


Notes and Comments

***Brachymeria minuta* (Hymenoptera: Chalcididae): parasitism on pupa of the eucalypt defoliator *Thyrintea arnobia* (Lepidoptera: Geometridae) and its first record in the Americas**

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Thyrintea arnobia Stoll, 1782 (Lepidoptera: Geometridae) is found in Central, North, and South America (Pohl et al., 2016) and it is the main defoliator in *Eucalyptus* spp. (Myrtaceae) plantations in all regions of Brazil (Zanuncio et al., 2021). Identifying new natural enemies is important because predatory stink bugs (Hemiptera: Pentatomidae) and the parasitoid wasps *Palmistichus elaeisis* Delvare & LaSalle, 1993 and *Trichospilus diatraeae* Cherian & Margabandhu, 1942 (Hymenoptera: Eulophidae) are used in the management of *T. arnobia* in Brazil (Pastori et al., 2012; Silva et al., 2012; Barbosa et al., 2016).

Species of Chalcididae wasps are cosmopolitan with the majority reported from tropical regions (Hasanshahi et al., 2013) and *Brachymeria* Westwood, 1829 is one of the most widespread and common genera of this family. Species of this genus parasitize pupae of Coleoptera, Diptera, Hymenoptera and Lepidoptera pests (Zache et al., 2012; Aquino et al., 2015) or are pupal hyperparasitoids (Pinheiro et al., 2022). *Brachymeria* parasitized *Thyrintea* sp. and *Brachymeria pandora* (Crawford) parasitized *Thyrintea leucocerae* Rindge (Lepidoptera: Geometridae) pupae in the municipality of Sete Lagoas, Minas Gerais state, Brazil (Zache et al., 2012).

The objective of this paper is to report, for the first time, *Brachymeria minuta* Linnaeus, 1767 (Hymenoptera: Chalcididae) parasitizing *T. arnobia* pupae and its first occurrence in the Americas.

Pupae of *T. arnobia* were collected from a eucalyptus plant near a native forest in Viçosa, Minas Gerais state, Brazil (20°45'14" S, 42°52'53" W, 648.74 m) and they were kept under laboratory conditions. A chalcidid pupal parasitoid emerged from one of them and it was preserved in a glass vial containing 70% alcohol and its dorsal and lateral photographs sent to Dr. Sagadai Manickavasagam (Faculty of Agriculture - Annamalai University, India, Chidambaram, India), who identified it as *Brachymeria minuta*.

This is the first report of an association between *B. minuta* and *T. arnobia* (Figure 1) in the world. *Brachymeria minuta* is, usually, a gregarious parasitoid in Lepidoptera, and solitary in Diptera, due to the host size and weight. This natural enemy parasitized pupa of important insect pests such as *Apomyelois ceratoniae* Zeller, 1839 (Lepidoptera: Pyralidae), *Aproaerema modicella* Deventer, 1904 (Lepidoptera: Gelechiidae), and *Lymantria dispar* Linnaeus, 1758 (Lepidoptera: Lymantriidae) (Kenis and Cugala, 2006; Lotfalizadeh et al., 2012; Nobakht et al., 2015). *Brachymeria minuta* also parasitizes synantropic dipterans, such as *Musca domestica* Linnaeus, 1758 (Diptera: Muscidae) (Chakraborty et al., 2015).

The record of *B. minuta* in the Americas expands the geographic range of this parasitoid widely distributed in Europe, with reports in Malta (Southern Europe), Portugal and Spain (Southwest Europe), Italy (Central-Southern Europe), Austria (Central Europe), Belgium, France, Germany, Netherlands and the United Kingdom (Western Europe), Turkey (Southeast Europe), Belarus, Hungary and Ukraine (Eastern Europe) and Denmark, Estonia, Lithuania, and Sweden (Northern Europe). This parasitoid has also been reported in India (South Asia), Japan (East Asia), Korea (Northeast Asia), Thailand and Vietnam (Southeast Asia), Russian Federation (Eurasia) and Saudi Arabia (Middle East), Morocco (Northwest Africa), Iran (Palearctic Region), and Australasia (Oceania) (Kenis and Cugala, 2006; Lotfalizadeh et al., 2012; Nobakht et al., 2015; Narendran and van Achterberg, 2016; Falahatpishah et al., 2018; GBIF, 2022) (Figure 2).

The association of *B. minuta* as an endoparasitoid of *T. arnobia* pupae increases the number of natural enemies of this important eucalyptus defoliator. This is the first record of *B. minuta* in the Americas, specifically in South America and Brazil.

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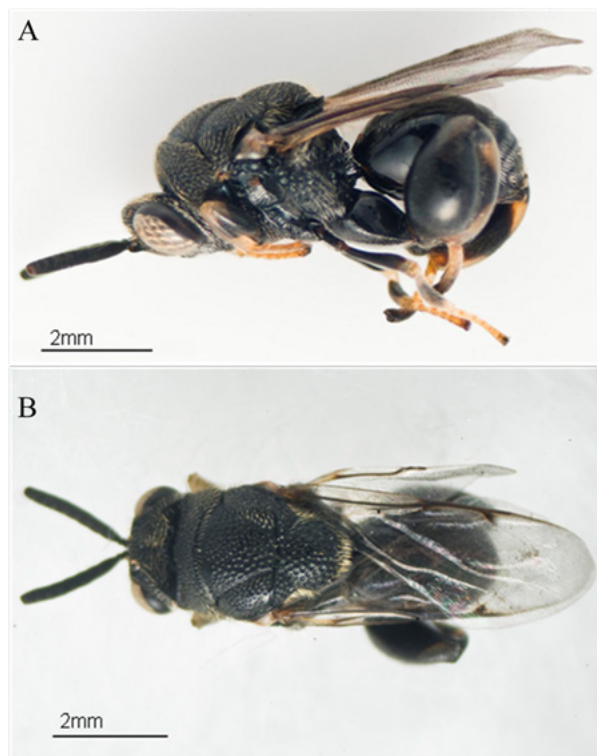


Figure 1. Lateral (A) and dorsal (B) view of the parasitoid *Brachymeria minuta* (Hymenoptera: Chalcididae) emerged from *Thyriniteina arnobia* (Lepidoptera: Geometridae) pupa.

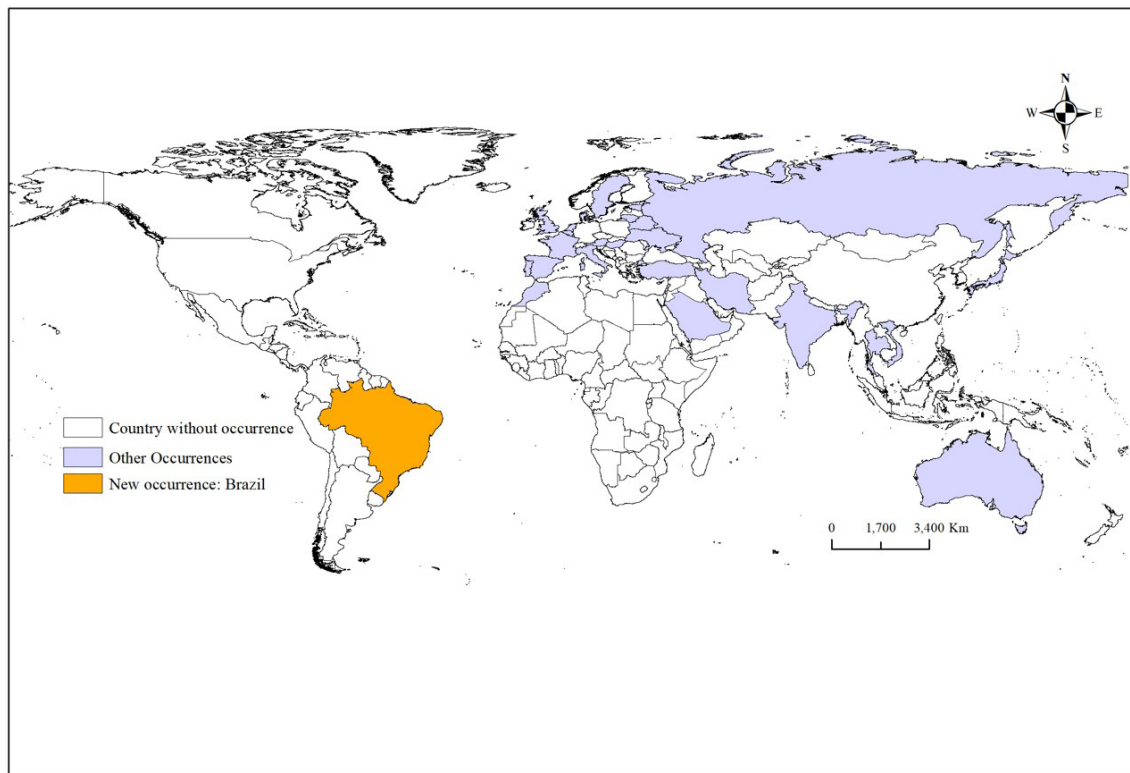


Figure 2. First record of *Brachymeria minuta* (Hymenoptera: Chalcididae) in the Americas and its distribution in the world. Source: Kenis and Cugala (2006); Lotfalizadeh et al. (2012); Nobakht et al. (2015); Narendran and van Achterberg (2016); Falahatpisheh et al. (2018); GBIF (2022).

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