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A new species of *Ceratosolen* from the Philippines (Hymenoptera: Agaonidae)

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Abstract. A new species of fig wasp, *Ceratosolen* (*Ceratosolen*) *polyodontos* n. sp., is described from females captured at Los Baños, Luzon, Philippines. The species can be distinguished from its congeners by the possession of a much greater number of ventral mandibular lamellae (22–23), divided into an anterior and posterior area, and posterior metasomal structures associated with the ovipositor.

Key words: entomology, taxonomy, Chalcidoidea, fig wasp, Philippines, Southeast Asia, new species, Agaoninae.

INTRODUCTION

The obligate mutualism between *Ficus* trees and fig wasps (Chalcidoidea: Agaonidae) has existed for million years (Grimaldi & Engel 2005; Peñalver *et al*. 2006). While approximately 640 agaonid species are presently described worldwide, estimates indicate that this is likely merely one-half of the total fig wasp diversity. Wiebes (1994) provided the most comprehensive treatment of the Indo-Malayan agaonid fauna. Despite the various inadequacies of this work it is nonetheless a very valuable entry point into the fauna and a necessary foundational stone for building more rigorous revisionary work, comparative studies, and biological investigations.

One of the more notable genera occurring in the Indo-Malayan fauna is the genus *Ceratosolen*. *Ceratosolen* is divided into three subgenera – *Rothropus*, *Strepitus*, and *Ceratosolen* proper – distributed across Africa, India, Australia, Malagasy, Malaysia, Indonesia, Melanesia, Polynesia, and the Philippines. Three species of *C.* (*Ceratosolen*) have been previously documented from the Philippines, *C.* (*Ceratosolen*) *pygmaeus*

Grandi, *C.* (*C.*) *appendiculatus* (Mayr), and *C.* (*C.*) *bisulcatus jucundus* Grandi. During recent collecting in Luzon a fourth species of this subgenus was recovered. Upon study the material is not referable to any hitherto known Indo-Malayan fig wasp and is accordingly described here as new.

MATERIALS AND METHODS

Specimens were collected using yellow and blue bowls filled with soapy water. Bowls were placed on the ground near vegetation and left for one day. Photographs were taken using a ML-1000 Microptics Digital Imaging system, and scanning electron micrographs captured with a LEO 1550 FE-SEM. Specimens are deposited at the University of the Philippines, Los Baños campus. Morphological terminology and format for the description follows that of Wiebes (1994) and Peñalver *et al*. (2006).

TAXONOMY

Ceratosolen (*Ceratosolen*) *polyodontos* n. sp.

(Figs. 1-18)

Diagnosis

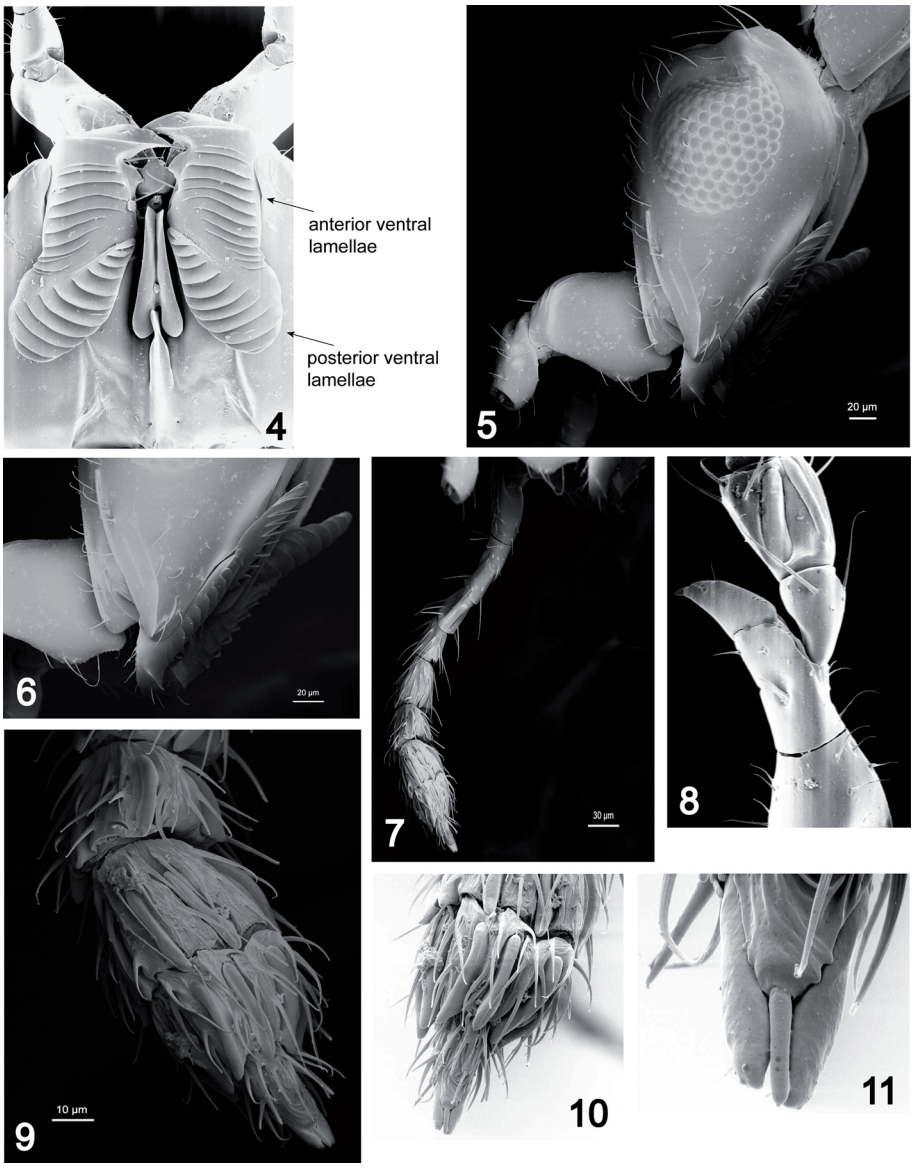
The new species is placed within the subgenus *Ceratosolen s. str.* by the possession of two dorso-apical teeth on the tibia and having a division between the third antennal article and its produced apex. This species is apparently most similar to two species within the subgenus, *C.* (*C.*) *pygmaeus* and *C.* (*C.*) *internatus* Wiebes, but can be differentiated by being the only species in the clade that has 22–24 ventral lamellae, 11–12 on the anterior series and 11–12 on the posterior series. Furthermore, the hypopygial mucro is much longer in the new species than in any other *Ceratosolen* proper.

Description

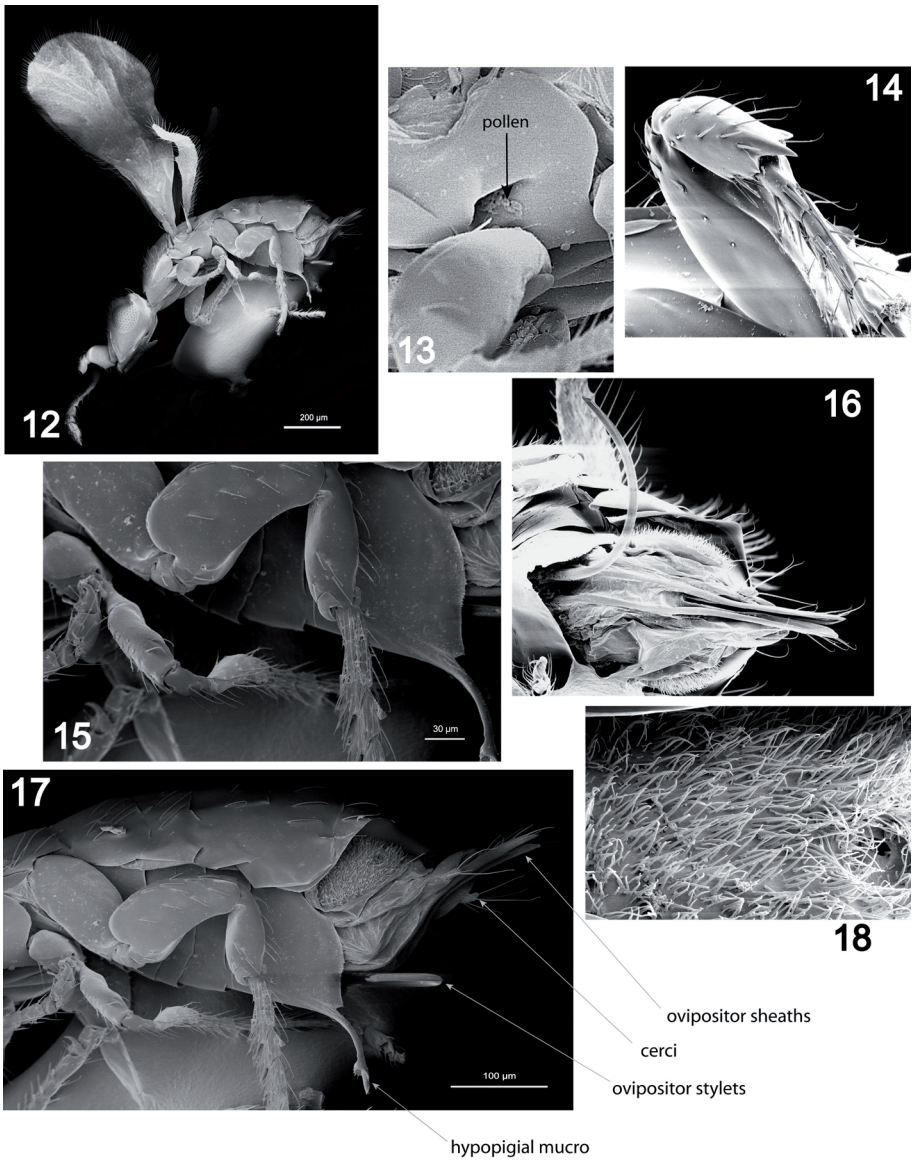
Female (Figs. 1, 12). Length (including ovipositor) 1.2 mm. Head, mesosoma, and metasoma dark brown to fuscous dorsally, light brown ventrally. Anterior half of head and scape pale yellowish-brown; remainder of head and antennae brown. Legs pale yellowish-brown. Integument shinny, with long, light brown setae. Head as long as wide, length and width 0.3 mm (Fig. 2). Diameter of compound eye 0.5x length of head (Fig. 5). Gena narrower than compound eye width. Antenna with 11 articles, with produced apex of article 3 separate from and approximately 2x the length of article 4, reaching beyond apical margin of article 4; articles 5–11 with placoid sensilla; article 11 slender (Figs. 7–11). Mandibular appendage with 22–24 ventral lamellae, 11–12 in anterior series and 11–12 in posterior, angled series (Figs. 4, 6). Mesosoma with large mesosternal pollen pockets (Fig. 13). Pro-, meso-, and metatibia with two teeth – one monocuspidate and one bicuspidate (Figs. 14, 15). Forewing with seven spectral lines; submarginal vein 0.5x as long as stigmal vein; marginal vein 2.5x as long as stigmal vein; postmarginal vein 0.5x as long as stigmal vein (Fig. 3). Hypopygial mucro extending beyond hypopygium by approximately twice length of gastral tergite

VIII, bare, without hyaline setae (Figs. 16, 17). Gastral tergite VI with a large pilose area (Figs. 17, 18). Ovipositor stylets reaching slightly beyond ovipositor sheath; ovipositor sheath extending beyond gastral tergite VIII by twice length of gastral tergite VIII. Cerci with approximately five setae. **Male**. Unknown.

1–3. *Ceratosolen polyodontes* n. sp.: 1 – adult, lateral view, 2 – head, dorsal view, 3 – forewing



4–11. Scanning electron micrographs of *Ceratosolen polyodontes* n. sp.: 4 – ventral aspect of mandibular ventral lamellae, 5 – lateral view of head, 6 – lateral view of mandibular ventral lamellae, 7 – antenna, 8 – enlargement of third antennal article showing produced apex, 9 – enlargement of antennal apex, 10 – ditto, 11 – enlargement of eleventh antennal article



12–18. Scanning electron micrographs of *Ceratosolen polyodontes* n. sp.: 12 – lateral view of adult, 13 – pollen pocket, 14 – pro leg, 15 – meta leg, 16 – ventral view of metasoma, 17 – lateral view of metasoma, 18 – enlargement of setae on sixth gastral tergite

Type material

Holotype: ♀, Philippines: Luzon: University of Philippines, Los Baños campus, base of Mt. Makiling, 9 January 2007, S. Davis. Paratype: ♀, same data as holotype.

Etymology

The specific epithet is derived from the Greek *polys* (meaning "many") and *odontos* (meaning "tooth"), referring to the much larger number of lamellae this species possesses in comparison to other congeners.

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