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Scientific Note/Comunicação Científica

First record of *Leptus* sp. (Latreille) (Acari: Erythraeidae) parasitizing horse fly (Diptera: Tabanidae) from Marambaia Island, Mangaratiba, Rio de Janeiro, Brazil

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Abstract. This scientific note refers to the first record of a larvae of mite of genus *Leptus* (Acari: Erythraeidae) found parasitizing a specimen of horsefly (Diptera: Tabanidae) on Marambaia Island, Mangaratiba, Rio de Janeiro, Brazil.

Keywords: Atlantic Forest Biome; Mite parasite; Neotropical region; Tabanid; Tropical island.

Primeiro registro de *Leptus* sp. (Latreille) (Acari: Erythraeidae) parasitando mutuca (Diptera: Tabanidae) da Ilha da Marambaia, Mangaratiba, Rio de Janeiro, Brasil

Resumo. Esta nota científica se refere ao primeiro registro de uma larva de ácaro do gênero *Leptus* (Acari: Erythraeidae) encontrada parasitando um espécime de mutuca (Diptera: Tabanidae) na Ilha de Marambaia, Mangaratiba, Rio de Janeiro, Brasil.

Palavras-chave: Ácaro parasita; Bioma Mata Atlântica; Ilha tropical; Região Neotropical; Tabânida.

The cosmopolitan genus *Leptus* (Acari: Erythraeidae) comprises more than 80 species, most of which are known from the hexapod larvae (Haitlinger 2006). Life cycle includes seven parasitic larval stages and free living nymphs and adults (Southcott 1992). *Leptus* larvae are ectoparasites of a wide range of arthropods: arachnids (Acari, Araneae, Opiliones, Pseudoscorpiones, Scorpiones) (Baker & Selden 1997), Mecoptera (Seeman & Palmer 2011), Heteroptera (Pereira *et al.* 2012; Coracini & Samuels 2002), social insects (Fletchtmann 1980; Teixeira 2011), Calliphoridae and Sarcophagidae flies (Miranda & Bermudez 2008; Pinto *et al.* 2014), Coleoptera (Haitlinger 1993), Tetigonid and Phasmid (Mayoral & Barranco 2011a), Acridid (Mayoral & Barranco 2011b), Noctuid (Casanueva & Angulo 1995) and dragonflies (Vieira *et al.* 2011). In Brazil, *Leptus* was reported parasitizing predatory and phytophagous bugs in Minas Gerais (Pereira *et al.* 2012), honeybees in São Paulo (Teixeira 2011), and Sarcophaga fly *Tricharaea* (*Sarothromyia*) *femoralis* (Schiner) (Diptera: Sarcophagidae) in Itaipu beach, Maricá, Rio de Janeiro (Pinto *et al.* 2014).

Tabanus importunus Wiedemann (Diptera: Tabanidae) is a large and aggressive horse fly, with powerful flight and painful bite (Guimarães *et al.* 2016); it occurs in Panama, Guyana, Trinidad, Peru, Bolivia, Paraguay and Brazil (type locality): Roraima, Amapá, Amazonas, Rondônia, Pará, Rio Grande do Norte, Bahia, Mato Grosso do Sul, Tocantins, Rio de Janeiro and Paraná (Coscarón & Papavero 2009; Lima *et al.* 2015). Among Acari, the ticks *Rhipicephalus turanicus* Pomerantsev (Acari: Ixodidae) was found attached to the proboscis of a female of *Tabanus leleani* Austen (Boshko & Sklyar 1981) and *Rhipicephalus* (*Boophilus*) *annulatus* (Say) (Acari: Ixodidae) to *Tabanus americanus* Forster (Leprince *et al.* 1988). No record of mite parasitizing tabanid was found in the literature.

During October-December 2013 several specimens of *T. importun*us were collected by insect hand net in Vacaria Velha, an ecotone area between secondary Atlantic Forest and meadow, next to a pond (23°03'47" S, 043°59'16" W), Marambaia Island, Mangaratiba county, Rio de Janeiro, southeastern Brazil (Collection Authorization MMA-ICMBio-SISBIO nº 33382-1) (Figure 1). At laboratory of Departamento de Ciências Biológicas of Escola Nacional de Saúde Pública Sérgio Arouca, Fundação Instituto Oswaldo Cruz (ENSP-FIOCRUZ), a female specimen of *T. importunus* preserved in alcohol 70° was observed parasitized by a mite (Figure 2).

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The acari specimen was identified by Dr. Almir Pepato as a larva belonging to a species of *Leptus*, according to Southcott (1961); the specimen is deposited in Seção Acarológica da Coleção Taxonômica do Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais - UFMG, nº 1300447. The tabanid specimen was identified by Ronald R. Guimarães, according related literature (Fairchild 1969, 1984), and it is deposited in Entomological Collection of Centro de Educação e Pesquisas em Medicina Ambiental (MMA – IBAMA N º 5398253).

In nature, the specimens of genus *Leptus* are reddish in color, but the studied specimen was whitish because of being immersed in alcohol. According Southcott (1961) the larvae of species of genus *Leptus* can be recognized by the following characters: one circular eye on each side on idiosoma posterolateral to dorsal scutum; dorsal scutum more or less triangular, bearing two pairs of scutalae, e. g., non-sensillary setae towards anterior end, anterior and posterior pairs of sensillary setae; legs 7-segmented; chelicerae bases of gnathosoma narrowing anteriorly; the gnathobasal setae absent; two or four anterior hypostomal setae. Some of these characters can be observed in Figures 3A and 3B.

The mite parasitizing *T. importunus* specimen was fixed on the right side of 1st abdominal tergite; there were four dark scarring spots in integument of tergite (Figure 2). The mite inserts the chelicera (Figure 3) in host cuticle and secretes a cementitious substance that allows mite to remain attached to host body (Baker 1982). Larva of *Leptus* pierce the cuticle of host and ingest hemolymph and interstitial fluids. After ingurgitate, larva

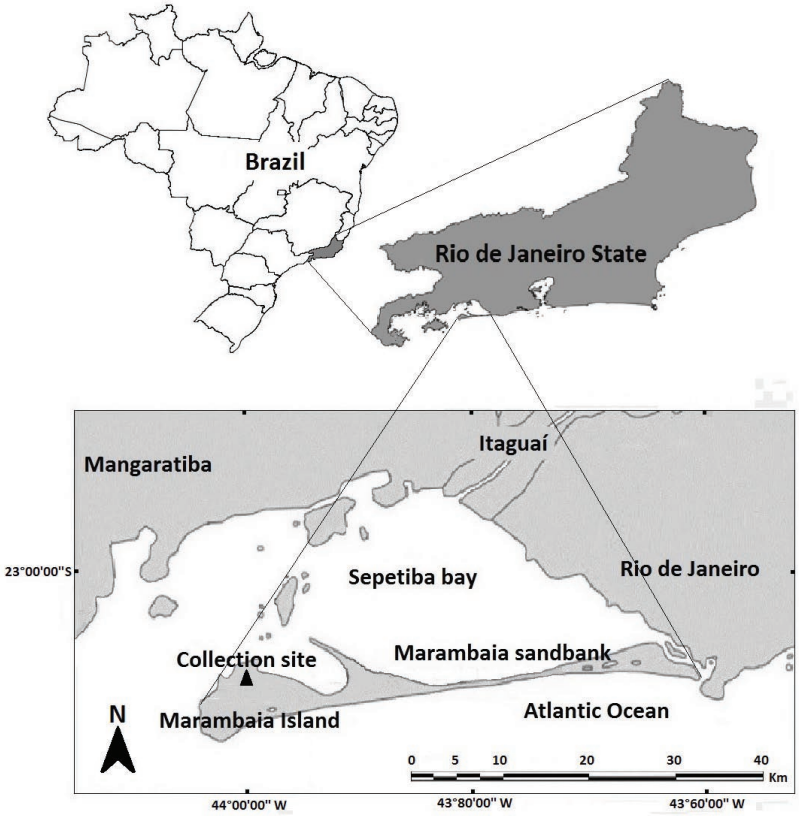

Figure 1. (A) Map of study area on Marambaia Island, Mangaratiba, state of Rio de Janeiro, Brazil. (B) Location of collection site. Collection point.

Figure 2. Hexapod larva of *Leptus* sp. parasitizing *Tabanus importunus* set on 1st abdominal tergite. The four largest dark spots are signs of scarring points where the mite fed. Black sidebar measures 1 mm. Marcia Couri's photo.

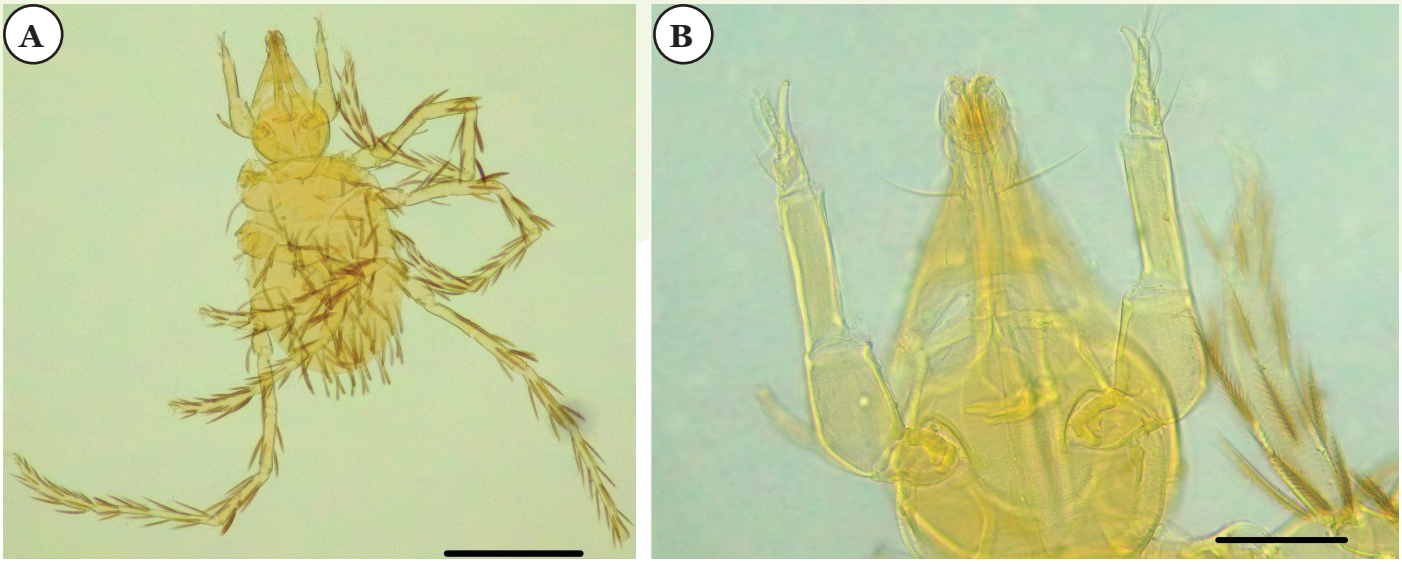

Figure 3. *Leptus* larva. (A) Photomicrography of *Leptus* specimen: eyes 7-segmented legs, one circular eye on each side, on idiosoma posterolateral to dorsal scutum, dorsal scutum more or less triangular. Black sidebar measures 200 micrometers. (B) Photomicrography of gnathosoma of *Leptus* specimen: Gnathosoma with the chelicerae bases narrowing anteriorly to a projecting beak, cheliceral digits tipped with small boring piece (terebellum) and gnathobasal setae (palpal coxal setae) absent. Black sidebar measures 50 micrometers. Pedro Henriques Silva's photos.

leaves the host and develop into nymph and free adult predator (Southcott 1961).

This is the first record of mite belonging to *Leptus* parasitizing a tabanid in consulted literature.

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