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NOTA BREVE / SHORT NOTE

ZOOLOGÍA

FIRST RECORD OF *Brachymeria podagrica* (HYMENOPTERA: CHALCIDIDAE) AS PARASITOID OF *Peckia collusor* (DIPTERA: SARCOPHAGIDAE)

Primer reporte de *Brachymeria podagrica* (HYMENOPTERA: CHALCIDIDAE) como parasitoide de *Peckia collusor* (DIPTERA: SARCOPHAGIDAE)

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ABSTRACT

In this work, the wasp *Brachymeria podagrica* is recorded for the first time for Colombia, a solitary parasitoid of larvae of the *Peckia collusor* fly. Third instar larvae of *P. collusor* were exposed to outdoor ambient conditions for 6 hours in the garden of the Tecnológico de Antioquia (Medellín, Colombia). 29 *B. podagrica* adults were obtained from the host pupae. Prevalence of parasitism was 14.5 %.

Keywords: flesh flies, natural enemy, parasite.

RESUMEN

En este trabajo se reporta por primera vez a la avispa *Brachymeria podagrica* para Colombia y como parasitoide solitario de larvas de la mosca *Peckia collusor*. Los enemigos naturales fueron atraídos al exponer 200 larvas de *P. collusor* en tercer instar a condiciones ambientales naturales durante 6 horas el 16 de abril de 2015 en el jardín del Tecnológico de Antioquia (Medellín, Colombia). Como resultado, 29 adultos de *B. Podagrica* emergieron de las pupas. La prevalencia de parasitismo fue del 14,5 %.

Palabras Clave: enemigo natural, moscas de la carne, parásito.

Sarcophagidae is a worldwide distributed fly family with about 3000 described species. Three subfamilies are recognized: Miltogramminae, Paramacronychiinae, and Sarcophaginae. The Neotropics holds the more basal and morphologically diverse lineages of Sarcophaginae. This subfamily includes a diversity of life habits such as coprophagy, parasitism, kleptoparasitism, predation, and necrophagy (Pape *et al*., 2011; Buenaventura and Pape, 2018), with many species of medical, veterinary, and forensic importance (Greenberg, 1984; Carvalho *et al*., 2002; Vairo *et al*., 2011; Vairo *et al*., 2014; da-Silva-Xavier A and de Carvalho Queiroz, 2016; Giangaspero *et al*., 2017). *Peckia* (*Euboettcheria*) *collusor* (Curran & Walley, 1934) is a synanthropic species found in the Neotropics and recognized by its potential forensic importance (Barros *et al*., 2008; Vairo *et al*., 2011; Buenaventura and Pape, 2013; Vairo *et al*., 2014).

The Chalcididae parasitoid wasps are worldwide distributed, with higher diversity in tropical areas (Delvare, 1995). The family has about 1500 described species belonging to 90 genera (Noyes, 2004). All its species are parasitoids of larvae or pupae of various insect orders including Coleoptera, Diptera, Hymenoptera, Lepidoptera, Neuroptera, and Strepsiptera (Narendran and Amareswara Rao, 1987; Delvare, 2017).

The genus *Brachymeria* Westwood includes about 350 described species worldwide (Noyes, 2019), with 37 species in the Neotropical Region (Delvare and Huchet, 2017). *Brachymeria* species are significant parasitoids of calyptratae flies, such as Sarcophagidae, Calliphoridae and Muscidae (Marchiori *et al*., 2002a; Marchiori *et al*., 2002b; Marchiori *et al*., 2003; Marchiori, 2004; Marchiori and Silva Filho, 2004; Couri *et al*., 2006; Oliva, 2008). Most species are solitary endoparasitoids with a koinobiont strategy. This allows the host to continue its development while feeding upon it, the female ovipositing within the larval stages of the host while the adult emerges from the pupa (Roberts, 1933; Dowden, 1935; Peruquetti, 2001; Couri *et al*., 2006).

Brachymeria podagrica (Fabricius, 1787) is a cosmopolitan species, with records from 45 countries (Noyes, 2019). In the Neotropical Region, this species occurs in Argentina, Brazil, Haiti, Jamaica, Mexico, and Peru (Delvare and Huchet, 2017). This is the first report of *B. podagrica* in Colombia and parasitism of *P. collusor*.

Two hundred third instar larvae of *P. collusor* were obtained from a colony previously established at the laboratory of entomology at the Tecnológico de Antioquia (Medellín, Colombia). The larvae were placed in four plastic containers (50 larvae each) containing 50 g of decomposing beef (chromatic state) as rearing substrate, with sand as a substrate for pupation. The open containers were exposed to outdoor environment conditions to attract parasitoids in the garden of the Tecnológico de Antioquia (6°16' N 75°35' W) on April 16, 2015, 9:00 a.m. to 3:00 p.m. Containers were set 1 m apart forming a square, these were in the shade to prevent drying out of the rearing substrate. Then, the samples were taken to the laboratory and examined to remove contaminants (Calliphoridae eggs and Sarcophagidae first instar larvae). Larvae were kept at room temperature and between 10-15 days later, 200 pupae were removed and placed individually in small glass vials with lids until fly adults and parasitoids emerged in room conditions. Parasitism prevalence was calculated with the following formula: P= (parasited pupae/total of pupae) x 100.

Between May 19 and June 2, 2015, 29 adult specimens of *B. podagrica* were collected in 200 pupae of *P. collusor*, with a parasitism of 14.5 %. One hundred and seventy-one adults of *P. collusor* emerged.

Parasitoids were identified using the taxonomic keys of Burks (1960), Portuondo (2005), and with photographs and diagnosis in Delvare and Huchet (2017). Specimens were deposited at the Colección Entomológica Tecnológico de Antioquia (CETdeA, Colombian National Record number 204) under the project code CRS15, catalog numbers: 5380–5391.

Delvare and Huchet (2017) updated the list hosts of *B. podagrica* known. Sarcophagidae are the predominant hosts with 18 species belonging the genera *Kellymyia*, *Oxysarcodexia*, *Peckia*, and *Sarcophaga*, followed by Calliphoridae with 11 species and Muscidae with four. Preference to use Sarcophagidae species as hosts rather than Calliphoridae species was reported by Parker (1924) and Roberts (1933), who suggested that this is due to the larger size of the Sarcophagidae larvae. The latter author also reported that females of *B. podagrica* oviposit the host last larval instar.

Hemencyrtus sp. (Hymenoptera, Encyrtidae) has been also reported as a natural enemy of *P. collusor* (Marchiori 2001, 2017). With our findings, the knowledge about the parasitoids of this fly species increases.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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