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Scientific Note

First record of *Tetranychus musae* Auger, Migeon & Flechtmann, 2008 (Prostigmata: Tetranychidae) on *Musa* sp. (Musaceae) from Pará State, Brazil

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Abstract. This study reports the occurrence of the spider mite *Tetranychus musae* Auger, Migeon & Flechtmann, 2008 (Acari: Tetranychidae) on banana (*Musa* sp.: Musaceae) in Brazil. Specimens were collected from banana leaves grown in an intercropping system with cacao (*Theobroma cacao* L. - Malvaceae) at an experimental site in the municipality of Moju, Pará State. This represents the first confirmed record of *T. musae* in Brazil.

Keywords: Amazon region, Banana, *Theobroma cacao*.

Banana (*Musa* spp. – Musaceae) is cultivated across all federal states in Brazil (Cordeiro et al. 2009). In the Northern region, Pará State is the leading producer, contributing approximately 7% of the country's total banana production in 2023 (IBGE 2025). Cultivation occurs throughout the state's mesoregions, with the Altamira and Itaituba microregions in southwestern Pará accounting for 61.94% of overall production (IBGE 2025). In this region, banana production is closely linked to cacao (*Theobroma cacao* L. – Malvaceae) cultivation, as banana plants serve as an important source of temporary shade for young cacao trees (Mendes et al. 2020; IBGE 2025).

In Brazil, species of three Tetranychidae genera have been reported on *Musa* species: *Allonychus braziliensis* (McGregor, 1950), *Oligonychus zeae* (McGregor, 1955), *Tetranychus abacae* Baker & Pritchard, 1962, *Tetranychus andrei* Baker & Pritchard, 1960, *Tetranychus cinnabarinus* (Boisduval,1967), *Tetranychus desertorum* Banks, 1900, *Tetranychus escolasticae* Paschoal, 1970, *Tetranychus mexicanus* (McGregor, 1950), *Tetranychus neocaledonicus* André, 1933, *Tetranychus urticae* (Koch, 1836), and *Tetranychus yusti* McGregor, 1955 (Flechtmann 1967; Paschoal & Reis 1968; Paschoal 1970; Flechtmann & Baker 1975; Moraes & Flechtmann 1981; Feres et al. 2009; Mendonça et al. 2011; Vasconcelos & Silva 2015; Flechtmann & Moraes 2017; Migeon & Dorkeld 2025).

Specifically, in northern Brazil, previous reports on *Musa* sp. include *T. abacae* in the states of Amapá and Amazonas (Jordão & Silva 2006; Vasconcelos & Silva 2015); *O. zeae* and *T. mexicanus* in Amazonas (Vasconcelos & Silva 2015); and *T. urticae* in Roraima (Mendonça et al. 2011).

In November 2022, mite specimens were collected during field assessments at the experimental site of SOCOCO Agroindústria da Amazônia S.A., located in the municipality of Moju (2°08'25''S, 48°37'09''W), Northeast Pará mesoregion, Pará State, Brazil (Fig. 1). The study site featured cacao clones and hybrids intercropped with banana plants of the BRS Pacoua cultivar. Mites were observed on approximately seven-month-old banana plants. Leaf samples were collected and stored in plastic bags inside insulated containers with Gelox® ice packs for transport and subsequent laboratory examination. Both abaxial and adaxial leaf surfaces were analyzed using a stereomicroscope, and collected mites were preserved in 70% ethanol for subsequent slide mounting in Hoyer's medium.

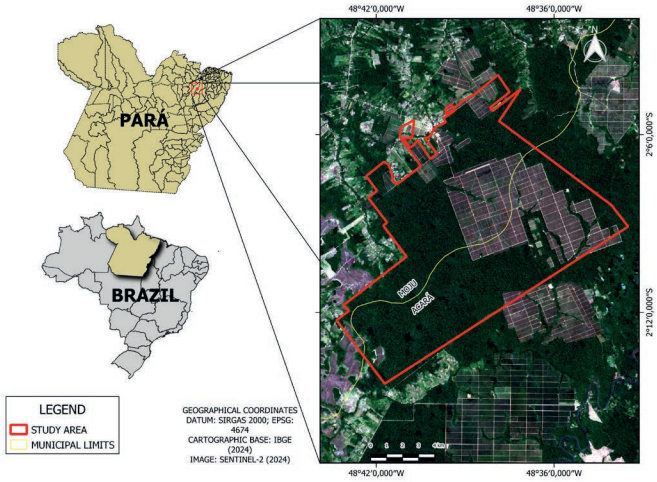

Figure 1. Location of the SOCOCO property, indicating the experimental site in the municipality of Moju, Northeast Pará region. (Map prepared by the Remote Sensing Laboratory, Embrapa Amazônia Oriental).

The species were identified under phase-contrast microscopy using specialized literature for Tetranychidae (Pritchard & Baker 1955; Flechtmann et al. 2023; Migeon & Dorkeld 2025) and original species descriptions and dichotomous keys for Neotropical *Tetranychus* Dufour, 1832 species on banana (Auger et al. 2008). Specimens were identified as *Tetranychus musae* Auger, Migeon & Flechtmann, 2008 and deposited in the reference collection of the Natural Sciences Museum (ZAUMCN) at Universidade do Vale do Taquari, Lajeado, Rio Grande do Sul.

This mite belongs to the sixth species group within the genus *Tetranychus*, characterized by one tactile seta proximal to three aligned tactile setae on the proximal region of tarsus I, with a conspicuous dorsomedian empodial spine (Fig. 2D) (Flechtmann & Knihinicki 2002).

Based on these morphological features, *T. musae* closely resembles *Tetranychus yusti* McGregor, 1955, but is distinguished by the acute angle between the aedeagal knob axis and body axis; protuberant mediodorsal spines on empodia II-IV; and terminal sensillum nearly as long as wide, compared with *T. yusti's* minute mediodorsal spines and terminal sensillum approximately 2.5 times longer than wide. The aedeagal morphology of *T. musae* (Fig. 2F) resembles that of *Tetranychus tumidus* Banks, 1900. However, in *T. tumidus*, the aedeagal axis either forms no angle or a low angle with the body axis; additionally, its anterior projection is less developed than the posterior projection, lacking the downward orientation characteristic of *T. musae*. Moreover, the tarsal I setal pattern of *T. tumidus* aligns with species belonging to the eighth species group of *Tetranychus* (Flechtmann & Knihinicki 2002; Auger et al. 2008).

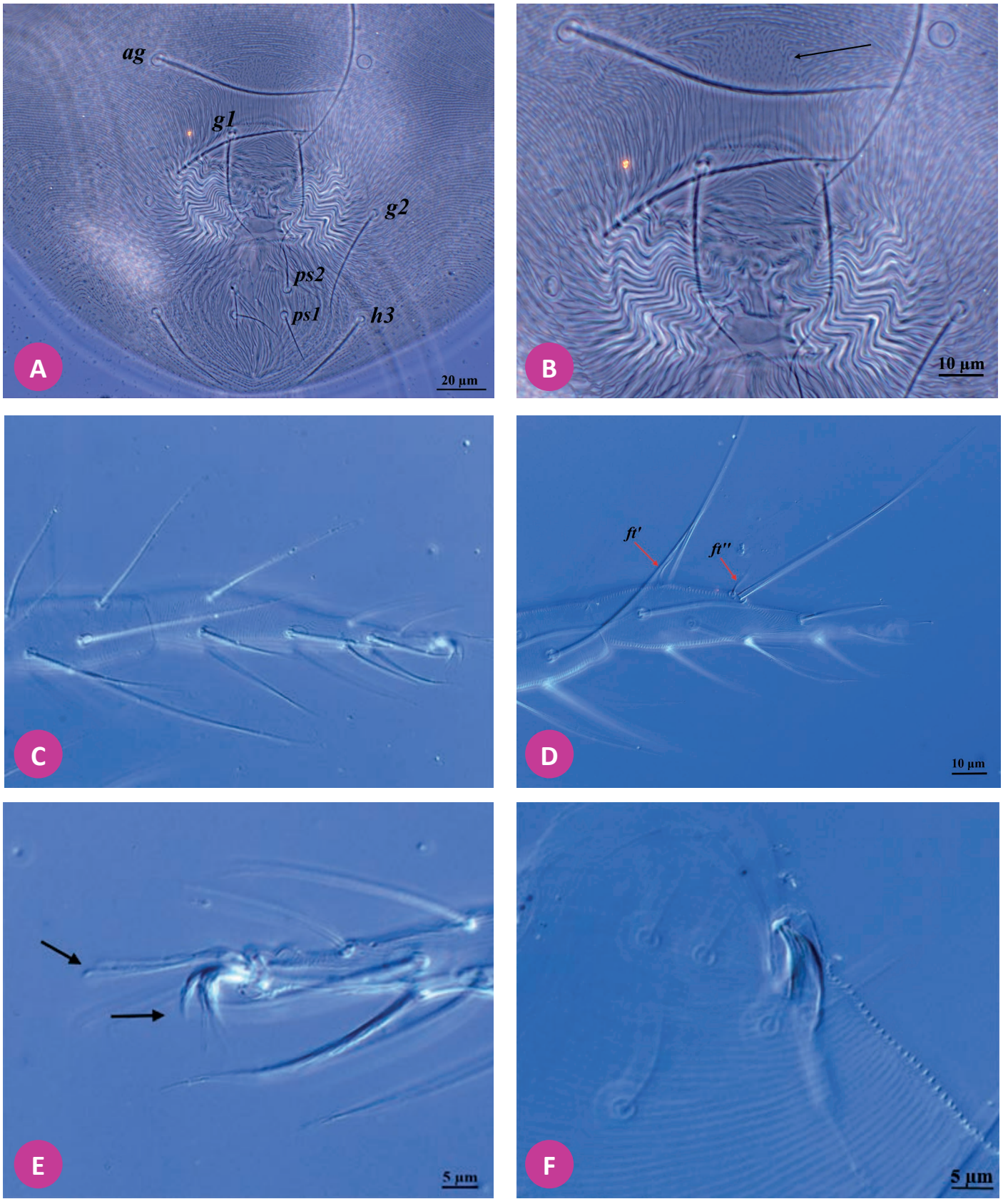

Figure 2. *Tetranychus musae* Auger, Migeon & Flechtmann, 2008. Female: (A) Ventral view of the genital aperture; (B) Ventral view of the pregenital area showing interrupted striae (black arrow); (C) Tarsus and tibia I; (D) Tarsus I showing aligned duplex setae (red arrows); (E) Empodium I with tenent hairs and empodial spur (black arrows). Male: (F) Aedeagus.

Infested banana plants exhibited yellowing along the leaf midrib, accompanied by dark reddish spots on the abaxial surface and visible webbing (Fig. 3). *Tetranychus musae* was first described in 2008 based on specimens collected on infested banana leaves in Matoury, French Guiana (Auger et al. 2008), and has not been reported elsewhere (Migeon & Dorkeld 2025). This study provides the first report of *T. musae* on *Musa* sp. in Brazil.

Figure 3. Symptoms caused by *Tetranychus musae* Auger, Migeon & Flechtmann, 2008 on the abaxial surface of *Musa* sp. leaves, cultivar BRS Pacoua: (A) yellowing and (B) dark reddish spotting.

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Authors' Contributions

ACSN: Conceptualization, Investigation, Writing – review & editing; NJF: Writing – original draft, Data curation; ISC: Investigation; MBO: Investigation; IFO: Investigation.

Conflict of Interest Statement

The authors declare no conflict of interest.

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