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Notes and Comments

Horismenus cupreus (Hymenoptera: Eulophidae) parasitizing *Bedellia somnulentella* (Lepidoptera: Bedelliidae) in *Ipomoea batatas*

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The sweet potato, *Ipomoea batatas* (Linnaeus) Lamarck, is a rustic crop with wide edaphoclimatic adaptation, high drought tolerance and low production cost (Motsa et al., 2015). Sweet potatoes are an option for low-income families' food and economic security in developing countries (Wang et al., 2016; Santos et al., 2021; Cabral et al., 2022). Threats to culture are related to their susceptibility to pest attacks.

The sweet potato leaf miner, *Bedellia somnulentella* Zeller, 1847 (Lepidoptera: Bedelliidae), an invasive and important pest, is found on the continents of Africa, Asia, Europe, the Americas and Oceania (Santos et al., 2022). In Brazil, it was registered in 2018 damaging sweet potato leaves in Diamantina, Minas Gerais, Brazil (Santos et al., 2018) and with displacement to the south (Lavras) and north (Salinas) regions of the Minas Gerais state (Santos et al., 2020). This pest's consumption of leaf mesophyll reduces the photosynthetic area hindering the carbon fixation and, consequently, reserves in the tuberous roots, decreasing the yield (Erpen et al., 2013). There is no confirmation of insecticides registered for this pest control, which makes it necessary to study its natural enemies as part of the biological control program.

Parasitoid hymenopterans act as regulators of several groups of insects and can be successfully used in biological control programs (Hansson, 2009; Hansson et al., 2014). The correct taxonomic identification of natural enemies is necessary to establish local diversity and assess its potential as a control agent (Hansson et al., 2019; Soares, 2022). This study aimed to report the parasitism of *B. somnulentella* pupae and identify the natural enemy's genus and species.

In July 2020, parasitized pupae of *B. somnulentella* were collected on leaves of *I. batatas* in a greenhouse at the Horticulture Sector of the *Universidade Federal dos Vales do Jequitinhonha e Mucuri* - UFVJM, Diamantina, State of Minas Gerais, Brazil (18° 14'S 43° 38'W, mean annual rainfall of 1.468 mm, mean annual temperature of 19°C and altitude of 1387 m). Collections were taken to the UFVJM Entomology Laboratory to observe the emergence of parasitoids. There were six collections per week, totaling 24 collections. The sampling effort was 5.200 pupae placed in test tubes until parasitoid adults or *B. somnulentella* emergence. After emergence, 4.889 adults of the parasitoid were preserved in flasks containing 70% alcohol, and 20 specimens were sent to taxonomist Dr. Valmir Antonio Costa, and identified with the help of Hansson (2009).

The specimens were classified as *Horismenus cupreus* (Ashmead, 1894) (Hymenoptera: Eulophidae) (Figure 1) and are deposited in the Entomophagous Insect Collection "Oscar Monte" (IBCBE, curator: VA Costa), from the Instituto Biológico (Campinas, SP, Brazil), under reference number IBCBE-S-785.

The endoparasitoid *Horismenus*, one of the largest genera of the Eulophidae, includes 416 species (Noyes, 2019). The records of this genus are quite diverse and include primary and secondary parasitoids, solitary or gregarious species, specialists or generalists (Hansson et al., 2014). Except for *Horismenus absonus* Narendran and Girish Kumar, 2011 (India) and *Horismenus specularis* Erdos, 1954 (Europe), they are distributed in the tropical regions of America, parasitizing eggs, larvae or pupae of their hosts (Hansson et al., 2019).

Some species have relevant implications for biological control programs parasitizing Coleoptera, Diptera, Hymenoptera, Lepidoptera, Mantodea, Neuroptera, and Orthoptera (Hansson, 2009; Hansson et al., 2014). In Mexico, *Horismenus* sp. is responsible, in some regions, for more than 90% of Bruchinae (Coleoptera) parasitism that feeds on *Phaseolus vulgaris* (Fabaceae) (Laurin-Lemay et al., 2013).

In Brazil, *Horismenus* sp. has been observed emerging from leaf mining larvae, *Phyllocnistis citrella* Stainton, 1856 (Lepidoptera: Gracillariidae), in citrus (Thomazini and Albuquerque, 2005), as secondary parasitoids of

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Figure 1. *Horismenus cupreus* (Ashmead, 1894) (Hymenoptera: Eulophidae) parasitoid of *Bedellia somnulentella* Zeller, 1847 (Lepidoptera: Bedelliidae) pupae.

Cotesia alius (Muesebeck, 1958) (Hymenoptera: Braconidae: Microgastrinae) (Salgado Neto and Di Mare, 2010) and in the control of the coffee leaf miner *Leucoptera coffeella* (Guérin-Mèneville and Perrottet, 1842) (Lepidoptera: Lyonetiidae) (Amaral et al., 2010).

Horismenus cupreus occurs from Argentina to the U.S., including Brazil, with records in Minas Gerais and São Paulo (Hansson, 2009). Insects of many orders are registered as *H. cupreus* hosts, such as mining flies (Diptera: Agromyzidae), beetles (Coleoptera: Buprestidae) and mining microlepidoptera (Lepidoptera: Tischeriidae and Lyonetiidae) (Hansson, 2009). The parasitoid *H. cupreus* is mostly considered secondary, feeding on primary parasitoids in other insect species (Hansson, 2009). In the insect *B. somnulentella*, 18 parasitized pupae were dissected, and no evidence of other parasitoids was found. Thus, with a solitary habit, *H. cupreus* is a primary parasitoid of *B. somnulentella*.

This is the first report of *H. cupreus* parasitizing *B. somnulentella* in Brazil. Our observations suggest that in sweet potato crops, *H. cupreus* can control *B. somnulentella*. Strategies and tactics must be planned to conserve and enhance the performance of this pest control agent, as the population level of natural enemies must be taken into account when making control decisions. More details about their hosts and distribution can be found in the Universal Chalcidoidea Database (Noyes, 2019).

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