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Notes and Comments

Zelus pedestris (Hemiptera: Reduviidae): a new record of predator of *Ceratitis capitata* (Diptera: Tephritidae)

Zelus pedestris (Hemiptera: Reduviidae): um novo registro de predador de *Ceratitis capitata* (Diptera: Tephritidae)

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Fruit flies cause three types of damage (Morgante, 1991): cultural damages – the damaged fruits are discharged for industrial processing or for in natura consumption; infested orchards are depreciated; fruits lose their commercial value; losses can reach up to 100%; economic damages –commercialization of fruits in the external market becomes inviable; foreign currencies surpluses are no longer generated; fruits from infested areas do not reach profitable prices in internal markets; amount of collectable taxes and duties decline; and social damages, cause the growing impoverishment of people, the rural exodus and unemployment.

Control of fruit flies has been conducted throughout the world, mainly through malathion-based toxic baits (Baronio et al., 2019). Studies have documented significant impacts of toxic baits on non-target insect species including predators and parasitoids (Bortoli et al., 2016), interfering with biological control (Raga and Sato, 2005) and leaving undesirable residues in fruits (Scoz et al., 2004), which demand the search for management alternatives.

In this context, the biological control of fruit flies emerges as an alternative aiming at the maintenance of agricultural production with low environmental impact and food safety to consumers. For this purpose, pathogens, parasitoids and predators can be used.

A total of 56 species of fruit fly predators occurs in the Americas and Hawaii (Garcia et al., 2020). Among them, the only predatory bug is *Zelus renardii* Kolenati, 1857 (Hemiptera: Reduviidae) that has been recorded preying *Zeugodcus cucurbitae* (Coquillett, 1899) (Diptera: Tephritidae) in Hawaii (Nishida, 1955)

Ceratitis capitata (Wiedemann, 1824) (Diptera: Tephritidae) has only three registered predators: *Macrocheles roquensis* Mendes & Lizaso 1992 (Acari: Macrochelidae) in Brazil (Santos et al., 2017), *Belonochus rufipennis* (Fabricius, 1803) (Coleoptera: Staphylinidae), in Brazil (Silva et al., 1968) and *Solenopsis geminata* (Fabricius, 1804) (Hymenoptera: Formicidae) in Guatemala (Eskafi and Kolbe, 1990) and the USA (Stibick, 2004). Thus, the registration of *Zelus pedestris* Fabricius, 1803 (Hemiptera: Reduviidae) preying on *C. capitata* is done for the first time. Observations were made on *C. sinensis* trees in an urban area (31.7609° S, 52.3244° W) in Pelotas, State of Rio Grande do Sul, Brazil, from March to April 2020. Observations were made for one hour/day. After the specimens were sacrificed in a freezer at an average temperature of -6º C.

Photographs of the male of *Z. pedestris* (Figure 1) were taken by the third author (JO) with a Leica DMC 2900 camera attached to a Leica M205C stereomicroscope. Several images were stacked using the LAs software version 4.9. Images were edited using Adobe Photoshop CS6. Dissections of the male genitalia were made by first removing the pygophore from the abdomen with a pair of forceps and then clearing it in 20% NaOH solution for 24 hours. The dissected structures were studied and photographed in glycerol according to Gil-Santana and Oliveira (2016) and Gil-Santana et al. (2020).

The coloration, structure and vestiture of the specimen of *Z. pedestris* studied here (Figure 1), a male measuring 11.26 mm in total lenght, agrees with the general description of the males of this species provided by Zhang et al. (2016). More importantly, our specimen showed to meet the diagnostic criteria to *Z. pedestris*, i.e., "the slender, cylindrical paramere and the laterally compressed, blade-like medial process", which "can separate this species from most other species of the genus" (Zhang et al. 2016) (Figure 1(3), (4)).

Zhang et al. (2016) recorded *Z. pedestris* from the following countries: Argentina, Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname and Trinidad and Tobago. In regard to Brazil, it was recorded from 12 states (Bahia, Espírito Santo, Goiás, Maranhão, Minas Gerais, Mato Grosso, Paraná, Rio de Janeiro, Rio Grande do Norte, Rondônia, Santa Catarina and São Paulo). Therefore, our observation, besides stating a new report of predation, also records a new occurrence of *Z. pedestris* from a Brazilian state: Rio Grande do Sul.

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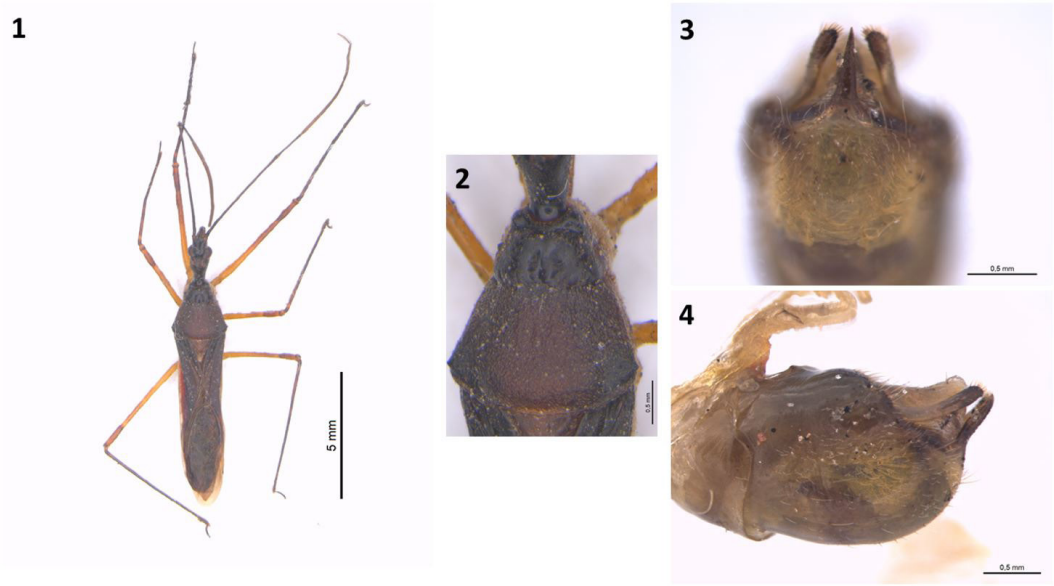

Figure 1. *Zelus pedestris*, male. (1)-(2), Dorsal view; (1) Habitus; (2) Pronotum; (3)-(4) Genital capsule; (3) Posterior view; (4) Lateral view.

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