillo, ex. *Aleurotrachelus socialis* on *Manihot esculenta*.

*Amitus macgowni* Evans and Castillo, n. sp.  
(Platygasteroidea: Platygasteridae)  
(Figs. 6-10)

FEMALE. *Body length* - Range = 0.6- 0.7 mm. *Color* - body black (Fig. 6); coxae and femora, dark brown; tibiae centrally infusate; antennae, trochanters, tarsi, and basal and apical ends of tibiae, light brown; wings hyaline, disc sometimes faintly infusate. *Structure* - **Head**: transverse, twice as wide as long; lateral ocellar line (LOL) 0.7× as long as ocular ocellar line (OOL) and 0.4 times as long as posterior ocellar line (POL); lower genae slightly swollen; interantennal flange weak to moderate; antennae (Fig. 8) inserted at level of lower eye margin; composed of radicle (R), scape (S), pedicel (P), 5 funicular (= antennomeres) segments (F1-F5) and 3 club segments (F6-F8); length/width ratio of each segment as follows: R:1.5, S:4.7, P:2.7, F1: 2.8, F2:2.4, F3:2.1, F4:1.6, F5:1.6, club compact (F6-F8): 3.7; relative length of each segment to length of F1 (= 0.044 mm) as follows: R:0.4, S:3.2, P:1.5, F1:1.0, F2:0.9, F3:0.9, F4:0.8, F5:0.8, F6-F8:2.9; club 1.1 times as long as F3-F5; **Mesosoma**: (Fig. 6) mesoscutum reticulate except smooth posterior area of central plate; internotal distance at posterior margin of mesoscutum 3.7 times width of notaulus; central plate with 1 pair of anterior setae, each lateral plate with 2 pairs of setae; scutellum reticulate with 3 pairs of setae and approximately 12 strong, rounded crenulae; **Fore wing**: (Fig. 7) elongate, 3.5 times as long as wide, narrowing towards apex; disc setose with large elliptically-shaped area along the anterior margin of disc, bare, or nearly so; longest seta of marginal fringe 0.5 times as long as greatest width of fore wing; **Gaster**: 1.1 times as long as wide; tergite II 0.6 times as long as wide, and 1.2 times as long as remaining segments; striations extending distally from anterior margin to slightly past middle of tergite II.



FIGS. 6-10. *Amitus macgowni*. 6) ♀ habitus dorsum; 7) ♀ fore wing; 8) ♀ antenna; 9) ♂ antenna with particular of F2 enlarged and rotated; 10) aedeagus.

**MALE.** Coloration and most characters similar to that of female. Antenna (Fig. 9) composed of radicle (R), scape (S), pedicel (P), 7 funicular (= antennomeres) segments (F1-F7) and 1 club segment (F8); length/width ratio of each segment as follows: R:1.0, S:5.5, P:2.0, F1: 1.7, F2:2.6, F3:2.5, F4:2.5, F5:2.1, F6: 1.8; F7: 1.8, F8: 3.3; relative length of each segment to length of F1 (=0.034 mm) as follows: R:0.3, S:3.5, P:1.4, F1:1.0, F2:1.5, F3:1.4, F4:1.4, F5:1.4, F6:1.3, F7:1.4, F8:2.4; male sex gland (tyloid) pointed at apex and extending 0.7 times length of F2. Aedeagus (Fig. 10) with 4 spines on digiti.

**HOSTS.** *Aleurotrachelus socialis* and *Trialeurodes variabilis*.

**DISTRIBUTION.** COLOMBIA.

**SPECIMENS EXAMINED.** Holotype female, 4 paratype females, and 27 paratype males reared from *Aleurotrachelus socialis* on *Manihot esculenta*, COLOMBIA, Cauca, Buenos Aires, 1.xi.1994, J. A. Castillo. Holotype female and 3 paratype males deposited in the U.S. Museum of Natural History (USNM), Washington, D.C., USA; one paratype female and 3 paratype males deposited in the Florida State Collection of Arthropods (FSCA), Gainesville, Florida; and 1 paratype female and 3 paratype males deposited in the Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia. Additional specimens reared from *Trialeurodes variabilis* on *Manihot esculenta*, COLOMBIA, Cauca, Caldono, 3.xi. 1994, J. A. Castillo, deposited in personal collection of G. A. Evans.

Two female cotypes and 1 male cotype specimen of *Amitus blanchardi* De Santis, reared from *Aleurothrixus floccosus* (= *A. howardi*) on citrus, ARGENTINA, Baradero, I.1936, by L. De Santis, and two females identified by L. De Santis as *Amitus spin-*

*iferus* (Brethes) reared from *Aleurothrixus floccous*, ARGENTINA, La Plata, viii. 1941, Marabona, were examined.

DISCUSSION. Previously, only three, valid species of the genus *Amitus* were known from South America. MacGown and Nebeker (1978) described *Amitus fuscipennis* and *A. pigeanus*, reared from *Trialeurodes vaporariorum* in Colombia (type series from Costa Rica), and *Aleurodicus pigeanus* in Chile, respectively. *A. macgowni* is easily distinguished from the former species which has distinctly infusate fore wings; and from the latter species, which has the distance between the notauli along the posterior margin of the mesoscutum extremely narrow, shorter than the width of one notaulus at its base. *Amitus spiniferus* (Brèthes) was described from specimens supposedly reared from the white peach scale, *Pseudaulacaspis pentagona* (Targ.-Tozz.) in Argentina. The original host record of this species is almost certainly erroneous since other species in the genus have only been reared from aleyrodid hosts. This claim is further supported by the fact that *Amitus blanchardi* De Santis, which was synonymized with *A. spiniferus* by De Santis (1941), was reared from *Aleurothrixus floccosus* (Maskell) in Argentina. *A. macgowni* is very similar to *Amitus spiniferus* in the width of the internotaular distance at the posterior base of the mesoscutum, the relative dimensions of the antennal segments and the shape and size of the glandular organ on the F2 segment of the male antenna.

The female of *A. macgowni* differs from the female of *A. spiniferus* by having the F2 antennal segment cylindrical, the length of F2-F5 longer than the length of the club, the ciliation of the fore wing sparser, in particular, an area along the anterior margin bare (or nearly so), and having approximately 12-14 crenulae along the anterior margin of the scutellum. In *A. spiniferus*, the F2 segment is nearly quadrate, the length of F2-F5 is approximately equal to the length of the club, the area along the anterior margin of the disc is densely ciliated, and there are approximately 18-22 crenulae along the anterior margin of the scutellum. *A. macgowni* males can be distinguished from *A. spiniferus* males by the differences in fore wing setation as previously mentioned regarding the females, and by the presence of 4 spines on the digiti of the aedeagus in *A. macgowni* versus 3 spines on the digiti of the latter species as reported by Viggiani and Mazzone (1982).

ETYMOLOGY. This species is named in honor of Dr. Matt MacGown for his work on the taxonomy of the genus *Amitus* and assistance with this manuscript.

#### ACKNOWLEDGMENTS

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#### REFERENCES CITED

- BELLOTTI, A. C., O. VARGAS, J. E. PENA, AND B. ARIAS. 1983. Perdidas en rendimiento en yuca causadas por insectos y acaros, pp. 115-127 in: J. A. Reyes (ed.) Yuca: Control Integrado de las Plagas, Centro Internacional de Agricultura Tropical, Cali, Colombia.

- BONDAR, G. 1923. Aleirodeos do Brasil. Secr. Agr. Inst. Obras Publ. Estado Bahia, Seccao Pathol. Veg. 183 pp.
- BRETHES, J. 1914. Les enemies de la *Diaspis pentagona* dans la Republique Argentine. Nunquam otiosus, Buenos Aires, 1: 1-16.
- DE SANTIS, L. 1937. Una nueva especie de himenoptero del genero *Amitus* de la Republica Argentina. Revista Argentina de Agronomia 4: 115-118.
- DE SANTIS, L. 1941. Lista de himenopteros parasitos y predadores de los insectos de la Republica Argentina. Boletim da Sociedade Brasileira de Agronomia 4: 1-66.
- DE SANTIS, L. 1948. Adiciones a la fauna Argentina de afelinidos (Hymenoptera, Chalcidoidea). Revista del Museo de La Plata (Nueva Serie) 5: 23-280.
- GOLD, C. S., M. A. ALTIERI, AND A. C. BELLOTTI. 1989. The effect of intercropping and mixed varieties of predators and parasites of cassava whiteflies (Hemiptera: Aleyrodidae) in Colombia. Bulletin of Entomological Research 79: 115-121.
- GOLD, C.S., M. A. ALTIERI, AND A. C. BELLOTTI. 1991. Survivorship of the cassava whiteflies *Aleurotrachelus socialis* and *Trialeurodes variabilis* (Homoptera: Aleyrodidae) under different cropping systems in Colombia. Crop Protection 10: 305-309.
- HOWARD, L. O. 1907. New genera and species of Aphelinidae with a revised table of genera. United States Department of Agriculture Technical Series 12: 69-88.
- MACGOWN, M. W., AND T. E. NEBEKER. 1978. Taxonomic review of *Amitus* (Hymenoptera: Proctotrupoidea, Platygasteridae) of the Western Hemisphere. Canadian Entomologist 110: 275-283.
- MASNER, L., AND L. HUGGERT. 1989. World review and keys to genera of the subfamily Inostemmatinae with reassignment of the taxa to Platygasterinae and Sceliotrachelinae. Memoirs of the Entomological Society of Canada 147: 3-214.
- POLASZEK, A., G. A. EVANS, AND F. D. BENNETT. 1992. *Encarsia* parasitoids of *Bemisia tabaci* (Hymenoptera: Aphelinidae, Homoptera: Aleyrodidae): a preliminary guide to identification. Bulletin of Entomological Research 82: 375-392.
- VARGAS, O., AND A. C. BELLOTTI. 1983. Dano economico causado por la mosca blanca en el cultivo de la yuca pp. 129-144 in: J. A. Reyes (ed.), Control Integrado de las Plagas (ed. J. A. Reyes), pp. 129-144, Centro Internacional de Agricultura Tropical, Cali, Colombia.
- VIGGIANI, G. 1989. Notes on some Nearctic and Neotropical *Encarsia* Forster (Hymenoptera: Aphelinidae). Bollettino del Laboratorio di Entomologia agraria "Filippo Silvestri" Portici. 46: 207-213.
- VIGGIANI, G., AND P. MAZZONE. 1982. *Amitus* Hald. (Hym. Platygasteridae) of Italy, with descriptions of three new species. Bollettino del Laboratorio di Entomologia agraria "Filippo Silvestri" Portici. 39: 55-69.
- VIGGIANI, G., AND P. MAZZONE. 1979. Contributi alla conoscenza morfo-biologica delle specie del complesso *Encarsia* Foerster-*Prospaltella* Ashmead (Hym. Aphelinidae). Bollettino del Laboratorio di Entomologia agraria "Filippo Silvestri" Portici. 36: 42-50.