

**TEGOLOPHUS IPOMOEIFOLIAE KEIFER (ACARI:
ERIOPHYIDAE) ON SWEET POTATO IN PRESIDENTE PRUDENTE,
SÃO PAULO STATE, BRAZIL.**

**Sônia Maria Nalesso Marangoni Montes¹, *Jeferson Luiz de Carvalho Mineiro²,
Amarilis Ró-Golla¹, Adalton Raga²**

¹APTA, Pólo Regional Alta Sorocabana, Caixa postal 298, Cep 19015-970.
Presidente Prudente, São Paulo, Brasil.

²Instituto Biológico, Centro Avançado de Pesquisa em Proteção de Plantas e Saúde Animal. Alameda dos
Vidoeiros, nº 1097, CEP 13101-680, Bairro Gramado, Campinas, São Paulo, Brasil.

*Corresponding author: E-mail: jefmin@hotmail.com

RESUMO

***Tegolophus ipomoeifoliae* Keifer (Acari: Eriophyidae)
em batata doce em Presidente Prudente, São Paulo, Brazil.**

O presente estudo objetivou avaliar a ocorrência de ácaros eriofídeos em duas cultivares de batata-doce [*Ipomoea batatas* (L.) Lam.] utilizadas pelos produtores da região de Presidente Prudente, SP. Brasil: Uruguaiana e Canadense. O experimento foi desenvolvido na área experimental da APTA Alta Sorocabana, localizada no município de Presidente Prudente, SP, Brasil (UTM 7.545.369 m N, 459817 m E, e altitude de 437 m), no período de abril a outubro de 2008. Para avaliação dos ácaros foram realizadas coletas quinzenais de 30 folhas ao acaso por cultivar, localizadas no terceiro par de folhas a partir da extremidade da rama. Os ácaros coletados foram montados em meio de Berlese modificado. Foi encontrado um total de 2.649 espécimes de *Tegolophus ipomoeifoliae* Keifer (Eriophyidae), sendo 1.862 na cultivar Canadense e 787 na Uruguaiana.

PALAVRAS-CHAVE: Acari, ácaro fitófago, levantamento, *Ipomoea*.

ABSTRACT

The present study aimed to evaluate the occurrence of eriophyid mites on two sweet potato cultivars [*Ipomoea batatas* (L.) Lam.] used by growers in the Presidente Prudente region, São Paulo State, Brazil: Uruguaiiana and Canadense. The experiment was carried out from April to October 2008 in the agronomic experimental area, located in the municipality of Presidente Prudente (UTM 7,545,369 m N, 459,817 m E, and altitude of 437 m). We collected 30 randomly selected leaves per cultivar fortnightly, from the third pair of leaves of the distal end of the branch. The collected mites were mounted on a modified Berlese medium. A total of 2,649 specimens of *Tegolophus ipomoeifoliae* Keifer (Eriophyidae) were recovered, with 1,862 in the cultivar Canadense and 787 in the cultivar Uruguaiiana.

KEY WORDS: Acari, phytophagous mites, survey, *Ipomoea*.

In Brazil, the literature on plant health of some crops is scarce, even those of importance to human nutrition in tropical areas. Small-scale vegetable cultivation is often a multiple activity of agricultural production, carried out with little technology and without professional supervision, resulting in low productivity and low-quality product.

The sweet potato [*Ipomoea batatas* (L.) Lam.] has been empirically cultivated by most farmers because it is a very popular tuberous vegetable grown throughout Brazil. It can be consumed after processing or intended for the candy industry. The plant is rustic, widely adapted, highly tolerant to drought and easy to grow. Successive plantings of sweet potato in the same place increase the incidence of pests and diseases and cause a decrease in productivity (EMBRAPA 1995). Originally from Central

and South America, sweet potato can be found naturally from Mexico to Colombia and has been cultivated in 111 countries (MONTES, PANTANO, 2013).

There are several pests that attack sweet potato. The most important insect pests are *Euscepes postfasciatus* (Farmaire) (Coleoptera: Curculionidae), *Diabrotica speciosa* (Germar), *Sternocolaspis quatuordecimcostata* (Lefèvre) (Coleoptera: Chrysomelidae), *Conoderus* sp. and *Megastes pusialis* Snellen (Lepidoptera: Crambidae) (MENEZES 2002, 2003; GALLO et al., 2002; MONTES et al., 2013).

Phytophagous mites are small organisms that occur on most plants and can transmit important viruses. A significant number of pest mites in agricultural crops belong to the Tetranychidae, Tenuipalpidae, Tarsonemidae and, Eriophyidae families. The number of

host plant species of the mentioned mites is very large (PRITCHARD, BAKER, 1955; OCHOA et al., 1991), infesting fruits, vegetables, ornamental plants, weeds in open or protected crops.

OCHOA et al. (1991) listed *Tetranychus neocaledonicus* André and *Tetranychus urticae* Koch as the main pests of sweet potato crops in Central America. NALEPA (1918) named *Aceria gastrotrichus* in Java and PERRING (1996) reported *Tegonotus convolvuli* (Channabasavanna) in India, both species on sweet potato. In Brazil, KEIFER (1969) named *Tegolophus ipomoeifoliae* on sweet potato collected in Monte Mor municipality, São Paulo State, Brazil.

ALVES et al. (1972) reported the occurrence of two species of eriophyid mites, *Tegolophus* sp. and *Epitrimerus* sp., on sweet potato in Monte Mor, Capivari and Indaiatuba municipalities (SP). The authors recovered these mites on the underside of the leaves, which showed severe tanning symptoms. MINEIRO et al. (2007) reported the occurrence of *Tetranychus desertorum* (Banks) on the sweet potato – cultivar Uruguaiana, which caused intense web formation, leaf discoloration and, causing leaf dryness and plant death. In Ceará State (northeast Brazil), TUTTLE et al. (1977) reported the occurrence of *Tetranychus bastosi* Tuttle, Baker & Sales.

Aiming to contribute to the management of pests on sweet potato crops, we evaluated the degree of infestation of eriophyid mites in two sweet

potatoes commonly cultivated by growers from Presidente Prudente: Uruguaiana and Canadense. The experiment was carried out in the experimental area of Apta Regional – Alta Sorocabana, located in Presidente Prudente, SP, UTM 7.545,369 m N, 459.817 m E and altitude of 437 m, from April to October 2008. In this experiment, we used the cultivars Uruguaiana and Canadense, in a completely randomized statistical design with 10 replications, totalling 20 plots. The plots consisted of four rows of 3.0 metres and spaced 0.90 m apart. The cultural treatments performed during the experiment were manual weeding and control of ants with toxic bait.

The mites were evaluated fortnightly, collecting 30 randomly chosen leaves per plot of the third pair of leaves from the end of the branch. The collected leaves were placed in paper bags in a Styrofoam box with ice to reduce the activity of the mites. In the laboratory, the leaves were placed in plastic containers with water + detergent, then shaken for a period of five minutes to dislodge the mites. Removing the leaves, the water was passed through a 0.038 mm sieve and the retained mites were dislodged with a 70% alcohol. The mites were placed in 30 ml glass flasks containing 70% alcohol, for later identification. The mites were mounted on slides with modified Berlese medium. A representative sample of the specimens was deposited in the mite reference collection 'Geraldo Calcagnolo' at the Biological Institute, in Campinas (SP).

A total of 2,649 *T. ipomoeifoliae* specimens were found (Figure 1), corresponding to 1,862 on the Canadense cultivar and 787 on the Uruguaiana. The average number of mites in 30 leaves was 186 for the Canadense and 79 for Uruguaiana cultivars (Figure 2). However, no significant difference was found between the two cultivars (test $t = 0.8749$; $p = 0.4044$). No predatory mites were observed in the collected leaves.

Although no differences in yield were detected between sweet potato cultivars, the large number of individuals collected from *T. ipomoeifoliae* showed that this mite in high populations and under specific conditions can cause damage during the plant development, as mentioned by ALVES *et al.* (1972). Specific studies are needed to understand better these relationships between the mite population and the sweet potato development, as well as the potential biological control agents of this eriophyid species.

Recebido em: 02/11/2020

Aprovado em: 15/01/2021

REFERENCES

- ALVES, S.B.; CALAFIORI, M.H.; PASCHOAL, A.D. Eriofídeos (Acari: Eriophyidae) prejudiciais a batata-doce. *Revista de Agricultura*, v.47, n.2, p.139-140, 1972.
- EMBRAPA. Centro Nacional de Pesquisa de Hortaliças. Cultivo da batata-doce (*Ipomoea batatas*). Instruções técnicas do CNPH 7, 3a edição, Ministério da Agricultura, do Abastecimento e Reforma Agrária. 8p. Disponível em: <https://www.embrapa.br/hortalicas/busca-de-publicacoes/-/publicacao/753382/cultivo-da-batata-doce-ipomoea-batatas-lam>. 1995. Acesso em agosto de 2018.
- GALLO, D.; NAKANO, O.; SILVEIRA NETO, S.; CARVALHO, R.P.L.; BAPTISTA, G.C.; BERTI FILHO, E.; PARRA, J.R.P.; ZUCCHI, R.A.; ALVES, S.B.; VENDRAMIM, J.D.; MARCHINI, L.C.; LOPES, J.R.S.; OMOTO, C. *Manual de Entomologia Agrícola*. Piracicaba, SP: FEALQ. 920p. 2002.
- KEIFER, H.H. *Eriophyid Studies*. C-6. U.S. Dept. Agric., Agric. Res. Serv., 20 p. 1969.
- MENEZES, E.L.A. *A broca-da-batata-doce (Euscepes postfasciatus): Descrição, bionomia e controle*. EMBRAPA: Rio de Janeiro, 12p. 2002. (Circular Técnica 6).
- MENEZES, E.L.A. *Broca do coleto da batata-doce (Megastes spp.): Descrição, bionomia e controle*. EMBRAPA: Rio de Janeiro, 12p. 2003. (Circular Técnica 7).
- MINEIRO, J.L.C.; MONTES, S.M.N.M.; RAGA, A. Primeiro registro de *Tetranychus desertorum* (Banks) (Acari: Tetranychidae) em Batata-doce (*Ipomoea batatas* L.) em Presidente Prudente, SP. *O Biológico*, v.69, n.2, p.186, 2007.
- MONTES, S.M.N.M.; PANTANO, A.P. Origem, características econômicas e botânicas. In: Montes, S.M.N.M. (Ed.). *Cultura da batata-doce – do plantio à comercialização*. Instituto Agrônomo. Campinas. SP, p. 1-11, 2013.
- MONTES, S.M.N.M.; RAGA, A.; MINEIRO, J.L.C. Principais pragas. In: Montes, S.M.N.M. (Ed.). *Cultura da batata-doce – do plantio à comercialização*. Instituto Agrônomo. Campinas. SP. P.33-52, 2013.
- NALEPA, A. Eriophyiden aus Java. II. Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien, v.68, p.49-92, 1918.
- OCHOA, R.; AGUILLAR, H.; VARGAS, C. *Acaros fitófagos de America Central: Guia ilustrada*. Turrialba, Costa Rica. Centro Agronómico Tropical de Investigación y Enseñanza. 251p. 1991.
- PERRING, T.M. Vegetables. Pág. 593- 610. In: E.E. Lindquist, M.W. Sabelis & J Bruin (Eds.). *Eriophyid mites – their biology, natural enemies and control*. Elsevier Science B.V. Vol. 6. 790p. 1996.
- PRITCHARD, A.E.; BAKER, E.W. *A revision of the spider mite family Tetranychidae*. San Francisco: Pacific Coast Entomological Society. Vol.2, 472p. 1955.
- TUTTLE, D.M.; BAKER, E.W.; SALES, F.M. Spider mites (Tetranychidae: Acarina) of the State of Ceará, Brazil. *Fitossanidade*, v.2, p.1-6, 1977.



Figure 1. Adult of *Tegolophus ipomoeifoliae* (Eriophyidae) on leaf of sweet potato (Photo: J.L.C. Mineiro).

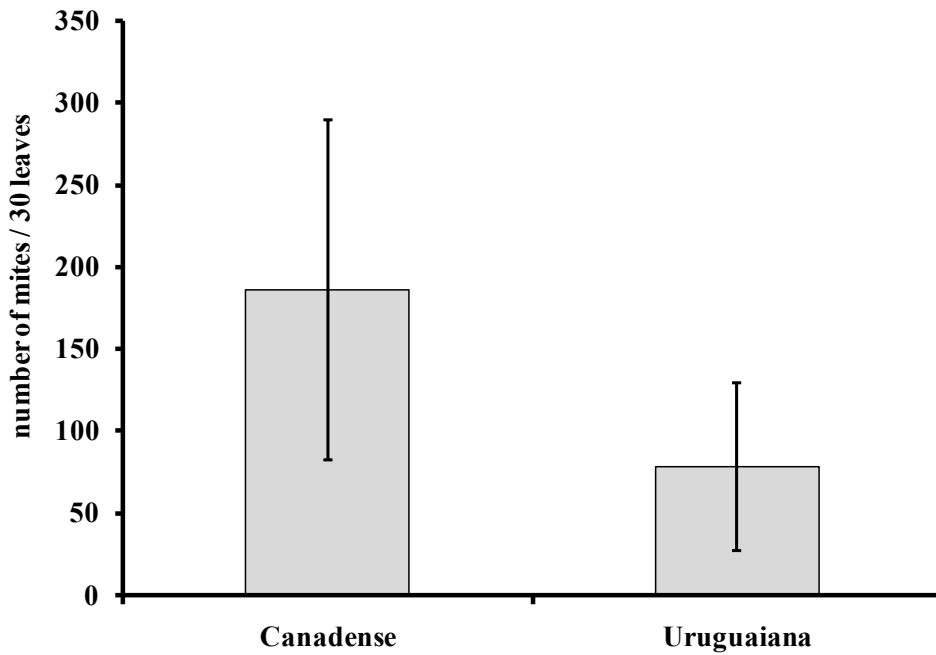


Figure 2. Mean values \pm SEM of *Tegolophus ipomoeifoliae* on leaves of sweet potato (*Ipomoea batatas*), in Presidente Prudente municipality, São Paulo State, Brasil.