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**The world species of *Balcha* Walker
(Hymenoptera: Chalcidoidea: Eupelmidae),
parasitoids of wood-boring beetles**

GARY A. P. GIBSON



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Auckland, New Zealand

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Abstract

The world species of *Balcha* Walker (Hymenoptera: Eupelmidae) are revised, keyed and illustrated. Sixteen species are recognized, including two that are newly classified in the genus, *B. reticulata*

(Nikol'skaya) n. comb. and *B. splendida* (Girault) n. comb., and eight that are described as new, *B. camptogastra* n. sp., *B. dictyota* n. sp., *B. enoptra* n. sp., *B. eximiassita* n. sp., *B. laciniosa* n. sp., *B. punctiscutum* n. sp., *B. reburra* n. sp., and *B. reticulifrons* n. sp. Evidence for the monophyly of *Balcha* is discussed and the 16 species are segregated into four species groups based on morphological features. *Balcha indica* (Mani & Kaul) is newly recorded from the eastern United States (Maryland, Michigan, Virginia) as an accidental introduction from the Oriental region and as an adventitious parasitoid of the emerald ash borer, *Agrilus planipennis* Fairmaire (Coleoptera: Buprestidae).

Key words: Eupelmidae, Calosotinae, Chalcidoidea, new species, world key, parasitoid

Introduction

Balcha Walker (Hymenoptera: Eupelmidae, Calosotinae) was established by Walker (1862) for *B. cylindrica*, from South Africa. Since then, seven additional species have been described that can be ascribed to the genus, six from the Oriental region (India, Philippines, Sarawak, Taiwan) and one from the Palearctic region (Russian Far East). Gibson (1989) reported the genus only from the Old World, but an unidentified species was collected subsequently in Virginia, USA (Gibson 1997). Specimens of *Balcha* are large, females being about 5–15 mm in length, and often with beautiful conspicuously contrasting patterns of sculpture and colors (Figs. 1–18). Because it is highly unlikely that such large and impressive insects would have been missed by previous collectors, the species collected in Virginia undoubtedly represents a comparatively recent, accidental introduction to North America (Gibson 1997). Gibson (1989) listed the larvae of *Agrilus* Curtis (Coleoptera: Buprestidae) as hosts for *Balcha*. This statement was based on label data from only two specimens, but wood-boring beetles are the inferred hosts of *Balcha* based on known hosts of other phylogenetically related genera of Calosotinae (Gibson 1989). Consequently, it is quite likely that the species was introduced to North America with some unknown exotic wood-boring beetle.

In 2003, I received from two different sources females of the same *Balcha* species as was collected previously in Virginia. The first females had been collected ovipositing into dead *Prunus* (Rosaceae) branches in Maryland. The second set of females was reared from the emerald ash borer, *Agrilus planipennis* Fairmaire (Coleoptera: Buprestidae), in logs of ash (*Fraxinus*) trees in Michigan. The emerald ash borer is an invasive pest of ash introduced from Asia that was discovered in Michigan in 2002 (Wei *et al.* 2004). Consequently, either the same *Balcha* species was introduced at least twice to North America or, more likely, a single introduction had established and spread subsequently throughout Virginia, Maryland and Michigan using more than one wood-boring beetle host. In either instance the parasitoid can be considered a beneficial invasive species.

Several species of *Agrilus* in addition to the emerald ash borer are pests of trees and other plants in North America and throughout the world (Johnson & Lyon 1991). Because