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TWO NEW SPECIES OF APHIDS PARASITIC ON POPLAR IN HOKKAIDO

BY

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(With 2 Text Figures)

北海道に於けるヤマナラシ屬に寄生する二新蚜蟲に就て

堀 松 次

In 1918 and 1919, Prof. Dr. S. MATSUMURA has described six species of aphids parasitic on the poplar-tree in Hokkaido. Since that time, any species of this group on the same host plant has not been reported up to the present. In the course of the study on the Japanese insects, the writer found a few species unrecorded on our poplar-trees. Among them, one species belonging to the genus *Melanoxanthelium* seems to be a new to science, and another one species does not belong to any one of the hitherto published genera. The present paper was intended to report these two interesting species of aphids. In this place, the writer wishes to express his heartiest thanks to Prof. S. MATSUMURA, and also indebted to Mr. S. KUWAYAMA for many valuable suggestions.

Melanoxanthelium yezoense HORI, n. sp. (Fig. 1, a-1)

(**Alate viviparous female**)—General colour reddish brown. Antennae black, except the basal half of joint III which is yellowish. Legs black, greater part of the femora yellow. Abdomen with the six or seven transversal blackish markings and the several black spots on the lateral side of the dorsum. Cornicles pale yellow with the blackish apices. Body provided with many rather long hairs. Head with the several long bristles, no prominent frontal tubercles. Antennae stout, much shorter than body, imbricated, with numerous conspicu-

ous bristles along the upper margin; hair long, twice as broad as the joint

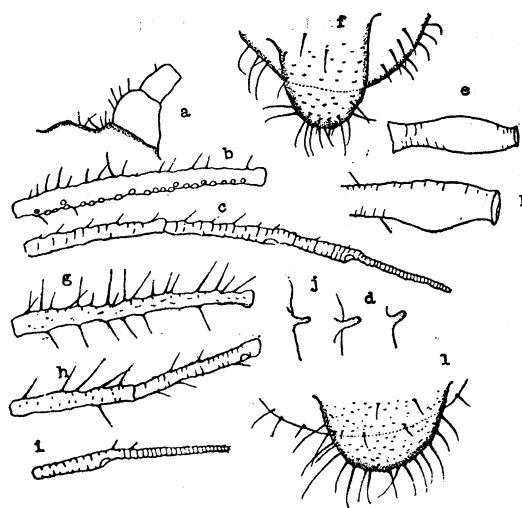


Fig. 1.

Melanoxanthelium yezoense HORI, n. sp.

a-f Alate viviparous female

- a. Head. b. III joint of antenna
c. IV-VI joints of antenna d. Thoracic horn
e. Cornicle f. Cauda & anal plate
g-l Apterous viviparous female
g. III joint of antenna h. IV-V joints of antenna
i. VI joint of antenna j. Thoracic horn
k. Cornicle l. Cauda & anal plate

III; III longest, slightly shorter than IV and V combined; the base of VI longer than the half length of the unguis; joint III with 20-28 circular sensoria almost on one side along the whole length. Rostrum reaches to the 3rd coxae. Prothorax with a wart-like horn on each lateral side. Wing-venation normal, stigma narrow. Legs furnished with many long bristles which are as long as the width of the hind femora; hind tarsi as long as the base of VI antennal joint. Cornicles bottle-shaped as in *Mel. bicolor* OESTLUND, with the prominent flange at the tip, imbricated, as long as IV antennal joint. Cauda and anal plate rounded, with the several bristles.

Measurements of the antennal joints

(No)	III	Sensoria on III	IV	V	VI
(1)	0.506 0.544	28 23	0.309 0.319	0.300 0.281	0.394(0.150+0.244) 0.394(0.150+0.244)
(2)	0.563 0.619	25 26	0.300 0.338	0.363 0.363	0.412(0.150+0.262) —
(3)	0.656 0.624	26 28	0.368 0.368	0.336 0.320	0.416(0.160+0.256) 0.416(0.160+0.256)
(4)	0.552 0.576	25 26	0.320 0.304	— 0.272	— 0.384(0.150+0.234)
(5)	0.624 0.608	20 22	0.320 0.330	0.320 0.304	0.440(0.168+0.272) 0.416(0.168+0.248)
(6)	0.624 0.616	20 21	0.320 0.328	0.320 0.304	0.432(0.176+0.256) 0.416(0.176+0.240)

General measurements :

Body-length 2.760–3.375 mm. (av. 3. 188 mm). Body-width 1.013–1.229 mm. Antennae 1.688–1.913 mm. (av. 1.838 mm). Fore-wing 4.500 mm. Cornicles 0.281–0.319 mm. (av. 0.309); Max. width 0.096 mm. Min. width 0.051 mm. Flange 0.074 mm. cauda 0.210 mm; Width at the base 0.263 mm. Thoracic horn 0.065 mm. Hind-tarsi 0.150 mm.

(**Apterous viviparous female**)—Colouration and general appearance much similar to those of the alate form. Antennae with no secondary sensoria, short, a half length of the body; joint III the longest, slightly shorter than joints IV and V; IV equal to V; unguis of VI much shorter than twice as long as base. Rostrum reaching between 2nd and 3rd coxae. Cauda broad and short, a half length of the width at base.

Measurements of the antennal joints

No.	III	IV	V	VI
(1)	0.563	0.319	0.319	0.384(0.169+0.215)
	0.544	0.338	0.319	0.394(0.169+0.225)
(2)	0.413	0.225	0.225	0.338(0.150+0.188)
	0.431	0.225	0.225	0.375(0.160+0.225)
(3)	0.512	0.288	0.272	0.344(0.160+0.184)
	0.456	0.256	0.256	0.238(0.150+0.188)

General measurements

Body-length 3.243 mm. Body-width 1.313 mm. Antennae 1.388–1.781 mm. (av. 1.574 mm). Cornicles 0.300–0.319 mm.; Max. width 0.104 mm., Min. width 0.064 mm., Flange 0.080 mm. Cauda 0.150 mm.; Width at base 0.319 mm. Hind tarsi 0.150 mm.

Food-plants—*Populus* spp. (*Populus Maximowiczii*, *P. monilifera*, *P. nigra* and *P. alba*).

Locality—Hokkaido (Sapporo and Kotoni).

Observations—This large aphid parasites on the tender shoots and the branches of the several species belonging to the genus *Populus*. During early summer, numerous alate forms migrate to the secondary host plant, which we are unable to detect up to the present. Sexual forms, alate male and apterous oviparous female, occur in November. Many eggs are laid on the buds and rough barks.

Remarks—This species somewhat resembles to *Melanoxanthelium bicolor*

OESTLUND, but it differs from the latter in the relative length of base and unguis of VI antennal joint, also in the structure of the thoracic horn. This aphid is also quite distinct from *Mel. coreatum* TAKAHASHI by the structure of the cornicles which are much longer than tarsi and conspicuously flanged, as well as by the large number of the secondary sensoria on III antennal joint.

C o t y p e s—Deposited in the Hokkaido Agricultural Experiment Station.

Doraphis MATSUMURA et HORI, n. g.

(**Alate viviparous female**)—Body with no prominent hairs. Head provided with some moderate sized horns on the front. Frontal tubercles absent. Eyes with small ocular tubercles. Antennae short, four or five jointed, armed with annular sensoria over the whole length; each of I and II has a short hair; unguis of last joint very small. Rostrum very short reaching only to the first coxae. Fore-wings with the 3rd oblique (M) simple, stigmal vein somewhat curved; hind wings with one oblique vein (M). Cornicles present merely as a ring; cauda knobbed with several irregularly sized hairs. Anal plate bilobed, provided with several long hairs.

(**Pupa**)—Body provided with many bristles, evidently pulverulent. Head with two prominent long horns, as in the genus *Oregma*, which are tapering toward the apices and curved somewhat inwardly, being far separated from each other. Antennae four jointed, strongly excurved in the last joint, with an apical obscure fringlet sensorium with a long hair on the outside of the last joint. Cornicles similar to the alate form. Cauda and anal plate rounded, with many long hairs.

G e n o t y p e—*Doraphis populi* MATSUMURA et HORI, n. sp.

Doraphis populi MATSUMURA et HORI, n. sp. (Fig. II, a-i.)

(**Alate viviparous female**)—General colour purplish brown, with three large bands on the back in front of cauda. Head with two horn-like tubercles on the frontal margin; eyes large. Antennae very short, four and five jointed, armed with annular sensoria over the whole length; each of I and II furnished with a moderately long hair. In the case of four jointed, III the longest, as

long as the remaining three joints combined, I longer and broader than II, annulations 18-23 on III joint, 11-17 on IV. In the case of five jointed, III not longer than IV or V, sometimes V the longest rarely IV; annulations 9-11 on III joint, 11-14 on IV and 13-25 on V. Mesothorax large, simple on the dorsum. Stigmatic vein of the fore-wing moderately curved; 1st and 2nd oblique veins fused near their bases; hind-wings with two or three hooklets. Legs stout but not long, provided with few fine hairs. Spiracles slightly protuberant. Diameter of the cornicles about as long as the II antennal joint. Cauda with 10-12 stout long hairs, as long as the hind tarsi; anal plate with about 12 rather long hairs.

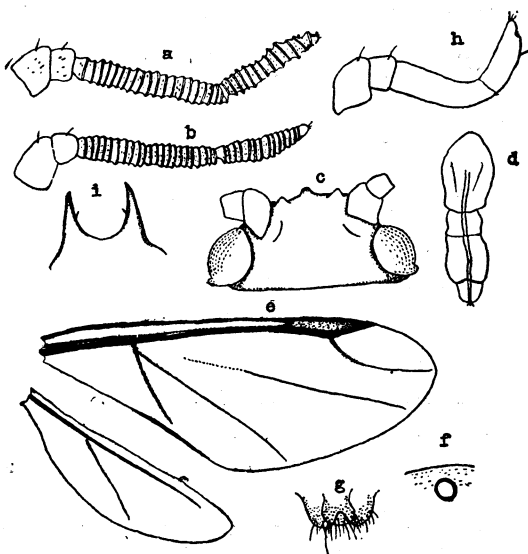


Fig. 2.

Doraphis populi MATSUMURA et HORI, n. sp.

a-g Alate viviparous female.

- a. Antenna (4 jointed). b. do. (5 jointed).
 c. Head. d. Rostrum.
 e. Wings. f. Cornicle.
 g. Cauda and anal plate.

h-i Pupa.

- h. Antenna. i. Horns on the front.

Measurements of the antennal joints

(No.)	I	II	III	Sensoria on III	IV	Sensoria on IV	V	Sensoria on V
(1)	0.075	0.056	0.281	19	0.225	16		
	0.075	0.056	0.281	23	0.188	17		
(2)	0.065	0.047	0.391	18	0.169	14		
	0.070	0.047	0.300	21	0.160	11		
(3)	—	—	0.281	18	0.225	16		
			0.281	21	0.169	15		
(4)	—	—	0.375	22	0.244	15		
			0.375	22	0.244	16		
(5)	—	—	0.338	21	0.244	16		
			0.356	20	0.244	13		
(6)	—	—	0.338	21	0.225	16		
			0.338	22	0.225	17		

(No.)	I	II	III	Sensoria on III	IV	Sensoria on IV	V	Sensoria on V
(7)	—	—	0.356 0.356	19 22	—	—	—	—
(8)	—	—	0.150 0.150	9 9	0.169 0.169	12 14	0.188 0.169	25 16
(9)	—	—	0.159 0.281	10 20	0.188 0.169	11 13	0.159 —	13 —
(10)	—	—	0.104 —	11 —	0.120 —	12 —	0.192 —	18 —

General measurements:

Body-length 2.18–2.59 mm. (av. 2.34 mm). Body-width 0.750–0.938 mm (av. 0.844 mm). Antennae 0.704–0.731 mm (av. 0.716 mm). Fore-wing 3.656–3.675 mm. Cornicles (diameter) 0.059 mm. Cauda 0.106 mm; longest hair 0.090 mm. Hind tarsi 0.100 mm.

(Pupa).—General colour almost similar to that of the alatae. Body covered by white and powdery secretion. Horns on the frontal margin large, almost as long as the IV antennal joint, with a fine hair; Eyes composed of 3 facets. Antennae short, as long as or a little shorter than the hind tibiae and tarsi combined, strongly curved, stout, four jointed; I broader and longer than II; III longer than IV; each of joints I, II and IV with a rather long hair. Rostrum stout, very short, reaching to the part slightly beyond the first coxae. Legs stout, short, with a few rigid bristles; hind tarsi a little shorter than the frontal horn. Wing-pads broad, much longer than the antennae.

Measurements of the antennal joints

(No.)	I	II	III	IV
(1)	0.075 0.075	0.040 0.056	0.188 0.206	0.156 0.169
(2)	0.075 0.075	0.056 0.056	0.188 0.169	0.150 0.150
(3)	—	—	0.188 0.188	0.150 0.150
(4)	—	—	0.188 0.178	0.150 0.150
(5)	—	—	0.188 0.188	0.150 0.150

General measurements:

Body-length 2.719-2.944 mm (av. 2.830 mm). Body-width 1.313-1.425 mm (av. 1.394 mm). Antennae 0.453-0.506 mm (av. 0.468 mm). Rostrum 0.352 mm. Horn 0.103-0.169 (av. 0.140 mm). Wing-pad 0.694-0.938 mm (av. 0.811 mm). Hind-tarsi 0.120 mm.

Food plant—*Populus Maximowiczii*

Locality—Hokkaido (July 22, 1924, Leg. Mr. K. OSHIMA, at Sapporo), Honshu (June 23, 1917, Leg. Mr. G. HARUKAWA, at Okayama).

Observations—This remarkable pulverulent species occurs in some large colonies on the underside of the leaves of *Populus Maximowiczii* without causing any obvious curl of the foliage. Materials collected by the above mentioned collectors were all alate forms and pupae.

Cotypes—Deposited in the Entomological Museum of the Hokkaido Imperial University and the Hokkaido Agricultural Experiment Station.

摘 要

従来本道に於てヤマナラシ属を食害する蚜蟲としては、大正七、八年松村博士によつて記録せられた六種が知られて居るのみであつた、その後今日まで一の追加をも見なかつたが私は近年來この植物の蚜蟲を調査して更に二種を發見した。これらは従来記録せられたことのないものと認め茲に次の様に命名して發表することにした。その中一種は *Melanoxanthelium* に屬するもので、他のものは新屬「ドロツノアブラムシ」属 *Doraphis* MATSUMURA et HORI に屬するものである。

Melanoxanthelium yezoense HORI ドロツボアブラムシ

Doraphis populi MATSUMURA et HORI ドロツノアブラムシ
