

New records of whiteflies (Hemiptera: Aleyrodidae) in Rio Grande do Sul State, Brazil

*Nuevos registros de moscas blancas (Hemiptera: Aleyrodidae)
en Rio Grande do Sul, Brasil*

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ABSTRACT

This study reports seven species of whiteflies in the genera *Aleurothrixus*, *Dialeurodicus*, and *Trialeurodes*, as well as parasitism of *Aleurothrixus floccosus* by *Signiphora* sp. and *Cales noacki*. Three new hosts of *Aleurothrixus aepim* are reported. *Dialeurodicus cockerellii* and *Trialeurodes vaporariorum* are reported for the first time in Rio Grande do Sul State, Brazil.

Key words: *Aleurothrixus* spp., *Dialeurodicus cockerellii*, *Trialeurodes vaporariorum*, parasitoids, host plants

RESUMEN

En este trabajo se registran siete especies de moscas blancas, incluyendo los géneros *Aleurothrixus*, *Dialeurodicus* y *Trialeurodes*, y el parasitismo de *Aleurothrixus floccosus* por *Signiphora* sp. y *Cales noacki*. Tres nuevos huéspedes son reportados a *Aleurothrixus aepim*. *Dialeurodicus cockerellii* y *Trialeurodes vaporariorum* se registran por primera vez en Rio Grande do Sul, Brasil.

Palabras clave: *Aleurothrixus* spp., *Dialeurodicus cockerellii*, *Trialeurodes vaporariorum*, parasitoides, plantas hospederas

Whiteflies (Hemiptera: Aleyrodidae) constitute a major problem for farmers around the world (Begum *et al.*, 2011); they are a small group of phloem-sucking insects that absorb amino acids (Byrne & Bellows, 1991) and secrete honeydew (Inbar & Gerling, 2008). Consisting of approximately 1,556 described species in 161 genera (Martin & Mound, 2007), most species of Aleyrodidae live in equatorial, tropical and subtropical regions (Inbar & Gerling, 2008). The biological aspects of Aleyrodidae are relatively little known, considering the total number of described species (Byrne & Bellows, 1991). To contribute to the existing knowledge on Aleyrodidae bioecology in Brazil, the purpose of this study was to report new host plants of aleyrodid species in the extreme south of the country.

From February 2011 to November 2012, leaves infested by individuals of Aleyrodidae were collected from plants of seven botanical families in the municipality of Passo Fundo, state of Rio Grande do Sul, Brazil (28° 15' S, 52° 24' W). Seven species of whiteflies were recorded (Table 1). This study reports three new host plants for *Aleurothrixus aepim* (Goeldi): *Schinus terebinthifolius* Raddi, *Allophylus edulis* (St. Hil.) Radl. and *Solanum americanum* Mill, in the families Anacardiaceae, Sapindaceae, and Solanaceae, respectively. *A. aepim*, which has already been reported in Rio Grande do Sul State (Silva *et al.*, 1968) and is widespread in Brazil, causes curling, drying and fall of cassava leaves (*Manihot esculenta* Crantz), compromising root yield and flour quality (Farias *et al.*, 2007).

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Table 1. Species of Aleyrodidae and respective host plants in the municipality of Passo Fundo, state of Rio Grande do Sul, Brazil, collected between February 2011 and November 2012.

Aleyrodidae species	Hosts		
	Botanical family	Common name	Scientific name
<i>Aleurothrixus aepim</i> (Goeldi, 1886)	Anacardiaceae	Brazilian pepper	<i>Schinus terebinthifolius</i> Raddi
	Sapindaceae	Chal-chal	<i>Allophylus edulis</i> (St. Hil.) Radl.
	Solanaceae	American nightshade	<i>Solanum americanum</i> Mill
<i>Aleurothrixus floccosus</i> (Maskell, 1895)	Rutaceae	Rangpur	<i>Citrus limonia</i> Osbeck
<i>Aleurothrixus</i> sp.1	Bignoniaceae	Jacaranda	<i>Jacaranda mimosifolia</i> D. Don
<i>Aleurothrixus</i> sp.2	Verbenaceae	Golden dewdrop	<i>Duranta erecta</i> L.
<i>Aleurothrixus</i> sp.3	Solanaceae	Manaca	<i>Brunfelsia uniflora</i> (Pohl) D. Don
<i>Dialeurodicus cockerellii</i> (Quaintance, 1900)	Myrtaceae	Cattley guava	<i>Psidium cattleianum</i> Sabine
<i>Trialeurodes vaporariorum</i> (Westwood, 1856)	Rutaceae	Rue	<i>Ruta graveolens</i> L.

Aleurothrixus floccosus (Maskell) is one of the most geographically widespread citrus-infesting whiteflies in Brazil (Raga *et al.*, 2011), causing the most extensive damage to organic crops (Rodrigues *et al.*, 2009) and crops with inadequate management. In this study, the parasitoids *Signiphora* sp. (Hymenoptera: Signiphoridae) and *Cales noacki* Howard (Hymenoptera: Chalcidoidea) emerged from nymphs of *A. floccosus*. An undetermined species of *Signiphora* has already been reported in Rio de Janeiro State in association with citrus plants infested by the same aleyrodid (Rodrigues & Cassino, 2003). *Cales noacki*, a species described from specimens collected in the city of Campinas, state of São Paulo (Howard, 1907), has been reported in many countries, mainly with Aleyrodidae hosts, including *A. floccosus* (Noyes, 2013). The genus *Cales* is currently considered *incertae sedis* within the Chalcidoidea (Mottorn *et al.*, 2011), and was excluded from Aphelinidae by Hayat (1998). Three new undescribed species, designated as *Aleurothrixus* sp1., *Aleurothrixus* sp2. and *Aleurothrixus* sp3. were observed on *Jacaranda mimosifolia* D. Don, *Duranta erecta* L., and *Brunfelsia uniflora* (Pohl) D. Don, respectively.

As part of this study, *Dialeurodicus cockerellii* (Quaintance) was recorded for the first time in Rio Grande do Sul State, on *Psidium cattleianum* Sabine. *D. cockerellii* has already been reported in the states of São Paulo, Rio de Janeiro, and Minas Gerais on *P. cattleianum* and other species of Myrtaceae (Silva *et al.*, 1968).

This is also the first report of infestation by *Trialeurodes vaporariorum* (Westwood) in Rio

Grande do Sul, on rue plants (*Ruta graveolens* L.). This whitefly is considered a polyphagous insect, cosmopolitan and pest of protected crops, but large populations of *T. vaporariorum* have also been observed under field conditions on tomato, broccoli, squash, eggplant, bean, cotton and ornamental plants in the state of São Paulo (Lourenção *et al.*, 2008).

Additional studies are needed to expand the existing knowledge on whitefly species diversity, biological cycles, a complete list of host plants, natural enemies, and impact on plant species of commercial interest in Brazil.

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