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Two new species of Digamasellidae from Taiwan (Acari: Mesostigmata)

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Abstract

This paper reports the occurrence of two new species of Digamasellidae from Taiwan, *Dendroseius vulgaris* n. sp. and *Dendrolaelaps (Foveodendrolaelaps) linjianzheni* n. sp. *Dendroseius vulgaris* is described based on the morphology of adult females, adult males and deutonymph, and *D. linjianzheni* is based on the morphology of adult females and males. This is the first report on the mite species of Digamasellidae from Taiwan.

Key words: *Dendroseius*, *Dendrolaelaps*, diagnose, key to species

Introduction

Digamasellidae are predaceous mites commonly found in litter, soil and decaying organic material. Some species are found in decaying wood, bracket fungi, in galleries of bark beetles or in association with wood-boring beetles. The known prey of Digamasellidae includes nematodes, arthropod eggs, early stages of insects or mites, springtails, and possibly fungi (Walter *et al.*, 1988; Lindquist *et al.*, 2009). The family appears to have a worldwide distribution.

In Asia, Digamasellidae have been reported from China (nine species), Uzbekistan (six species), India (five species), Japan (three species), Kazakhstan (three species), Vietnam (one species), Iran (one species), Azerbaijan (one species) and Indonesia (one species) (Bhattacharyya, 1969, 1978; Hirschmann, 1974; Shcherbak & Chelebiev, 1977; Ishikawa, 1977; Pramanik & Raychaudhuri, 1978; Shcherbak, 1980; Hirschmann & Wiśniewski, 1982a, b, 1984; Barilo, 1989; Wiśniewski & Hirschmann, 1989, 1991; Ma, 1995, 1997, 2001a, 2001b, 2005, 2008; Bhattacharyya *et al.* 1996; Ma *et al.* 2003; Ma & Lin, 2005, 2007; Faraji *et al.*, 2006; Ma & Bai, 2009). Until now, no identified Digamasellidae have been described or recorded from Taiwan. The aim of this work is to describe two new species of Digamasellidae from Taiwan.

Material and methods

Soil samples with litter were taken from various agricultural lands and montane areas in Taiwan. Mites contained in the sample were extracted with modified Berlese funnels and mounted in Hoyer's medium. Digamasellidae specimens were separated into morphospecies and examined under a phase contrast microscope. The mites were identified using Shcherbak (1980), Hirschmann & Wiśniewski (1982a, b), Karg (1993), and Gwiazdowicz (2012), leading to the conclusion that two new species of Digamasellidae had been collected.

The new species were illustrated with the use of a camera lucida. All measurements are in micrometres, with the range and the average (in parentheses). Lengths were measured at the central line of the specimen and widths were measured at the widest level. Setal nomenclature is based on Lindquist & Evans (1965) and Lindquist & Moraza (1998), as adapted by Faraji *et al.* (2006) for the digamasellids, except the setae *s3* and *r2* are reversed in this study.

Key to species of the subgenus *Foveodendrolaelaps* of genus *Dendrolaelaps* (based on adult females primarily)

1. The two V-shaped incisions in the anterior margin of opisthonotal shield each with a transverse covering plate. 2
- The two V-shaped incisions in the anterior margin of opisthonotal shield without transverse covering plate. 5
2. Peritreme extending anteriorly to level of *s1* or beyond *s1* 3
- Peritreme extending anteriorly to level of *s3* and *r3* *D. (F.) brevopiloides* Hirschmann & Wisniewski 1982
3. Peritrematic shield fused with podonotal shield at the level of *z1*, seta *r3* on peritrematic shield *D. (F.) rectus* Karg 1962
- Peritrematic shield restrict to peritreme, not fused with podonotal shield; seta *r3* on soft cuticle along lateral margins of podonotal shield, known only from deutonymph 4
4. Setae *s2*, *r2* and *r4* on podonotal shield; *Z5* longer than *S5* *D. (F.) brasiliensis* Hirschmann & Wisniewski 1984
- Setae *s2*, *r2* and *r4* on soft cuticle along lateral margins of podonotal shield; *Z5* shorter than *S5* *D. (F.) samsinaki* Hirschmann & Wisniewski 1982
5. Seta *Jv1* on ventrianal shield. 6
- Seta *Jv1* on soft cuticle along anterior margin of ventrianal shield 8
6. Seta *Zv3* on soft cuticle along lateral margins of ventrianal shield . . *D. (F.) stammeriformis* Hirschmann & Wisniewski 1982
- Seta *Zv3* on ventrianal shield 7
7. Setae *s1* on soft cuticle along lateral margins of podonotal shield; *r3* on peritrematic shield; *S5* slightly shorter than 2.5 times the length of *j5*; ventrianal shield subrectangular. *D. (F.) linjianzheni* **sp. nov.**
- Setae *s1* on podonotal shield, *r3* on podonotal shield; *S5* approximately 4 times the length of *j5*; ventrianal shield ova *D. (F.) arenarioides* Hirschmann & Wisniewski 1982
8. Setae *s2*, *r2* and *r3* on peritrematic shield; *R2* and *R3* on opisthonotal shield; *Jv5* on anal shield. *D. (F.) stammeri* Hirschmann 1960
- Setae *s2*, *r2* and *r3* on soft cuticle along lateral margins of peritrematic shield; *R2* and *R3* on soft cuticle along lateral margins of opisthonotal shield; *Jv5* on soft cuticle along lateral margins of ventrianal shield *D. (F.) foveolatus* (Leitner 1949)

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