

New Zealand Tenuipalpidae (Acari: Trombidiformes): A new species of *Acaricis* from Cyperaceae and its ontogenetic patterns in chaetotaxy

YUN XU¹ & ZHI-QIANG ZHANG^{2,3,4}

¹ Key Laboratory of Integrated Pest Management for Fujian-Taiwan Crops, Ministry of Agriculture; Fujian Provincial Key Laboratory of Insect Ecology; Fujian Agricultural and Forestry University, Fuzhou 350002, China

² Landcare Research, Private Bag 92170, Auckland, New Zealand

³ Center for Biodiversity and Biosecurity, School of Biological Sciences, University of Auckland, Tamaki Campus, Auckland, New Zealand

⁴ Corresponding author: Zhi-Qiang Zhang: ZhangZ@landcareresearch.co.nz

Abstract

The genus *Acaricis* (Acari: Tenuipalpidae) was represented by two species from Australian sedges prior to this study. A new species, *Acaricis urigersoni* **sp. nov.**, is here described and illustrated from leaves of *Gahnia lacera* (Cyperaceae) in Auckland, New Zealand. In this paper, we presented the ontogenetic changes in idiosomal and leg chaetotaxy from larva to adult. A key to the world species of *Acaricis* is also proposed.

Key words: Flat mite, false spider mite, new species, Cyperaceae, *Gahnia lacera*, ontogenetic changes

Introduction

The Tenuipalpidae, commonly known as false spider mites or flat mites, has been considered as an under-explored family of plant-feeding mites of great economic importance (Gerson 2008). Recent increase in the interest in these mites was attributed to their biosecurity importance (as invasive species as well as vectors of virus diseases) and their use as model organisms to explore basic evolutionary questions such as sex determination and microorganism-mite interactions (Zhang 2010). Recent counts of the number of described species included 891 species (Mesa *et al.* 2009) and 895 species (Zhang *et al.* 2011), with several new species being described every year. In New Zealand, Spain and Luxton (1971) listed 11 described species, Zhang and Rhode (2003) estimated 23 species, and most recently, Sirvid *et al.* (2010) included 27 species of the Tenuipalpidae in the *New Zealand Inventory of Biodiversity*. There have been few papers on the Tenuiplapidae of New Zealand in the last decade (Zhang & Fan 2004; Berry & Fan 2012). This paper represents one of a series of papers to describe new species of this family and revise poorly described species from New Zealand.

The genus *Acaricis* was erected by Beard and Gerson (2009) with only two species: the type species *Acaricis plana* collected on *Scleria sphacelata* from Queensland, and *Acaricis danutae* collected on *Carex* sp. from New South Wales, Australia. Both host plant species are of plant family Cyperaceae. Currently, only 9 species belonging to 5 genera of the Tenuipalpidae have been described from Cyperaceae in the world. Wang (1983) described a new species *Tenuipalpus obvelatus* on Cyperaceae from China. Beard, Fan and Walter (2005) reported a new genus *Prolixus* with two new species collected on Cyperaceae in Australia. Beard and Ochoa (2011) added two new

Ventral setae *1c*, *2c* and *3b* are added in the protonymph, *2b*, *4a₁* and *4b* added in the deutonymph, and *4a₂* added in the adult. Aggenital seta *ag* emerges in the protonymph; the first pair of genital setae *g₁* are formed in the deutonymph and the second pair appear in the adult. The palpal chaetotaxy (0, 0, 2, 2) remains unchanged from larva to adult. The changes in the chaetotaxy of leg segments are listed in Table 1. All dorsal setae *d* of legs lanceolate except on tibiae I and II in larva nude; ventral setae *v* in larva, protonymph and deutonymph setiform, in female pectinate, in male on leg I–II pectinate and on leg III–IV setiform; ventral seta *ev'* setiform; ventral seta *bv'* in adult pectinate and in all immature stages setiform; lateral setae *l''* in adult lanceolate, in larva, protonymph and deutonymph lanceolate except on genua I in deutonymph pectinate; unguinal seta *u* setiform in immature stages and pectinate in adult; tectal seta *tc* setiform and prorsals setae *p'ζ* and *p''ζ* eupathidial.

Key to species of *Acaricis* (based on adult females)

1. Setae *v₂* absent; *sc₁* bifurcate; *e₃* lanceolate; spermathecal vesicle cylinder-shaped; femora 4-4-2-1; genua 2-2-0-0; tibiae 5-5-3-2 *A. urigersoni* **sp. nov.**
- Setae *v₂* present; *sc₁* setiform; *e₃* setiform or barbed; spermathecal vesicle dome-shaped; femora 4-4-2-2; genua 2-2-1-0; tibiae 5-5-3-3 2
2. Setae *e₃* setiform, *sc₂* lanceolate; dorsal seta *d* on femur III lanceolate *A. plana* Beard & Gerson
- Setae *e₃* barbed, *sc₂* short and barbed; dorsal seta *d* on femur III short and stout *A. danutae* Beard & Gerson

Acknowledgements

We are grateful to Dr Nicholas A. Martin (Landcare Research, Auckland, New Zealand) for collecting the specimens of this new species and to Dr Qing-Hai Fan (Ministry for Primary Industries, Auckland, New Zealand) for assistance in taking photographs used in Figures 20–23. While this paper was prepared, Zhi-Qiang Zhang was supported by Core funding for Crown Research Institutes from the Ministry of Business, Innovation and Employment's Science and Innovation Group.

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Accepted by Qing-Hai Fan: 4 Dec. 2013; published 24 Dec. 2013