



**Miracine parasitoid wasps (Braconidae, Miracinae): First Australian record and new species described as part of the *Insect Investigators* citizen science project.**

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Miracinae is a poorly known and rarely collected subfamily of parasitoid wasps belonging to the megadiverse family Braconidae. As parasitoids of leaf-mining caterpillars, they play important roles in regulating natural populations of their hosts, and have applications in the biological control of agricultural pests. Here, we present the first record of Miracinae in Australia, and the subsequent documentation of seven new Australian species. DNA barcodes (*COI*) for Australian specimens were compared to all available miracine barcodes on the Barcode of Life Database using phylogenetics and molecular species delimitation. The results suggest that Australia may be home to a diverse fauna of endemic miracine wasps, and provided a guiding framework for morphological description of four new species. More recently, three additional new miracines are being described in collaboration with Australian regional schools as part of the Insect Investigators citizen science project. While much of the diversity of this subfamily likely remains unexplored, this work lays a foundation which will aid in more rapid documentation of Australian Miracinae, and increases awareness of the presence of these wasps in Australia.

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