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First record of *Tetrabdella neotropica* Hernandes & Feres (Trombidiformes: Bdellidae) from México

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Tamaulipas is one of the states located in the northeast of Mexico, which has an important position for researchers; this is mainly due to the convergence of two biogeographic areas (Neotropical and Nearctic), which give rise to the Mexican Transition Zone with unique environmental conditions that allow greater diversity and abundance of species (Halffter 2017; Monjarás-Barrera *et al.* 2019). However, some groups such as mites are poorly represented compared to some orders of the class Insecta (Coronado-Blanco 2024). The superfamily Bdelloidea, which includes Bdellidae Dugès and Cunaxidae Thor, contains predatory mites that inhabit diverse environments (Skavarla *et al.* 2014; Hernandes *et al.* 2016). In the state of Tamaulipas, knowledge of the diversity of this group is limited; of these, only eight species are known for Bdellidae and three for Cunaxidae (Hoffman and López-Campos 2000; Hernandes *et al.* 2016; Monjarás-Barrera *et al.* 2019; Chaires-Grijalva *et al.* 2020, 2021).

As part of the authors' PhD projects between 2019 and 2020, various plant species were collected at numerous sites across Tamaulipas state, Mexico, principality *Magnolia tamaulipana*, *Capsicum annuum* var. *glabriusculum* and *Chamaedorea radicalis*. However, other species were collected, including leaves of *Fraxinus* sp. (Fig. 1), an ornamental tree species found throughout Victoria City, were collected. For both cases, the leaves were transported to the Population Ecology Laboratory at the Institute of Applied Ecology, where mites were directly extracted and placed on slides with Hoyer's medium for 5 days at 50 °C (Walter & Krantz 2009). The identification was carried out using a Nikon E200 phase contrast microscope at the Faculty of Enology and Gastronomy "El Porvenir", utilizing the keys of Hernandes *et al.* (2016), and comparing the specimens with the original descriptions by Hernandes and Feres (2006). The images were taken with a Canon Mark II M50 camera and edited using CorelDraw 8.

According to Hernandes and Feres (2006), the genus *Tetrabdella* presents all characteristics of subfamily Spinibdellinae (Fig. 2a). Besides of the presence of trichobothriae on tarsi III and IV (Fig. 2b); chelicera with longitudinal striae and two pairs of setae (Fig. 2c); propodosomal striae longitudinal/oblique in propodosomal area (Fig. 2d); dorsal setae strongly plumose on dorsum (Fig. 2e); 24–26 aggenitals; anal opening with four pair of setae.

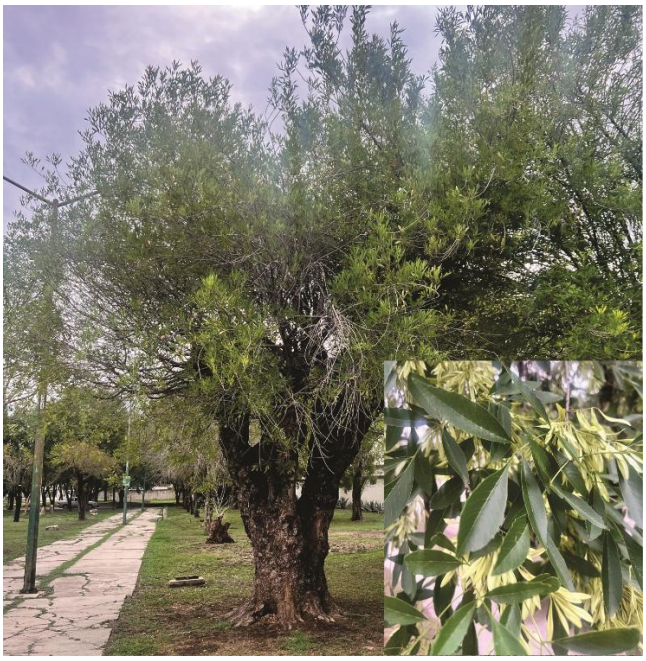

Figure 1. Habitus of *T. neotropica* from Victoria, Tamaulipas, Mexico.

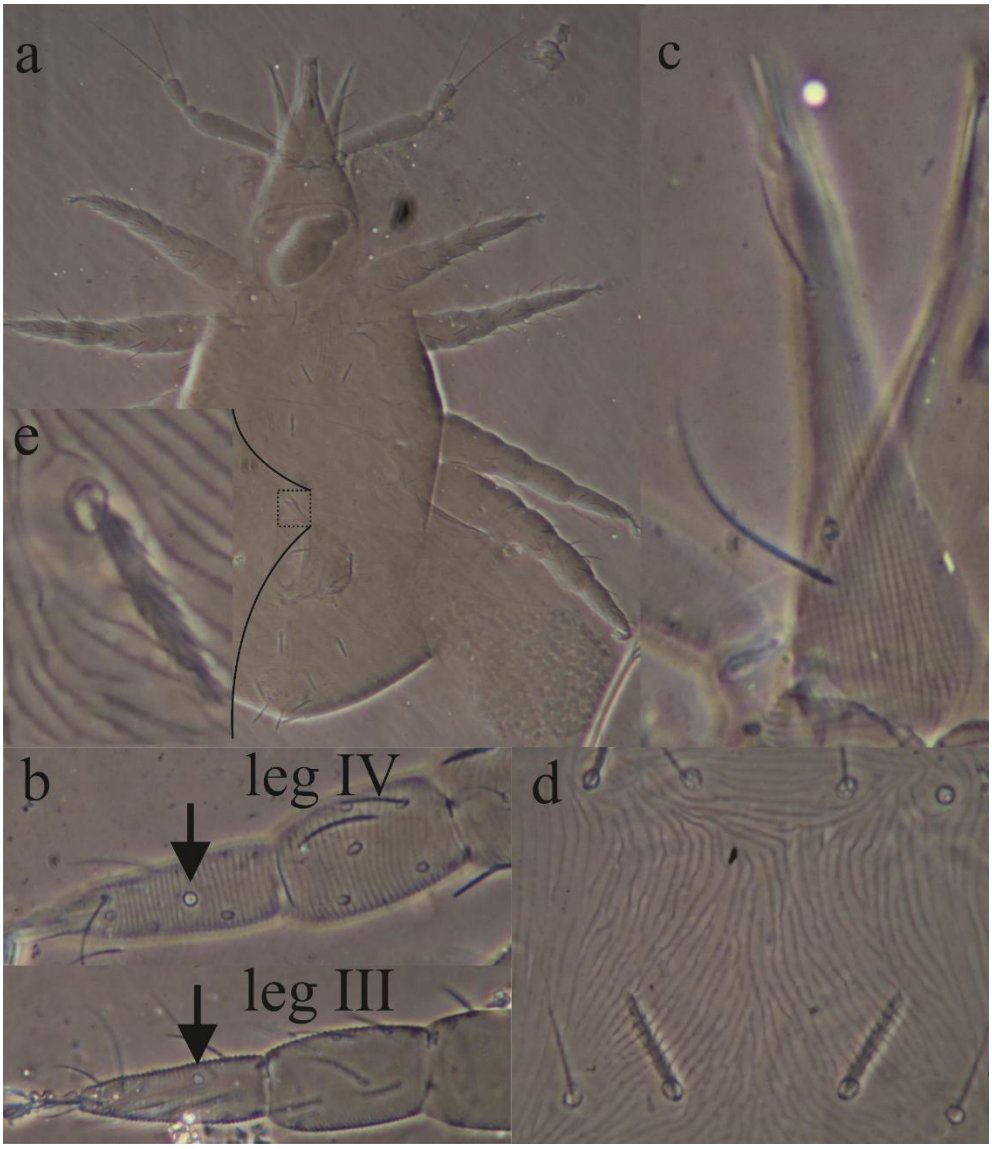

Figure 2. Morphological characteristic of *T. neotropica* from Mexico. Magnification: a = 100×; b, d = 400×; c, e = 1000×.

Based on the original description of the species in 2006, intraspecific variations were observed between the right and left sides of the same individual, as well as among individuals within the same population. These morphological variations were recorded in the Mexican population. Furthermore, the presence of an additional seta on coxa I was noted in only one specimen in the Mexican population. The complete chaetotaxy is detailed in the Table 1.

Table 1. Leg chaetotaxy of *Tetrabdella neotropica* (adult female) of Mexican specimens.

Leg	Coxa	Trochanter	Telefemur	Genu	Tibia	Tarsus
I	6–7	1–2	4	5	11	21
II	5	1	5	5–6	11	16
III	4	2	3–4	6	10–11	20–23
IV	3–4	1	3–4	6-7	10	16–18

The species *T. neotropica* is found at the furthest point of the Neotropical region in the Gulf of Mexico province (Morrone *et al.* 2017). However, the genus *Tetrabdella,* has also been reported in the north of the country in oligotrophic soils of the Cuatro Ciénegas Valley in Coahuila (García-Ayala *et al.* 2020), belonging to Chihuahua Desert Province (Morrone *et al.* 2017). However, it has not been possible to verify whether we are talking about *T. neotropica* or a different species. The same seems to happen with a record of a species close to *T. neotropica* reported for South Africa; which suggests that it could possibly be a genus with a wider distribution and represented by more than one species (Hernandes *et al.* 2016).

In *Fraxinus* sp., *T. neotropica* and two unidentified mite species were observed: Iolinidae and an Eriophyoidea. Something interesting about this observation under the microscope is that it highlights the importance of species interactions in the natural control and stability of ecosystems, since it was observed that the Iolinidae feeding on the Eriophyoidea, and in turn, Iolinidae was the main prey of *T. neotropica*. Although little is known about the food chains surrounding the predation of these organisms, it is essential to understand the function of each species to successfully determine its use in agriculture as a natural enemy of other pest species.

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