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Notes and Comments

First report the *Syntermes molestus* Burm. (1839) (Isoptera: Termitidae) causing severe mechanical damage to *Solanum tuberosum* roots

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Termites belong to the order Isoptera with approximately 2.800 species worldwide (Chouvenc et al., 2021). Lower termites (Families Mastotermitidae, Kalotermitidae, Termopsidae, Hodotermitidae, Rhinotermitidae and Serritermitidae) have specific diets restricted to woody tissues, while higher termites (family Termitidae) have diverse feeding habits, which include woody tissues, grass, fungi, lichen, bedding, manure, humus and soil (Vikram et al., 2021). Kalotermitidae, Serritermitidae, Rhinotermitidae and Termitidae are termite families that occur in Neotropical regions and in Brazil (Krishna et al., 2013). Kalotermitidae live only in dry wood without contact with the ground (Miyaguni et al., 2021). Serritermitidae family comprises two subterranean species (Krishna et al., 2013). Rhinotermitidae are subterranean and xylophagous (Lima and Costa-Leonardo, 2014). Termitidae family corresponds to more than 80% of the termite species that occur in Brazil (Azevedo et al., 2019). Termitidae have varied habits and are divided into four subfamilies, three of which occur in Brazil: Apicotermitinae (soldier termites), Nasutermitinae (nasuto termites) and Termitinae (Scheffrahn et al., 2005; Brune, 2014; Sousa et al., 2017). Despite the great termites diversity, only 10% of the species are considered pests. Termitidae cause damage both in urban areas and in agrosilvopastoral activity, attacking, in adulthood, pineapple, cotton, rice, live eucalyptus (planted forests and seedlings) and aged corn stalks in Brazil. Termite control is difficult and is carried out with insecticides applied in the planting furrow or through seed treatment and usually only reduce the infestation.

Despite the losses and the difficult Termitidae control, their enigmatic existence in tropical regions makes it difficult to know how they choose their food sources (Costa-Leonardo, 2008, 2022). In theory, in ideal foraging, animals choose their food according to their nutritional needs (Emlen, 1973) to optimize their fitness (Krebs, 1978). The termites foraging behavior is a collective activity composed of integrated and dynamic individual actions over time, guided by the food quality and quantity (Grace and Campora, 2005). In Termitidae, food choice is basically occasional and chronological - the first foods found (Delaplane and La Fage, 1987). However, this factor is a paradigm of the nutritional subterranean termites ecology because it has never been contested (Lima and Costa-Leonardo, 2014), generating uncertainty about whether termites move randomly or exhibit food fidelity (Thorne and Long, 2006).

The objective was to register the occurrence of *S. molestus* causing severe mechanical damage to the *S. tuberosum* cv. Ágata roots in an anthropized area with a agropastoral exploitation history.

On July 14, 2021, tubers of *S. tuberosum* attacked by termites were manually harvested in the experimental field of the Departamento de Engenharia Agrícola of the Universidade Federal de Viçosa (UFV). Experimental area was flanked by three active termite mounds measuring ± 40 and 25 cm in diameter and height, respectively, and ± 40, 10 and 3 m away from the cultivation area (Figures 1a, 1b and 1d). The insects were identified as *S. molestus* by Professor PhD. Wellington Souto Ribeiro from UFV (Figure 1). *S. molestus* is an adult pest of pineapple, cotton, rice, eucalyptus (planted forests and seedlings) and corn in Brazil, however, it had never been described as a pest or causing damage to *S. tuberosum* roots. This insect has a recurrent occurrence in the area with predominant activity between July and October. The attack to the roots occurred, for two consecutive cycles, causing deep lesions.

Approximately 20% of the tubers collected had biogenic perforations of 3.09 to 20.17 mm with a clear activity of 2.0 ± 0.2 adult termites (Figure 2). The insects left, with normal mobility, the cavities and biogenic galleries in the tubers. The biogenic cavities and galleries had the same pattern and size as those found in the termite mound (2.21 to 24.18 mm). The attacked tubers were on the edge of the cultivated area and with greening caused by inadequate hilling.

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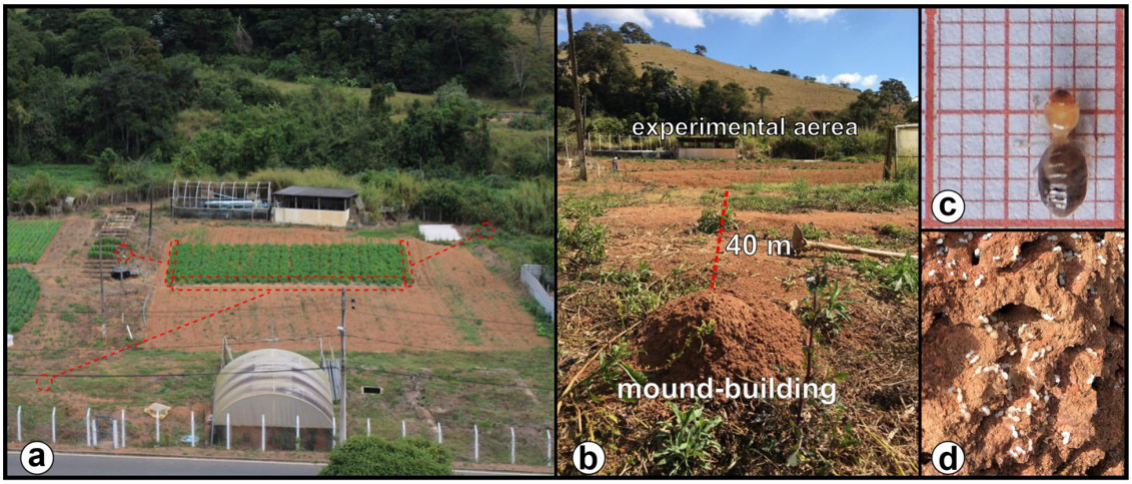

Figure 1. Aerial image from Google Earth (a) showing the positioning of termite mounds in the experimental area. Perspective of the termite mounds in relation to the experimental area (b). Active termite mound (d) and detail of an adult termite (*Syntermes molestus* Burm.) (c) found in tuber cavities and galleries of *S. tuberosum* L.

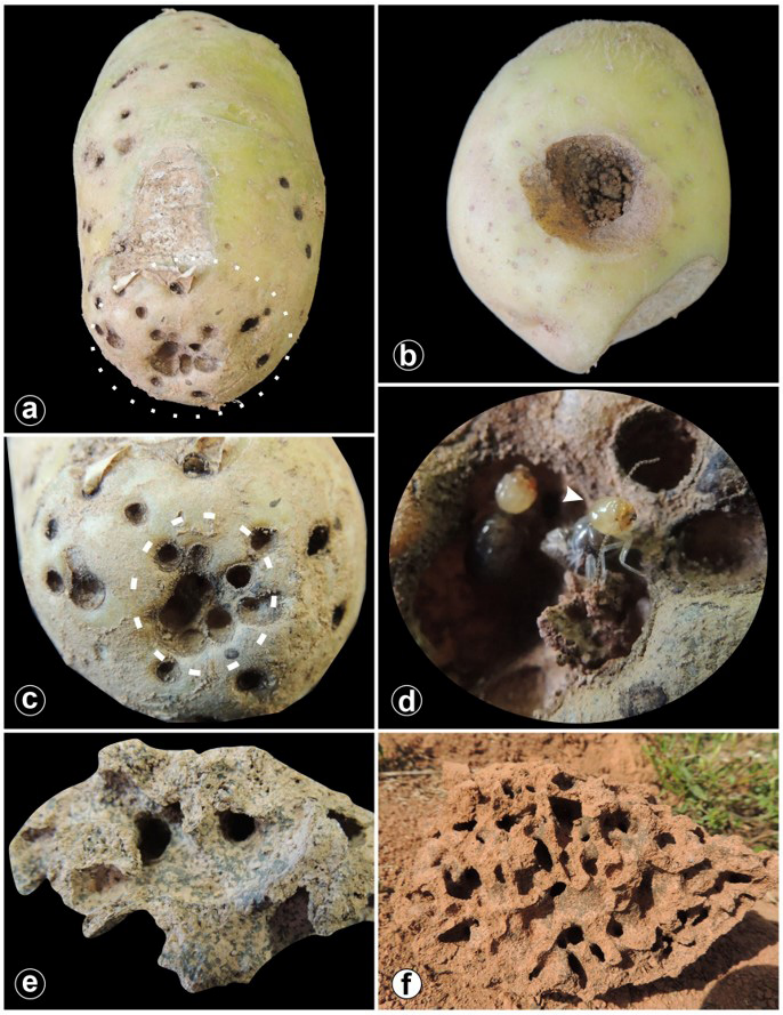

Figure 2. Tubercles of *S. tuberosum* L. evidencing the biogenic cavities and galleries resulting from the activity of *Syntermes molestus* Burm. (a, b, c, d); similar in shape and size to those observed in the termite mound (e, f).

Although termites are not considered primary potato pests, the knowledge behind the infestations lacks in-depth investigations into the range and concrete numbers. This information may be related to climate change or anthropization, which for the vast majority of agricultural areas is routine. Farmers need to know, with proportionate urgency, whether unusual insect infestations reflect abnormal contexts.

Termites are considered pests of several vegetables, however, the potato had never been mentioned literally. This fact may be related to a literature lack. Although we reported the termites attack on potato roots at this harvest time, employees and students had already observed, in greater and lesser intensity, the termites attack on potato roots. Thus, constant and more detailed observation can generate more information about the attack dynamics and the post-harvest losses magnitude.

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