Morphology of the first early stages of Milesia ever found in Europe.

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Abstract

With more than 80 species, the genus *Milesia* Latreille, 1804 (Diptera: Syrphidae) is found in almost every continent. Little is known about the immature stages of *Milesia* and their breeding site. However, the three *Milesia* species for which early stages are known confirm that *Milesia* larvae are saproxylic in rot holes. The larvae of the two species of *Milesia* occurring in Europe are unknown. One of these two species, *Milesia crabroniformis* (Fabricius, 1775), is the largest hoverfly in Europe and mimic the hornet, *Vespa crabro* Linnaeus, 1758. This species is widespread in the Iberian Peninsula and adults are usually found in association with mature forest. We here report the first finding of a *M. crabroniformis* early stage in the Palearctic Region. Specimens were collected in rot holes of live chesnut (*Castanea sativa* Mill.) in Sierra de las Nieves, Málaga, southern Spain. Larvae were identified by rearing them to adult stage in laboratory conditions. The morphology of the second and third larva stages and puparium were described by using both stereomicroscope and scanning electron microscope (SEM) techniques. The puparium of *M. crabroniformis* is compared with those known to other *Milesia* species. This research belongs to the Fauna Ibérica project (PGC2018-095851-A-C65) of the Spanish Ministry of Science, Innovation and Universities, as well as to the UATALENTO17-08 of the "Vicerrectorado de Investigación y Transferencia del Conocimiento", University of Alicante.

Keywords: Chaetotaxy, chestnut tree, hoverfly, larva, puparium, saproxylic

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