Three species of exotic mites (Acari: Tetranychoidea) recently intercepted at Japanese plant quarantine

Shôzô Ehara and Makoto Masaki

Hamasaka 2–15–7, Tottori 680–0001, Japan
1 Narita Branch, Yokohama Plant Protection Station, Narita, Chiba 282–0004, Japan

(Received 27 October 2000; Accepted 30 November 2000)

Abstract

Three species of tetranychoid mites living on imported plants were recently intercepted at the plant quarantine of Narita Airport. They were identified as follows: Oligonychus obliquus sp. nov., off squash from Mexico; Tetranychus malaysiensis Ehara, off okra from Thailand; Tenuipalpus caudatus (Dugès), off Viburnum from Italy. A description of O. obliquus sp. nov. and redescriptions of the other species are given. T. malaysiensis is recorded from Thailand for the first time.

Key words: Oligonychus obliquus sp. nov., plant quarantine, Tenuipalpus caudatus, tetranychoid mites, Tetranychus malaysiensis

INTRODUCTION

A number of mite species have been intercepted at check inspections of imported plant material in Japan (e.g., Masaki, 1991; Masaki et al., 1991). Moreover, some exotic species of phytophagous mites have been found to occur on cultivated plants within Japan (e.g., Ehara and Ohkubo, 1992; Kadono, 1994; Ehara et al., 1998).

Several species of tetranychoid mites living on imported plants were recently intercepted at the Narita Branch, Yokohama Plant Protection Station, and they have been examined and identified by us. Three of the species, which include an undescribed species, are reported in this paper. The undescribed species is described as new, and the other two species are redescribed; information is also included about their host plants and distribution.

The setal nomenclature for the Tetranychidae is that of Ehara (1999), while the terminology for the Tenuipalpidae is modified from Ehara (1982). The measurements in the text are given in micrometers. The holotype of the new species is retained in the National Science Museum, Tokyo.

Oligonychus obliquus sp. nov. (Figs. 1–12)

Female. Body, including rostrum, 459 long, pale green in color. Dorsal setae of idiosoma slender, longer than distances between consecutive setae; lengths of setae (mean±SE, n=8): P1 59.6±0.7, P2 100.4±1.1, P3 72.2±0.8, H 82.4±0.7, C1 88.0±0.7, C2 88.1±1.1, C3 83.0±1.4, C4 79.2±1.1, C5 44.9±1.3, L1 90.2±1.5, L2 93.6±1.5, L3 93.9±1.6, L4 74.3±0.7. Opisthosomal striae of dorsocentral region transverse except for longitudinal or irregularly longitudinal pattern between C4 and L4 setae; lobes on dorsal opisthosomal striae rounded distally. Peritremes with distal portion nearly straight, conspicuously widened at end. Genital flap with transverse striae; area immediately anterior to flap with longitudinal striae. Palpus with spinneret approximately twice as long as broad; dorsal sensillum approximately as long as spinneret. Number of setae and solenidia (in parentheses) on leg segments: femora 10–6–4–4, genua 5–5–4–4, tibiae 9(1)–7–6–7, tarsi 13(1)+2 dupl.–13(1)+1 dupl.–9(1)–9(1). Tarsus I with 4 tactile setae and 1 solenidion proximal to proximal set of duplex setae; tarsus II with 3 tactile setae and 1 solenidion proximal to duplex setae, and 1 tactile seta near duplex setae. Empodial claws with 3 pairs of proximoventral hairs.

Male. Body, including rostrum, 371 long. Lengths of setae (n=6): P1 44.1, P2 74.2, P3 52.1, H 60.4, C1 60.4, C2 60.9, C3 55.7, C4 50.7, C5 21.1, L1 63.0, L2 66.1, L3 66.9, L4 38.1. Aedeagus upturned distally; terminal knob tiny, approximately twice the width of neck, about one third as long as dorsal margin of shaft, knob with dorsal...
Figs. 1–8. *Oligonychus obliquus* sp. nov. 1, dorsum (♀); 2, 3, peritreme (♀, the same magnification); 4, distal segment of palpus (♀), with another spinneret; 5, ditto (♂, holotype); 6–8, aedeagus (6, holotype; 4–8 all at same magnification). C1–C5, dorsocentral opisthosomal setae; H, humeral seta; L1–L4, dorsolateral opisthosomal setae; P1–P3, prodorsal setae.
margin straight, the axis of knob forming an angle (14–25°) with ventral margin of shaft; anterior projection of knob inconspicuous, slightly rounded, posterior projection very small, acute; neck of knob very short. Palpus with spinneret about twice as long as broad, subequal in length to dorsal sensillum. Number of setae and solenidia (in parentheses) on leg segments: femora 10–6–4–4, genua 5–5–4–4, tibiae 9(4)–7–6–7, tarsi 13(3)+2 dupl.–13(1)+1 dupl.–9(1)–9(1). Tarsus I with 4 tactile setae and 2 solenidia proximal to duplex setae, and 1 solenidion at level of proximal duplex set; tarsus II with 3 tactile setae and 1 solenidion proximal to duplex setae, and 1 tactile seta near duplex setae. Empodial claw I with a pair of proximoventral spurs; empodial claws II–IV each with 3 pairs of proximoventral hairs.

**Type series.** Holotype: δ (NSMT-Ac 11195), on fruit of squash (*Cucurbita* sp.) imported from Mexico (at Narita Airport, Chiba Pref., Japan), 8-V-2000 (G. Takahashi). Paratypes: 2 δ δ and 4 ♀ ♂, with the above data.

**Remarks.** The aedeagus of *O. obliquus* sp. nov. closely resembles that of *O. andropogonearum* Gutierrez, 1969 (Madagascar, poaceous plants), but differs in that the axis of the knob forms a weak angle (14–25°) with the ventral margin of the shaft whereas in *andropogonearum* the former forms a strong angle (ca. 40°) with the latter. This new species belongs to the *pratensis* species group.

**Etymology.** Referring to the axis of the aedeagal knob at a distinct angle with the shaft.

**Tetranychus malaysiensis** Ehara (Figs. 13–23)

_Tetranychus malaysiensis* Ehara in Ehara and Tho, 1988: 19, figs. 71–80. [Type locality: campus of Univ. of Malaya, Kuala Lumpur, on *Argyreia* sp.]

**Female.** Body, including rostrum, 537 long, red in color. Dorsal idiosomal setae slender, much longer than intervals between their bases; lengths of setae (*n*=8): P1 62.6±0.7, P2 134.3±2.2, P3 95.8±1.6, H 110.1±1.1, C1 125.8±1.2, C2 122.2±2.2, C3 113.3±1.9, C4 99.0±1.7, C5 42.8±0.6, L1 118.6±2.1, L2 120.9±1.4, L3 121.0±1.8, L4 87.6±1.0. Opisthosomal striae longitudinal between setae C3 and between C4, forming a diamond-shaped figure between these setae; dorsal opisthosomal striae with lobes very variable.
in shape. Peritremes hooked distally. Genital flap with longitudinal striae on anterior portion and transverse striae on posterior portion; area immediately anterior to flap with longitudinal striae. Palpus with spinneret approximately as long as broad, subequal in length to dorsal sensillum. Number of

Figs. 13–19. *Tetranychus malaysiensis*. 13, dorsum (♀); 14, peritreme (♀); 15, distal segment of palpus (♀), with another spinneret; 16, ditto (♂); 17–19, aedeagi (15–19 all at same magnification). Abbreviations the same as in Fig. 1.
setae and solenidia (in parentheses) on podomeres: femora 10–6–4–4, genua 5–5–4–4, tibiae 9(1)–7–6–7, tarsi 13(1)+2 dupl.–13(1)+1 dupl.–9(1)–10(1). Tarsus I with 1 tactile seta immediately proximal to and 3 tactile setae in line with proximal set of duplex setae; tarsus II with 3 tactile setae and 1 solenidion proximal to duplex setae, and 1 tactile seta near duplex setae. Empodia with 3 pairs of hairs and an obvious mediodorsal spur.

**Male.** Body, including rostrum, 443 long. Lengths of setae (n=6): P1 48.6, P2 95.8, P3 66.5, H 75.8, C1 86.2, C2 80.1, C3 78.5, C4 63.1, C5 23.5, L1 82.9, L2 86.1, L3 83.2, L4 51.3. Aedeagus gradually narrowing and upturned distally, dorsal margin of shaft nearly straight; terminal knob very small, one fifth to one fourth as long as dorsal margin of shaft, knob with dorsal margin slightly convex; anterior angulation of knob minute, subacute, posterior angulation minute, acute; neck of knob very short. Spinneret about one and one half times as long as broad, subequal in length to dorsal sensillum. Setae and solenidia (in parentheses) on podomeres: femora 10–6–4–4, genua 5–5–4–4, tibiae 9(4)–7–6–7, tarsi 13(3)+2 dupl.–13(1)+1 dupl.–9(1)–9(1). Tarsus I with 1 tactile seta and 2 solenidia distinctly proximal to proximal set of duplex setae, and 3 tactile setae and 1 solenidion at or near the level of proximal duplex set; tarsus II with 3 tactile setae and 1 solenidion proximal to duplex setae. Empodium I with a pair of proximoventral claws and a much smaller mediodorsal spur; empodia II–IV with 3 pairs of hairs and a mediodorsal spur.

**Specimens examined.** Three ♂♂ and 4 ♀♀, on fruit of okra imported from Thailand (at Narita Airport, Japan), 4-IV-2000 (E. Tasaka).

**Hosts and distribution.** Previously *T. malaysiensis* was recorded only from West Malaysia, on *Argyreia* sp. (Convolvulaceae). Okra (*Abelmoschus esculentus* (L.) Moench) is a new host record, and Thailand is a new locality record.

**Remarks.** The female of *T. malaysiensis* closely resembles that of *T. macfarlanei* Baker and Pritchard, 1960 (India, Mauritius, Madagascar, Canary Islands) in the chaetotaxy of tarsus I, and in the shape of the spinneret. Males of the two species are also similar in the shape of the aedeagus. However, the male of *T. malaysiensis* is distinctive in that empodium II has three pairs of proximoventral hairs and a mediodorsal spur, whilst in
*Tenuipalpus caudatus* (Dugès) (Figs. 24 and 25)

*Trombidium caudatus* Dugès, 1834: 29. [Type locality: France, on laurestinus]

*Tenuipalpus palnatus* Donnadieu, 1875: 112, pls. 1–2; Baker, 1945: 34, fig. 1; McGregor, 1949: 5, fig. 1; Baker and Pritchard, 1953: 326, pl. 3.


**Female.** Body, including rostrum, 321 long, red in color. Rostral shield deeply cleft medially, with lateral angulations. Prodorsum with longitudinal striae on median area except for posterior, irregularly striae, small portion; posterolateral corners of prodorsum angulate. First and second prodorsal setae minute, slightly serrate; third set on small tubercle behind a large projection, broadly lanceolate to spatulate, serrate, approximately as long as one half the distance between its base and posterior margin of prodorsum. Opisthosomal dorsum with a distinct expansion anterior to coxa III; with longitudinal striae on median portion anterior to level of second dorsocentral setae, and with more or less transverse striae on most of median portion; a pair of opisthosomal pores present. Dorsocentral opisthosomal setae three-paired, the first and sec-

---

*S. Ehara and M. Masaki*

---

**Figs. 24 and 25.** *Tenuipalpus caudatus.* 24, dorsum (♀); 25, ditto (♂). DL1–DL6, dorsolateral opisthosomal setae. For other abbreviations see Fig. 1.
ond pairs spatulate, serrate; the third minute, slightly serrate; humeral setae spatulate, serrate; first dorsolateral setae minute, slightly serrate; the second to fourth and the sixth spatulate, serrate; the fifth very long, flagelliform, and smooth except for the finely serrate proximal portion. Podosoma with 1 pair of anterior and 1 pair of posterior medioventral metapodosomal setae, the latter much longer than the former, flagelliform. Lengths of setae (n=4): P1 5.7, P2 8.0, P3 62.8, H 40.1, C1 47.9, C2 48.0, C3 6.6, DL1 7.5, DL2 50.8, DL3 49.0, DL4 45.4, DL5 127.4, DL6 32.4. Palpus two-segmented, with 2 setae on distal segment. Legs with many of the setae broadly lanceolate to spatulate.

**Male.** Body, including rostrum, 250 long. Similar to female except for sexual differences, with posterior part of opisthosoma considerably smaller and narrower than rest of body, subparallel-sided. Opisthosomal dorsum with oblique striae on anterior half; all pairs of dorsocentral opisthosomal setae minute, slightly serrate. Lengths of setae (n=4): P1 5.4, P2 6.2, P3 51.9, H 30.2, C1 7.1, C2 6.9, C3 4.7, DL1 6.7, DL2 38.3, DL3 36.3, DL4 37.0, DL5 103.6, DL6 25.3.

**Specimens examined.** Two ♀♀ and 2♂♂, on leaves (under surface) of *Viburnum* sp. imported from Italy (at Narita Airport, Japan), 12-I-2000 (H. Kitamura).

**Hosts.** *Acacia, Calligonum, Citrus, Laurus, Malus, Olea, Viburnum*.

**Distribution.** Italy, France, Greece, Portugal.

**Remarks.** The female of *Tenuipalpus caudatus* is characterized by the prodorsum that is longitudinally striate on most of the median area, and the first and second dorsocentral opisthosomal setae are large and spatulate while the third is minute and slightly serrate.

**ACKNOWLEDGEMENTS**

We are very grateful to Mr. H. Kitamura, Mr. G. Takahashi and Mr. E. Tasaka for collecting the specimens, and to Mr. Koichi Ishikawa for his great help and encouragement. Our thanks are also due to Mr. Trevor Sargent and two anonymous reviewers who made useful suggestions.

**REFERENCES**


