

# Native parasitoids associated with *Tuta absoluta* in the tomato production areas of the Spanish Mediterranean Coast

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**Abstract** The tomato borer *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae) is an invasive pest that produces significant damage to tomato crops in the Mediterranean area. Although several species of predatory bugs are successfully being used for biological control of the pest, little is known about the parasitoids that are able to exploit *T. absoluta* as a host. With the aim of better understanding parasitoid species richness of *T. absoluta* along the Mediterranean Spanish Coast, we conducted an extensive survey to determine distribution, host plants and habitats where parasitoids are present. Our results indicated

that egg parasitoids are naturally scarce but that the species richness of larval/pupal parasitoids is high and includes 20 different species. Seven of these had not been previously reported as *T. absoluta* parasitoids. The most frequent parasitoid species recovered were *Necremnus* sp. nr. *artytes* (Walker), *Stenomiesius* cf. *japonicus* (Ashmead) and *Neochrysocharis formosa* (Westwood) (Hymenoptera: Eulophidae).

**Keywords** *Necremnus artytes* · *Stenomiesius japonicus* · *Bracon nigricans* · Conservation biological control · Parasitoid richness · Non-crop habitats

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## Introduction

The South American tomato pinworm, or tomato borer, *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae) is an important pest native to South America that produces significant damage to tomato crops, both in the greenhouse and open fields, throughout the growing season. Larvae of *T. absoluta* mainly attack leaves and fruits but can also feed on stems, buds and flowers, causing severe crop losses of up to 100 % when no control measures are present. In Spain, *T. absoluta* was first detected at the end of 2006 in the north of Castellón (eastern Spain) this being the first record of this species out of its continent of origin (Urbaneja et al. 2007). Since then, this invasive pest has spread rapidly throughout multiple locations in the