Three New Species of Eriophyid Mites from Chestnut Trees in Japan (Acarina: Eriophyidae)

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Phaulacus acutilobus, *P. obtusilobus* and *Coptophylla matsudoensis* are described as new species from chestnut trees in Chiba Prefecture, Japan. No noticeable damage caused by three mites to the host plants has been observed.

So far as the author is aware, *Aceria japonica* HUANG, 1971 has been the only eriophyid mite recorded from chestnut trees in Japan. Recently many specimens of eriophyid mites collected from chestnut trees in Chiba Prefecture were submitted to the author by Mr. N. KISHIMOTO, Chiba University, for determination of species. He has examined these specimens as well as other ones collected by himself from chestnut trees in the same prefecture and recognized three new species, which are assigned to the genera *Phaulacus* KEIFER and *Coptophylla* KEIFER. In this paper, descriptions and illustrations of the new species are presented. For the abbreviations used here see KADONO (1981).

The type-series are deposited in the Laboratory of Applied Entomology, Chiba Prefectural Agricultural College, Togane, Chiba 283, Japan.

Phaulacus acutilobus sp. nov. (Fig. 1)
(Japanese name: Nokogiri-kuri-fushidani)

Female. Body fusiform, flattened dorsoventrally, translucent white in color. Rostrum curved ventrally; antapical seta 5 μm long. Shield subtriangular in anterior outline, with many dots all over the area; line absent; anterior lobe large, over the rostral base; dorsal tubercles and setae absent; posterior margin not obvious. Foreleg with all usual setae; tibial seta 4 μm long, arising from 2/3 of the segment; claw strongly curved, with knob apically; featherclaw 5-rayed. Hindleg without pateller seta. Coxae smooth; first setiferous coxal tubercles before and slightly inside second tubercles; sternal line forked. Abdomen with 20–22 tergites and 66–73 sternites; the 1st, 2nd, 4th, 6th, 8th, 10th, and 12th tergites acutely projecting laterally; 15th to 18th tergites not well defined; tergite 3 from rear over the next; tergites smooth, sternites with beard-like microtubercles; accessory setae absent. Genitalia 14 μm long, 27 μm wide; cover-flap with 10–19 ribs anteriorly and 7–12 ribs posteriorly. Seta *ls* on sternite 6–8, *vs*₁ on sternite 20–23, *vs*₂ on sternite 37–43, *vs*₃ on sternite 5 from rear. Mean (range in parentheses) in μm , length unless otherwise stated ($n=14$): body 170 (163–178), width

Fig. 1. *Phaulacus acutilobus* sp. nov. (♀). A: dorsal view of body, B: lateral view of body, C: side skin, D: coxae and genitalia, E: internal genital structure, F: first and second legs, G: featherclaw I.

61 (55–65); shield 57, width 63; rostrum 29; foreleg 29, femur 8, patella 5, tibia 7, tarsus 6, claw 5, featherclaw 4; hindleg 29, femur 9, patella 5, tibia 6, tarsus 6, claw 5, featherclaw 4; setae *ls* 10, *vs*₁ 47, *vs*₂ 8, *vs*₃ 20, *cxs*₁ 6, *cxs*₂ 11, *cxs*₃ 31, *gs* 11; intervals of setae: *ls*-*ls* 62, *vs*₁-*vs*₁ 39, *vs*₂-*vs*₂ 22, *vs*₃-*vs*₃ 20, *cxs*₁-*cxs*₁ 10, *cxs*₂-*cxs*₂ 12, *cxs*₃-*cxs*₃ 26, *gs*-*gs* 23.

Male. Similar to female. Abdomen with 20–21 tergites and 63–69 sternites; seta *ls* on sternite 6–7, *vs*₁ on sternite 20–22, *vs*₂ on sternite 36–39, *vs*₃ on sternite 5 from rear. Mean (range in parentheses) in µm, length unless otherwise stated (*n*=6): body 162 (156–168), width 54 (51–56); shield 52, width 57; genitalia 14, width 18; seta *gs* 9; interval *gs*-*gs* 17.

Type-series. Holotype: ♀, Togane, Chiba Prefecture, 14-VII-1985 (F. KADONO), on chestnut. Paratypes: 13 ♀♀ and 6 ♂♂, data the same as holotype.

Fig. 2. *Phaulacus obtusilobus* sp. nov. (♀). A: dorsal view of body, B: lateral view of body, C: side skin, D: coxae and genitalia, E: internal genital structure, F: first and second legs, G: featherclaw I.

Remarks. *Phaulacus acutilobus* differs from protogyne of *P. apalachi* KEIFER, 1961 (*Castanea*, Virginia) in having the shield with numerous dots all over the surface and in the 5-rayed featherclaw. This new mite is vagrant near veins on the undersurface of leaves.

Phaulacus obtusilobus sp. nov. (Fig. 2)
(Japanese name: Hirata-kuri-fushidani)

Female. Body fusiform, flattened dorsoventrally, translucent white in color. Rostrum curved ventrally; antapical seta 3 μ m long. Shield semicircular in anterior outline, with many dots laterally; anterior lobe large, over the rostral base; line absent; dorsal tubercles and setae absent; posterior shield margin not well defined. Foreleg with all usual setae; tibial seta 4 μ m long, arising from 1/2 of the segment; claw strongly

curved, with small knob apically; featherclaw 5-rayed. Hindleg without patellar seta. Coxae nearly smooth, first setiferous coxal tubercles ahead of second tubercles; coxae touching each other; sternal line forked. Abdomen with 20–22 tergites and 59–70 sternites; the 1st, 2nd, 4th, 6th, 8th, 10th and 12th tergites bluntly projecting laterally; tergites 4 and 8 from rear over the next; tergites smooth, sternites with beard-like microtubercles; accessory setae absent. Genitalia 11 μm long, 21 μm wide; coverflap with 10–14 ribs. Seta *ls* on sternite 7–8, *vs*₁ on sternite 19–23, *vs*₂ on sternite 33–40, *vs*₃ on sternite 5 from rear. Mean (range in parentheses) in μm , length unless otherwise stated ($n=10$): body 173 (158–184), width 61 (54–67); shield 46, width 53; rostrum 30; foreleg 28, femur 7, patella 4, tibia 7, tarsus 7, claw 5, featherclaw 4; hindleg 27, femur 8, patella 4, tibia 6, tarsus 7, claw 5, featherclaw 4; setae *ls* 11, *vs*₁ 38, *vs*₂ 8, *vs*₃ 23, *cxs*₁ 5, *cxs*₂ 11, *cxs*₃ 28, *gs* 8; intervals of setae: *ls*–*ls* 53, *vs*₁–*vs*₁ 37, *vs*₂–*vs*₂ 22, *vs*₃–*vs*₃ 20, *cxs*₁–*cxs*₁ 10, *cxs*₂–*cxs*₂ 12, *cxs*₃–*cxs*₃ 24, *gs*–*gs* 15.

Male. Similar to female. Abdomen with 20–21 tergites and 52–66 sternites; seta *ls* on sternite 5–8, *vs*₁ on sternite 16–20, *vs*₂ on sternite 28–38, *vs*₃ on sternite 5 from rear. Mean (range in parentheses) in μm , length unless otherwise stated ($n=6$): body 144 (137–150), width 52 (51–55); shield 43, width 48; genitalia, 13, width 15; seta *gs* 9, interval *gs*–*gs* 14.

Type-series. Holotype: ♀, campus of the Faculty of Horticulture, Chiba University, Matsudo, Chiba Prefecture, 9-VII-1985 (N. KISHIMOTO), on chestnut. Paratypes: 9 ♀♀ and 6 ♂♂, data the same as for holotype.

Remarks. *Phaulacus obtusilobus* is similar to *P. acutilobus* described in this paper, but differs from the latter in the shield having dots only on the lateral parts and the lateral projections of the tergites being less acute. This mite is vagrant on the undersurface of leaves.

Coptophylla matsudoensis sp. nov. (Fig. 3)

(Japanese name: Nise-kuri-fushidani)

Female. Body fusiform, white in color. Rostrum curved ventrally. Shield subtriangular in anterior outline; lines broken; median line present on posterior 2/3, connected with admedian lines through two transverse lines as drawn; admedian lines almost complete, running from anterior dorsal projection, gradually curving outward to meet a transverse or diagonal line arising from anterolateral margin, then recurving diagonally inward to posterior 1/3, and gradually diverging to rear margin; anterior lobe blunt, over the rostral base; dorsal tubercles and setae absent. Foreleg with all usual setae; tibial seta 5 μm long, arising from 1/2 of the segment; claw strongly curved; featherclaw 6-rayed. Coxae smooth; first setiferous coxal tubercles before and slightly inside of second tubercles. Abdomen with 19–20 tergites and 52–58 sternites; tergites with elongate microtubercles; sternites with beard-like microtubercles. Genitalia 10 μm long, 18 μm wide; coverflap with irregular ribs. Seta *ls* on sternite 7–8, *vs*₁ on sternite 17–20, *vs*₂ on sternite 28–33, *vs*₃ on sternite 5–8 from rear. Mean (range in parentheses) in μm , length unless otherwise stated ($n=14$): body 140 (138–144), width 45 (42–51); shield 28, width 39; rostrum 29; foreleg 26, femur 7, patella 4, tibia 6, tarsus 5, claw 7, featherclaw 4; hindleg 22, femur 6, patella 3, tibia 4, tarsus 4, claw 7, featherclaw 4; setae *ls* 8, *vs*₁ 32, *vs*₂ 5, *vs*₃ 15, *cxs*₁ 4, *cxs*₂ 12, *cxs*₃ 16, *acs* 4, *gs* 6; intervals of setae: *ls*–*ls* 42, *vs*₁–*vs*₁ 33, *vs*₂–*vs*₂ 22, *vs*₃–*vs*₃ 15, *acs*–*acs* 6, *cxs*₁–*cxs*₁ 9, *cxs*₂–*cxs*₂ 12, *cxs*₃–*cxs*₃ 22, *gs*–*gs* 11.

Fig. 3. *Coptophylla matsudoensis* sp. nov. (♀). A: lateral view of body, B: shield, C: side skin, D: coxae and genitalia, E: internal genital structure, F: first and second legs, G: feather-claw I.

Male. Not known.

Type-series. Holotype: ♀, campus of the Faculty of Horticulture, Chiba University, Matsudo, Chiba Prefecture, 9-VII-1985 (N. KISHIMOTO), on chestnut. Paratypes: 13 ♀♀, data the same as for holotype.

Remarks. *Coptophylla matsudoensis* distinctly differs from the related species *C. laminani* KEIFER, 1939 (*Corylus*, California) in the shield pattern and the 6-rayed feather-claw. This new mite is vagrant on the undersurface of leaves.

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REFERENCES

- HUANG, T. (1971) Records of ten eriophyid mites associated with plants in Japan. *J. Fac. Sci., Hokkaido Univ. Ser. VI Zool.* **18**: 256-276.
- KADONO, F. (1981) Two new eriophyid mites from Japan (Acarina: Eriophyidae). *Appl. Ent. Zool.* **16**: 419-422.
- KEIFER, H. H. (1939) Eriophyid studies VI. *Bull. Calif. Dept. Agr.* **28**: 416-426.
- KEIFER, H. H. (1961) Eriophyid studies B-3. Sacramento: Bur. Entomol. Calif. Dept. Agr. 20 p.