Two Japanese Species of the Genus *Paraphytoseius* Swirski and Shechter (Acari, Phytoseiidae)

Shôzô EHARA¹, Tetsuo GOTOH² and Hiroshi AMANO³

¹*Hamasaka 2-15-7, Tottori 680-0001, Japan*

²*Laboratory of Applied Entomology and Zoology, Faculty of Agriculture, Ibaraki University, Ami, Ibaraki 300-0393, Japan*

³*Laboratory of Applied Entomology and Zoology, Faculty of Horticulture, Chiba University, 648 Matsudo, Chiba 271-8510, Japan*

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ABSTRACT

Paraphytoseius cracentis (Corpuz and Rimando) was recorded from Japan for the first time. A redescription of *P. cracentis*, based on Japanese material, was given, and notes on *P. multidentatus* Swirski and Shechter were also included.

Key words: *Paraphytoseius cracentis*, *Paraphytoseius multidentatus*, Phytoseiidae, Japan

INTRODUCTION

Prior to the present paper a single species of the genus *Paraphytoseius*, *P. multidentatus* Swirski and Shechter, 1961 (= *P. urumanus* Ehara, 1967) was recognized to occur in Japan (Ehara et al., 1994; Ehara and Amano, 1998). Recently we examined a few specimens of the second Japanese species of this genus, which were collected in Honshu and Kyushu. This paper deals with the two Japanese species of *Paraphytoseius*.

The setal nomenclature is the same as that of Ehara and Amano (1998). The measurements are in micrometers.

Genus *Paraphytoseius* Swirski and Shechter, 1961

Paraphytoseius Swirski and Shechter, 1961:113. [Type species: *Paraphytoseius multidentatus* Swirski and Shechter, 1961, by original designation]

Female. Dorsal shield with 13-14 pairs of setae. Podoscutum with 4 pairs of setae on lateral area: j3, z2, z4, s4; z4 located near s4. Opisthoscutum with 1 pair of setae, Z1, on anterolateral area, and with 2 or 3 pairs of setae on caudolateral area: Z4, Z5, (S5). Setae j1, j3, s4, Z4 and Z5 long, thick and serrate. Setae J2 and S2 absent. Dorsal shield with lateral incisions on podoscutum. Setae r3 and R1 on lateral interscutal membrane.

A number of species belonging to the genus *Paraphytoseius* have hitherto been described from various parts of the world. At present, only several of them are recognized as valid species (Matthysse and Denmark, 1981; Beard and Walter, 1996).

Key to the Japanese Species of *Paraphytoseius* (Females)

1. Seta S5 present; leg IV with 4 spatulate to knobbed macrosetae.....*cracentis*
 Seta S5 absent; leg IV with 8 spatulate to knobbed setae, including 4 (or 5) macrosetae.....
multidentatus

***Paraphytoseius cracentis* (Corpuz and Rimando, 1966)**

(Japanese name: Nise-uruma-kaburidani)

(Figs. 1-8)

Ptenoseius cracentis Corpuz and Rimando, 1966: 115, fig.1. [Type locality: Gamu, Isabela, Philippine]

Paraphytoseius cracentis: Schicha and Corpuz-Raros 1985: 69, figs. 10-18; Ho and Lo 1989: 94, fig. 3; Wu et al. 1997: 133, fig. 99.

Amblyseius (Paraphytoseius) multidentatus (nec Swirski and Shechter): Ehara and Lee 1971: 69, figs. 26-31; Ehara and Bhandhufalck 1977: 79, figs. 131-133.

Female. Dorsal shield smooth, with marginal notch near s4, with at least 4 pairs of solenostomes and 1 pair of large notocephalic pores near z5. Fourteen pairs of setae on dorsal shield: j1, j3, s4, Z4, Z5 long, thick, serrate, arising from tubercles; remaining setae much smaller, smooth except J5 with a barb. Setae r3 and R1 long, thick, serrate. Peritremes extending forward in front of j1. Sternal shield with posterior margin nearly straight or very slightly concave, with 3 pairs of setae. Metasternal platelets, bearing ST4, longer than wide. Ventrianal shield slender, rather pentagonal, much narrower than genital shield, the lateral

Figs. 1-2. *Paraphytoseius cracentis* (♀). 1: Dorsal shield. 2: Posterior ventral surface.

margins slightly concave; 3 pairs of preanal setae nearly in a longitudinal line on each side; a pair of minute pores caudal to JV2. Setae JV5 long, thick, serrate. A pair of very slender metapodal platelets. Spermatheca with cervix disc-shaped. Fixed digit of chelicera multidentate; movable digit tridentate. Chaetotaxic formula: genu II 2-2/0, 2/0-1, genu III 1-2/1, 2/0-1. Genua I and III without macrosetae; genu II with 1 blunt-tipped macroseta. Leg IV with 1 spatulate to knobbed, hyaline-tipped macroseta on each of genu, tibia, basitarsus and telotarsus; macroseta on telotarsus IV often deficient in hyaline envelope at tip, and sometimes attenuate; femur IV with a short, usually blunt-tipped ventral seta. Measurements: lengths of dorsal shield (n=3) 281, width of dorsal shield (n=3) 155; lengths of setae (mean±S.E., n=7-8); j1 36.0±0.8, j3 87.4±1.1, j4 4.4±0.1, j5 4.3±0.1, j6 6.6±0.3, J5 4.3±0.3, z2 9.7±0.6, z4 8.9±0.3, z5 4.8±0.2, Z1 6.9±0.3, Z4 76.6±1.6, Z5 105.8±1.5, s4 122.5±1.5, S5 13.1±0.4, r3 46.2±0.6, R1 33.7±1.2, JV5 68.8±1.4; macrosetae on legs: genu II 14.9±0.5, genu IV 30.7±0.9, tibia IV 41.2±0.5, basitarsus IV 48.9±0.3, telotarsus IV 43.5±1.3; ventral blunt-tipped seta on femur IV 15.5±0.8.

Figs. 3-8. *Paraphytoseius cracentis* (♀). 3: Sternal shield. 4: Spermatheca. 5: Chelicera. 6: Genu I. 7: Genu II. 8: Tarsus, tibia, genu and femur of leg IV.

Specimens examined. Two ♀♀, Masaki, Kimitsu, Chiba Pref., 15-VIII-1998 (T. Gotoh), on *Morus bombycis* Koidz.; 1 ♀, Maruyama, Chiba Pref., 15-VIII-1998 (T. Gotoh), on *Clerodendrum trichotomum* Thunb.; 1 ♀, Kagoshima, Kagoshima Pref., 19-VIII-1999 (H. Amano), on *C. trichotomum*.

Specimens from Hong Kong (♀♀) and Thailand (♀♀ & ♂♂) are also available. The collection data of these specimens are referable to Ehara and Lee (1971) and Ehara and Bhandhufalck (1977) under "*multidentatus*." Setae S5 were overlooked in Ehara and Lee's paper.

Distribution. Honshu, Kyushu; China, Taiwan, Philippine, Thailand, Singapore, New Caledonia, Papua New Guinea.

Remarks. The female of *Paraphytoseius cracentis* is distinguishable from that of *P. multidentatus* by (1) the presence of setae S5, (2) genu I without macrosetae, (3) leg IV without spatulate to knobbed non-macrosetae, (4) femur IV with a short, usually blunt-tipped ventral seta, and (5) chelicera with tridentate movable digit. *P. cracentis* is first recorded from Japan.

***Paraphytoseius multidentatus* Swirski and Shechter, 1961**

(Figs. 9-16)

Paraphytoseius multidentatus Swirski and Shechter, 1961: 114, figs. 7, 26-28; Schicha and Corpuz-Raros 1985: 67, figs. 1-9; Ho and Lo 1989: 91, fig. 1; Ehara et al. 1994: 139; Wu et al. 1997: 134, fig. 100; Amano et al. 1998: 193; Ehara and Amano 1998: 47, figs. 34, 58. [Type locality: Tai Po (N.T.), Hong Kong]

Amblyseius (Paraphytoseius) urumanus Ehara, 1967: 76, figs. 31-35. Synonymy by Matthysse and Denmark (1981).

Measurements of female: length of dorsal shield (mean±S.E., n=8) 278±3, width of dorsal shield (n=8) 153±2; lengths of setae (n=10): j1 35.9±0.3, j3 83.8±1.5, j4 3.2±0.1, j5 3.4±0.2, j6 5.9±0.1, J5 3.4±0.1, z2 7.6±0.3, z4 9.2±0.3, z5 4.6±0.1, Z1 7.2±0.2, Z4 74.0±1.1, Z5 99.9±1.1, s4 120.6±2.1, r3 47.7±0.8, R1 26.0±0.7, JV5 71.3±1.1; macrosetae on legs: genu I 8.6±0.3, genu II 14.3±0.4, genu IV 27.6±0.3, tibia IV 34.1±0.5, basitarsus IV 48.5±0.5, telotarsus IV 38.4±0.3; ventral spatulate seta on femur IV 19.9±0.6.

Measurements of male: length of dorsal shield (n=4) 227, width of dorsal shield (n=4) 144; lengths of setae (mean±S.E., n=7-8): j1 24.3±0.3, j3 58.0±1.4, j4 3.0±0.1, j5 3.1±0.1, j6 5.9±0.2, J5 2.8±0.1, z2 8.3±0.3, z4 9.4±0.6, z5 3.6±0.2, Z1 5.7±0.2, Z4 44.6±2.0, Z5 52.9±2.2, s4 79.1±1.7, r3 30.9±0.6, R1 13.0±0.4, JV5 20.3±0.9; macrosetae on legs: genu I 7.9±0.6, genu II 12.5±0.5, genu IV 21.5±0.6, tibia IV 28.0±0.6, basitarsus IV 35.1±0.7, telotarsus IV 29.1±0.5; ventral spatulate seta on femur IV (n=6) 14.5.

The female of this species is distinctive in (1) the absence of setae S5, (2) genua I and II each with 1 spatulate macroseta, (3) leg IV with 8 spatulate to knobbed, hyaline-tipped setae, including 4 (or 5) macrosetae, and (4) chelicera with bidentate movable digit. One of the spatulate setae occurs on the venter of femur IV, and it is homologous with a shorter, blunt-tipped ventral seta on femur IV of *P. cracentis*. This seta is usually a non-macroseta, but may be stout and assignable to the 5th macroseta of leg IV (specimens from Okinawa I.

Figs. 9-16. *Paraphytoseius multidentatus*. 9, 10: Spermatheca. 11: Chelicera (♀). 12: Genu I (♀). 13: Genu II (♀). 14: Tarsus, tibia, genu and femur of leg IV (♀). 15: Ventrianal shield (♂). 16: Chelicera (♂).

and Iriomote I.).

Specimens examined. Six ♀♀ & 2 ♂♂, Yasato, Ibaraki Pref., 27-X-1994 (H. Amano), on *Pueraria lobata* (Willd.) Ohwi; 7 ♀♀ & 1 ♂, Yamaguchi, Yamaguchi Pref., 3-IX-1998 (H. Amano), on *P. lobata*; 1 ♀, Yamaguchi, Yamaguchi Pref., 3-IX-1998 (H. Amano), on *Broussonetia papyrifera* (L.) Vent.; 1 ♀, Kadogawa, Miyazaki Pref., 23-VII-1995 (H. Amano), on *Pueraria lobata*; 8 ♀♀, Tōgō, Kagoshima Pref., 17-X-1996 (S. Mizushima), on *P. lobata*; 2 ♀♀ & 1 ♂, Ibusuki, Kagoshima Pref., 20-VIII-1999 (H. Amano), on *P. lobata*; 1 ♀ [holotype of *Amblyseius (Paraphytoseius) urumanus*], Tomigusuku, Okinawa Island, 22-IV-1966 (K. Miyara et al.), on *Ficus erecta* Thunb.; 1 ♀, Itoman, Okinawa I., 22-IV-1966 (K. Miyara et al.), on *Hibiscus tiliaceus* L.; 1 ♀, Uehara, Taketomi, Iriomote I., 24-VIII-1984 (anonymous), *Pueraria montana* (Lour.) Merr.

Distribution. Honshu, Kyushu, Okinawa Island, Iriomote I.; China, Taiwan, Philippine, India, Pakistan, Madagascar, Africa, Costa Rica, New Caledonia.

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摘 要

Paraphytoseius 属に属する日本産の2種のカブリダニ 江原昭三(鳥取市浜坂2-15-7)・後藤哲雄(茨城大学農学部)・天野 洋(千葉大学園芸学部)

Paraphytoseius 属のカブリダニは、日本からは従来ウルマカブリダニ *P. multidentatus* Swirski and Shechter のみが知られていたが、このたび初めて *P. cracentis* (Corpuz and Rimando) (ニセウルマカブリダニ, 新称) が本州および九州から見いだされた。日本産の標本に基づいて *P. cracentis* を再記載し、あわせて *P. multidentatus* に言及した。*P. cracentis* と *P. multidentatus* にはいくつかの顕著な相違点があるが、前者には S5 毛があり、後者には無いことが最大の差異である。