

## A new species of *Phanerotoma* Wesmael (Hymenoptera: Braconidae: Cheloninae), a parasitoid of *Conopomorpha sinensis* Bradley (Lepidoptera: Gracillariidae) from South China

WINSON TSANG<sup>1,4</sup>, LAN-SHAO YOU<sup>2</sup>, CORNELIS VAN ACHTERBERG<sup>3</sup> & GUANG-WEN LIANG<sup>4,5</sup>

<sup>1</sup>HK Organic Agriculture & Ecological Research Association, Hong Kong, China

<sup>2</sup>College of Bio-Safety Science and Technology, Hunan Agriculture University, Changsha 410128, China

<sup>3</sup>Department of Terrestrial Zoology, Netherlands Centre for Biodiversity Naturalis, 2300RA Leiden, The Netherlands

<sup>4</sup>College of Resources and Environment, South China Agricultural University, Guangzhou 510642, China

<sup>5</sup>Corresponding author. E-mail: hkoce@yahoo.com.cn, gwliang@scau.edu.cn

### Abstract

*Phanerotoma conopomorphae* sp. nov. (Cheloninae (Hymenoptera: Braconidae) is described and illustrated; a solitary parasitoid of the litchi fruit borer *Conopomorpha sinensis* Bradley (Lepidoptera: Gracillariidae) of *Litchi chinensis* Sonn. in Guangdong (South China). The new species is compared with related species from the Oriental region.

**Key words:** *Conopomorpha sinensis*, litchi fruit borer, Gracillariidae, *Phanerotoma*, Hymenoptera, Braconidae, Cheloninae, new species, *Litchi chinensis*, Guangdong, South China

### Introduction

*Conopomorpha sinensis* Bradley (Lepidoptera: Gracillariidae) is one of the major pests of litchi and longan trees (Qian, 1955; Yao, 1990). The larvae cause considerable yield losses and economic injury by penetrating the leaves, flowers and fruits (Feng *et al.*, 2004; Li, 2005). Sometimes the fruit production is reduced by 60%–80% in Guangdong (China) (Huang *et al.*, 2001). Because the larvae live inside the fruits, they are very difficult to control by traditional methods. Three species of Braconidae are known to occur on this host (Yu *et al.*, 2007): *Chelonus chailini* Walker & Huddleston, 1987; *Parachremylus litchii* Belokobylskij & Maetô, 2006 (both also on *C. litchiella* Bradley, 1986) and *Protapanteles conopomorphae* (Tsang & You, 2007). The first author carried out a study of the pest species from 2006 to 2007 to find additional parasitoids for biological control. He reared a new species of the genus *Phanerotoma* Wesmael (Hymenoptera: Braconidae: Cheloninae) from the cocoons of *C. sinensis* collected from leaves of *Litchi chinensis* Sonn.

Members of the subfamily Cheloninae are koinobiont endoparasitoids. Usually the egg is laid in the host egg, but most of the development is postponed until the final instar of the host larva (ovo-larval parasitoid; Shaw & Huddleston, 1991). *Phanerotoma* is a cosmopolitan genus containing parasitoids of Lepidoptera with 194 known species (Yu *et al.*, 2007). Its host range includes thirteen Lepidoptera families, and is most frequently reared from Pyralidae and Tortricidae (Yu *et al.*, 2007). The preliminary identification with published keys was problematic because no revision of the genus for the Oriental region exists; only a preliminary key to include his new species was published by Zettel (1990). Several Oriental species are included in partial revisions of the Holarctic species (van Achterberg, 1990; Telenga, 1941; Tobias, 1986; Watanabe, 1937; Zettel, 1992) which may be present in South China. For China some incomplete keys are available (Sonan, 1932; Chen & Ji, 2003; You & Wei, 2006). The final identification was made by the third author (CvA) who has a manuscript key to all known species of the Oriental region.