



Four new species of Aphelinidae (Hymenoptera: Chalcidoidea) from Mexico

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Abstract

Four new species of *Encarsia* Förster (Hymenoptera: Aphelinidae) from Mexico are described—*E. albata* Myartseva **sp. n.** (State of Nuevo León), *E. barracas* Myartseva **sp. n.** (State of Baja California Sur), *E. chichenitza* Myartseva **sp. n.** (State of Yucatán) and *E. elenae* Myartseva **sp. n.** (State of Tamaulipas). A key to the species of *Encarsia* in Mexico published in 2012 is modified to include the newly described species.

Key words: Biodiversity, parasitic wasp, parasitoid, new species, North America

Introduction

Chalcidoidea is the largest superfamily of parasitic Hymenoptera, consisting of 22 families (Heraty *et al.* 2013). Several families of chalcid wasps contain species that are important for biological control of phytophagous insects in agricultural and natural ecosystems, and have been used against insect pests of various crops. Among Chalcidoidea, the family Aphelinidae is rivaled only by Encyrtidae in the number of species that have been used as effective parasitoids of insect pests (Greathead 1986).

Aphelinidae is a family of moderate diversity within Chalcidoidea, containing about 1,350 described species worldwide (Noyes 2012b). Aphelinids are primary parasitoids or hyperparasitoids of Insecta, mainly Hemiptera, especially Coccoidea and Aleyrodoidea, although some species are egg parasitoids of Lepidoptera and other orders of insects (Polaszek 1991; Gibson *et al.* 1997). At present, 184 species in 12 genera of Aphelinids are known to occur in Mexico (Myartseva *et al.* 2012).

Encarsia Förster, 1878 is classified in the tribe Pteroptricini, subfamily Coccophaginae of Aphelinidae (Hayat 1998). It is the most diverse genus of the family with 94 described species presently known from Mexico (Myartseva *et al.* 2012). Of these, more than 50 new species were found in the last ten years. It is also one of the largest and economically most important genera of Aphelinidae. In recent years the genus has been of increased interest for taxonomists and specialists in biological control and several papers and revisions were published in several different countries (Hayat 1998; Huang and Polaszek 1998; Schmidt and Polaszek 2007; Myartseva and Evans 2008). As a result, the number of known species of *Encarsia* increased from 146 in 1980 to 410 in 2012 (Noyes 2012a). Many species have been associated with classical biological control programs throughout the world against pests belonging to the hemipteran families Aleyrodidae and Diaspididae (Altieri and Nicholls 1999). Several species were introduced into Mexico to control whiteflies and armored scale insects in citrus (Myartseva and Ruíz-Cancino 2000).

In this article, four new species of *Encarsia* from four different states of Mexico (Baja California Sur, Nuevo León, Tamaulipas, Yucatán), are described as new.