Preimaginal morphology of the genera Salpingogaster Schiner, 1868 and Eosalpingogaster Hull, 1949 (Diptera: Syrphidae), with its systematic implications

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Abstract

The puparium of Salpingogaster nigra and Eosalpingogaster umbra are described, and diagnosis and illustrations are provided. The morphology of immature stages of the genera Salpingogaster and Eosalpingogaster are studied and compared for the first time. The results are in agreement with previous molecular analyses that recognise both genera as valid. We found two different puparium morphotypes for E. umbra and discuss the improbability of immature sexual dimorphism in this species. An identification key is also provided for all species with known puparia.

Key words: hover flies, flower flies, immature stages, puparium, description

Introduction

Salpingogaster Schiner, 1868 and Eosalpingogaster Hull, 1949 are two New World species-groups of Syrphidae that range from southern USA to south of Chile and Argentina. About 35 species are known and both taxa have been traditionally recognized as subgenera of Salpingogaster (Thompson et al. 2010).

Adults of Salpingogaster and Eosalpingogaster share a set of conspicuous morphological characters including a similar adult habitus with the abdomen distinctly and strongly petiolate. Since the original description by Hull (1949), Eosalpingogaster has been considered as a subgenus of Salpingogaster until very recently (Thompson et al. 1976; Vockeroth & Thompson 1987; Thompson 1999; Thompson et al. 2010). Mengual et al. (2008a), based exclusively on molecular data, recovered the monophyly of Salpingogaster s. str., but the single species of Eosalpingogaster analysed was resolved in another clade, more related to species of the genera Ocyptamus Macquart, 1834 and Toxomerus Macquart, 1855. More recently, a detailed review of Eosalpingogaster based on adult morphology, which included a molecular analysis with several species of both species-groups, concluded that Salpingogaster and Eosalpingogaster must be considered distinct and valid genera (Mengual & Thompson 2011).

As in virtually all flower flies, adults feed on nectar and pollen from flowers, and are considered common plant pollinators. Plant species pollinated by flies often present low specificity and generalized pollination systems, but unidentified species of Salpingogaster have been recently cited as exclusive visitors and pollinators of a South American orchid through a pollen-deceptive mechanism (Pansarin 2008). After checking the very low-quality images in Pansarin (2008), it seems that there has been a misidentification: the specimen(s) photographed is an Ocyptamus species. This is not the first case of misidentification between Salpingogaster and Ocyptamus (see Thompson & Zumbado 2000).

The larval biology of a few species of Salpingogaster and Eosalpingogaster is known, and all of them are related to hemipteran pests of crops (see review in Rojo et al. 2003). The natural history of both species-groups is