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On the presence of *Anastatus tenuipes* (Hymenoptera, Eupelmidae) in Italy

Abstract - *Anastatus tenuipes* Bolivar y Pieltain, 1925 (Hymenoptera, Eupelmidae), parasitoid of oothecae of *Supella longipalpa* (F.) (Blattaria, Blattellidae) is newly reported for Italy and Europe. Main data on diagnostic characters, biology and distribution of the species are given.

Riassunto - Sulla presenza di *Anastatus tenuipes* (Hymenoptera, Eupelmidae) in Italia.

Si riporta il rinvenimento di *Anastatus tenuipes* Bolivar y Pieltain, 1925 (Hymenoptera, Eupelmidae), specie sinora inedita per la fauna italiana ed europea, parassitoide di ooteche di *Supella longipalpa* (F.) (Blattaria, Blattellidae). Vengono forniti dati essenziali sui caratteri diagnostici, sulla biologia e sulla distribuzione dell'eupelmide.

Key words: Hymenoptera Eupelmidae, Blattaria Blattellidae, natural enemy, *Supella longipalpa*, new record.

INTRODUCTION

Among the nearly 3,500 species of cockroaches (Blattaria) reported world wide (Failla *et al.*, 1994), only a few synanthropic species have been considered as noxious to human health because they infest food, transmit pathogens and sometime cause human allergies (Helm *et al.*, 1993).

Cockroaches may represent a serious sanitary problem in Southern Italy, where the most common species amongs domiciliary cockroaches is the Brown Banded Cockroach *Supella longipalpa* (F.) (Barbagallo *et al.*, 1999). This species is widely distributed in all Southern Italian main towns, but does not reach high population densities and therefore its infestations are often overlooked.

In 1997 extensive surveys on the distribution in Sicily of *S. longipalpa* were started. Oothecae collected in infested houses of Catania resulted in several wasps being

reared, which were identified as males and females of *Anastatus tenuipes* Bolivar y Peltain (Hymenoptera, Eupelmidae). This is the first record of *A. tenuipes* for Italy and Europe and this paper gives information on the diagnostic features, biology and known distribution of this parasitoid.

Anastatus tenuipes Bolivar y Peltain

Anastatus tenuipes Bolivar y Peltain, 1925: 43–45.

Anastatus blattidarum Ferrière, 1930: 33–34.

Solindenia blattiphagus Mani, 1936: 131–132.

Anastatus waneï Risbec, 1951: 195–197.

DESCRIPTION. Female (Fig. 1a) with head shining green; scrobal depression reaching anterior ocellus. Antenna (Fig. 1b) brown, with orange-yellow scape. Mesosoma orange-yellow, with anterior part of mesopleuron and propodeum slightly brownish; moreover, all specimens collected in Catania have the concave posteromedian portion of the mesoscutum dark with metallic luster (likely representing a geographical variation, Gibson, pers. comm.). Forewing banded, coloured ochreous to dark brown (Fig. 1d) with two hyaline areas: a region behind distal half of submarginal vein and a complete, V-shape bent band across wing behind distal half of marginal vein; the bent band separates the more ochreous portion behind the marginal vein from the darker brown area apically; hindwings hyaline. Legs variable in color, hind coxa brown, otherwise orange-yellow with brownish regions on femora and tibiae but with trochanters, apices of tibiae, and tarsi except for extreme apices lighter in colour. Gaster dark brown to black with dark green luster apically, first segment (except two brown spots at sides) and second segment (except posterior border) whitish, ovipositor sheaths projecting only slightly beyond apex of gaster, whitish.

Male head and mesosoma dark with metallic green luster. Antenna (Fig. 1c) dark brown with scape and pedicel slightly paler. Legs dark brown with knees lighter in colour and trochanters, fore and middle tibiae, and all tarsi yellowish to white. Wings hyaline; forewing with basal cell and cubital fold setose but with large bare area (speculum) behind apex of submarginal vein and parastigma. Gaster dark brown with metallic green luster on first tergite.

REMARKS. Females of *A. tenuipes* can be differentiated from females of other Palaearctic species of *Anastatus* using the key provided by Kalina (1981). The highly dimorphic males were not keyed by Kalina and their accurate identification remains problematical.

BIOLOGY. Hymenoptera parasitoids of domiciliary cockroaches mainly belong to the Evanioidea, family Evanidae, and Chalcidoidea, families Encyrtidae, Eulophidae, Pteromalidae and Eupelmidae. Lebeck (1991) listed four species of *Anastatus* as para-

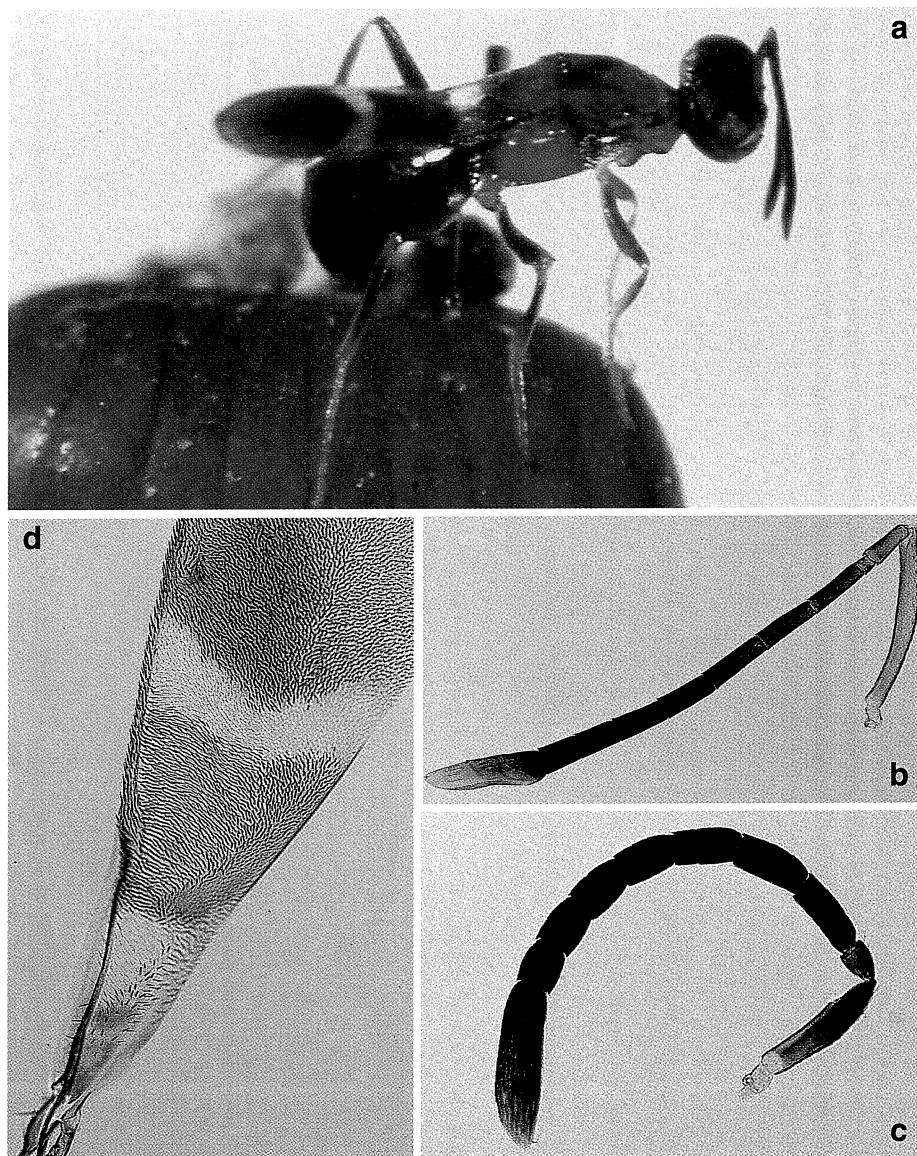


Fig. 1 - *Anastatus tenuipes* Bolivar y Pieltain: a) female ovipositing into a *Supella longipalpa* (F.) ootheca; b) antenna of female; c) antenna of male; d) forewing of female.

sitoids of cockroaches, with only *A. tenuipes* recorded as a parasitoid of *Supella longipalpa* oothecae, to which it is considered to be host specific (Flock, 1941; Roth & Willis, 1960; Narasimham & Sankaran, 1979). Several experimental host offerings of *Periplaneta americana* (L.) oothecae (another reported host) did not produce any offspring. It is a gregarious species with progeny sex ratios female-biased; during laboratory observations 10 to 15 specimens per oothecae on average were obtained (Flock, 1941). Mean developmental time was 32.6 days at 25°C. Under laboratory conditions feeding adults (with honey and water) may live a maximum of 2 weeks (Flock, 1941).

The potentiality of *A. tenuipes* as a biological control agent remains uncertain; despite its high female-male ratio, gregarious nature and relatively short developmental time, Indian field observations reported a very low parasitization rate and that is was probably out-competed by other egg parasitoids (Narasimham & Sankaran, 1979). The Italian record represents an excellent opportunity to better investigate the parasitoid behaviour in Mediterranean areas in order to verify its efficacy in this climatic region.

DISTRIBUTION. Afrotropical (Senegal, Sudan) (Risbec, 1951; Hayat, 1975), Australasian (Australia) (Bouček, 1988;), Nearctic (Mexico, USA) (De Santis, 1979; Flock, 1941), Neotropical (Guatemala) (De Santis, 1979), Oriental (India) (Hayat, 1977) and Palaearctic (Egypt, Italy: new report) (Bolívar y Pieltain, 1925).

Anastatus tenuipes is of presumed African origin and likely has followed movement of its host through the World (Lebeck, 1991). Based on literature reports, our Italian record is the first one for *A. tenuipes* in Europe. The species likely has a wider distribution in the Mediterranean Basin, but has not previously been recorded because of the difficulties in finding the oothecae of its host.

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