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Stigmaeid mites (Acari: Stigmaeidae) from vineyards in the state of Rio Grande do Sul, Brazil

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Abstract

The fauna of the family Stigmaeidae Oudemans on grapevines and weed plants associated with vineyard agroecosystem in the state of Rio Grande do Sul (Brazil) was studied. Five recognized species were reported: *Agistemus brasiliensis* Matioli *et al*., 2002, *Agistemus floridanus* Gonzales, 1965, *Agistemus mendozensis* Simons, 1967, *Zetzellia agistzellia* Hernandes and Feres, 2005, and *Zetzellia malvinae* Matioli *et al*., 2002. Two new species were described: *Agistemus riograndensis* **sp. nov**. and *Zetzellia ampelae* **sp. nov**. A pictorial key was compiled to aid in the recognition of these stigmaeids.

Key words: Acari, *Agistemus*, Brazil, predators, *Vitis labrusca*, *Vitis vinifera, Zetzellia*

Introduction

Mites of the family Stigmaeidae live on plants and in soil and are considered the most diverse family among Raphignathoidea (Walter *et al.* 2009), with 30 genera and 464 species described (Spongoski 2009). They feed on immature Tetranychidae, Tenuipalpidae, Eriophyidae and their eggs, as well as other mites that infest commercial crops in many parts of the world (Muma & Selhime 1971; Swift 1987; Ferla & Moraes 2002). The stigmaeid genera, *Agistemus* and *Zetzellia* have been reported as one of the most important groups of predatory mites after Phytoseiidae (Hoyt 1969; Laing & Knop 1983; Santos & Laing 1985).

In the state of Rio Grande do Sul, stigmaeids have been observed in several agroecosystems, with low populations on strawberries (*Fragaria* sp.) and peaches (*Prunus persica* (L.) Batsch) (Ferla *et al.* 2007; Eichelberger *et al.* 2011). However, on yerba mate (*Ilex paraguariensis* St. Hil.), *Agistemus brasiliensis* Matioli *et al*., 2002 is the most abundant predator commonly associated with *Disella ilicicola* Navia and Flechtmann (Eriophyidae) (Ferla *et al.* 2005). In apple trees and grapevine, the stigmaeids are the most abundant predators after Phytoseiidae (Ferla & Moraes 1998; Klock *et al.* 2011; Johann & Ferla 2012). Johann & Ferla (2012) suggested studies to assess the ability of *Agistemus floridanus* Gonzalez, 1965 to control *Panonychus ulmi* (Koch) (Tetranychidae) and *Calepitrimerus vitis* (Nalepa) (Eriophyidae) populations on grapevines.

In this paper we provide data about stigmaeids present in grapevines and on weed plants associated to viticulture in the state of Rio Grande do Sul. Among them we describe two new species of the genera *Agistemus* Summers and *Zetzellia* Oudemans.

Material and methods

This work was carried out in vineyards located in Bento Gonçalves (29°13' S 51°33' W), Boqueirão do Leão

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