

Literatuur

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Notes on some Japanese Eriosomatinae (Homopt., Aphididae) and their life cycle

by

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INTRODUCTION

In aphids, particularly in the Eriosomatinae and Hormaphidinae, morphs developing on the primary host plants may differ so much from those developing on the secondary host plants that they are regularly placed in different genera. However, by studying embryos it is often possible to find a clue to conspecificity (HILLE RIS LAMBERS, 1953). For I found that embryos inside the alate migrants flying from the primary host plant show considerable agreement with those developing inside the virginoparous apterae and alatae born on the secondary host plants. Some work of this kind on a small collection of slides of *Tetraneura*-like aphids, and of several pickled aphid galls with their inhabitants from *Ulmus* and *Zelkova*, received from Dr. M. SORIN, 2475 Hirao, Mihara-cho, Minamikawachi (Osaka-fu), Japan, gave very interesting results.

1. *Watabura nishiyae* Matsumura, 1917

Aphidounguis mali Takahashi, 1963 was described from the roots of apple, *Pirus malus*, in Japan, and some paratypes are in my collection. Apterae and embryos can very easily be recognized. For in these root aphids both have only one complete tarsal claw, while the other claw is either obsolete, or very strongly reduced in size. Only one other aphid with a very reduced second claw is known, viz., *Schlechtendalia chinensis* Bell, a rather different species. Alatae of *Aphidounguis* were not yet described.

Dr. SORIN sent a slide with spring migrants from a gall on *Ulmus japonica* (= *Ulmus davidiana* var. *japonica*) which aphids resemble what SHINJI (1941) calls *Dryopeia nishiyae* Mats. MATSUMURA (1917) described the species *Watabura* (= woolly aphid¹) *nishiyae* nov. gen., nov. spec., but in his index mentioned the same genus as *Watomushi* (woolly insect¹), a nomen nudum. He stated that he received the specimens from Mr. NISHIYA who collected them from *Cydonia vulgaris* and *Malus pumila*, and who suggested that the aphids might live on the roots of apple trees. NISHIYA (1917) refers to a *Pemphigus watomushi* Matsumura which presumably is the same insect which, however, was not described under the

¹) Translated by Prof. W. H. PAIK, Korea.

latter name. BAKER (1920) synonymized *Watabura* with *Dryopeia* Kirkaldy, 1904, a synonym of *Tetraneura* Hartig, 1841, and placed it near *Pemphigus* Htg., erroneously. TAKAHASHI (1931) erroneously considered *Watabura nishiyae* Mats., 1917 to be an older name for *Tetraneura moriokaensis* Monzen, 1923 (p. 88), a species which according to MONZEN (1923) migrates from galls on *Zelkova serrata* to roots of *Sasa* spp., small bamboo. MONZEN (1929) placed his species, now spelled *moriokensis*, in *Watabura* Mats. The synonymy suggested by TAKAHASHI (1931) is refound in SHINJI (1941).

An examination of Dr. SORIN's *Ulmus* aphid, which agrees fairly well with both MATSUMURA's (1917) and SHINJI's (1941) descriptions of *nishiyae* Mats. showed that the embryos in the bodies of alate spring-migrants have only one claw, besides all the other characters of the embryos present inside *Aphidounguis mali*. This can only mean, that *Aphidounguis mali* Takahashi, 1963 becomes a synonym of *Watabura nishiyae* Matsumura, 1917; that *Aphidounguis* Takahashi, 1963, monotypical, becomes a synonym of *Watabura* Matsumura, 1917, monotypical; and that the species has host alternation between *Ulmus davidiana* var. *japonica* as primary host plant, and (roots of) *Pirus malus* as secondary host plant. The genus is not, as TAKAHASHI (1963) stated, related to *Mimeuria* Börner, a Pemphigine genus, but it belongs in the Eriosomatinae.

Unfortunately we do not yet know which type of gall is produced on *Ulmus davidiana* var. *japonica*.

2. *Tetraneura jezoensis* Matsumura, 1917

MORDVILKO (1935) stated that the primary host plant of *Tetraneura radiculicola* Strand, 1929 (syn.: *T. takahashii* Mordvilko, 1930) was not yet known, and until now the species had only been found on underground parts of Gramineae. Apterae viviparae are characterized by a very large number of small hairs on dorsum, legs and antennae; a variable number of very long marginal hairs on the posterior abdominal tergites; wax glands with a strong rim but without distinct cells; and a conspicuously long and hairy last rostral segment. Embryos inside the apterous exules also have large numbers of hairs, rather small tarsal claws and a last rostral segment of about 0.19 mm long with about 22 hairs. *Tetraneura heterohirsuta* Carver & Basu, 1961 from India and Australia is part of the complex of *T. radiculicola* Strand, the members of which differ in the number of hairs.

Among the *Tetraneura*-like aphids sent by Dr. SORIN there is one slide with alatae and larvae of a *Tetraneura*, collected from *Ulmus davidiana* var. *japonica* by S. TAKAGI near Sapporo, Japan on 24.VI.1961. In the structure of their antennae these alatae are about intermediate between *T. nigriabdominalis* Sasaki and *T. ulmi* L., but they differ conspicuously by longer tibial hairs.

The type of gall from which these aphids were taken was not mentioned, but Dr. SORIN collected, and sent to me galls from *Ulmus*. Some, from both *Ulmus parvifolia* and *U. davidiana* var. *japonica*, agreed perfectly with the hairy galls of fig. 8 of plate XIII in MATSUMURA (1917). On *U. davidiana* var. *japonica* but apparently not on *U. parvifolia* rather similar but completely or virtually hairless galls were found that, when young, perfectly agreed with fig. 12 of plate XIII in MATSUMURA (1917). The inhabitants of the hairless galls were the ones that

contained the embryos like those of *T. radiculicola* Strand. But which name should be applied to this gall-making aphid from *Ulmus*? Here is a serious problem that can only be solved by the assumption that MATSUMURA interchanged the references to his figures.

The description of *Tetraneura yezoensis* Mats. perfectly fits the inhabitants of the smooth type of gall, and MATSUMURA writes on p. 74 that the galls made by *T. yezoensis* are "with a few whitish short hairs". But as to the galls made by *T. yezoensis* he refers both on p. 73 and p. 93 to pl. XIII, fig. 8. This figure, however, shows the completely hairy gall that contains the species he described as *Tetraneura fusiformis* on the next pages, and of which he writes that its gall has "silky, short hairs". Clearly pl. XIII, fig. 8 shows the galls of *Tetraneura fusiformis* Mats., while pl. XIII, fig. 12 are those of *T. yezoensis* Mats. The oldest name for *Tetraneura radiculicola* Strand apparently is *Tetraneura yezoensis* Matsumura, 1917.

3. *Kaltenbachella japonica* (Matsumura, 1917)?

One slide among those received from Dr. SORIN contains a few alatae and nymphs from *Ulmus*, collected by Dr. R. TAKAHASHI near Sapporo, Japan on 1.VIII.1960. The insects are very nearly related to *Kaltenbachella pallida* Haliday and they agree with the description of *Gobaishia japonica* Matsumura, 1917. MORDVILKO (1935) suggested that *Gobaishia japonica* is a host alternating species which in Eastern Asia goes to superterranean parts of *Elsoltzia*. He described migrants from *Ulmus* near Wladiwostok collected between 25.VII and 3.VIII, i.e., about at the same time as my Japanese specimens. This is not very remarkable, but it certainly is curious that the alatae in Dr. SORIN's slide contain embryos without mouthparts. This means that they are sexuparae which produce their offspring on the bark of *Ulmus*. One might think that they had migrated at this early date from some secondary host plant to *Ulmus*, but this is highly improbable because the large nymphs in the slide are clearly conspecific, and have fully developed mouthparts.

The embryos suggest that this aphid does not have host alternation, but completes its cyclis on the host plant on which it makes its galls.

4. *Colopha moriokaensis* (Monzen, 1923)

MONZEN (1923) described *Tetraneura moriokaensis* from galls on *Zelkova* (or *Abelicea*) *serrata* and said also in (1929) that it migrated to the roots of *Sasa*, small bamboo. In 1929 he transferred his species to the genus *Watabura* Mats. and later Japanese authors thought that *moriokaensis* Monzen was a synonym of *Watabura nishiyae* Mats., as discussed on p. 87.

Galls from *Zelkova serrata* received from Dr. SORIN agreed perfectly with those described as being caused by *Tetraneura moriokaensis* Monzen. Also their inhabitants fitted the original description of that aphid. They rather resemble the spring migrants of *Watabura nishiyae*, but the embryos inside the migrants from *Zelkova* galls have two well developed claws. I could not find a single difference between these embryos, and embryos from American *Paracolopha morrisoni* (Baker) from bamboo roots.

This might suggest that *Tetraneura moriokaensis* Monzen, 1923 is the same as

Dryopea morrisoni Baker, 1919. However, *Paracolopha morrisoni* (Baker) has as apterous exules large siphunculi (HILLE RIS LAMBERS, 1966) while MONZEN (1923) figures and describes his apterous virgogeniae as having no siphunculi.

Therefore I transfer *Tetraneura moriokaensis* Monzen, 1923 to the genus *Colopha* Monell.

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Sinds de publicatie van de *Catalogus Hymenopterorum* van DALLE TORRE (1892—1902) is een overweldigende hoeveelheid literatuur over de Vliesvleugeligen verschenen. Het was daarom een voortreffelijk denkbeeld van de Uitgeverij JUNK met een geheel nieuwe catalogus te starten, waarvan de publicatie onder supervisie van twee vermaarde specialisten zal plaats vinden, die van de Hymenoptera Symphyta en Parasitica onder Dr. Ch. FERRIÈRE (Genève) en die van de Aculeaten onder Prof. Dr. J. VAN DER VECHT (Leiden).

De *Catalogus* zal in niet al te omvangrijke afleveringen verschijnen. Dit is mogelijk door van de grote families geen wereld omvattende delen te publiceren, maar de wereldfauna in vijf regionen te verdelen en van elk afzonderlijke afleveringen uit te geven. Daar vrijwel elke specialist zich tot een bepaald gebied beperkt, zal dit zelden op praktische bezwaren stuiten, terwijl het de aanschaffing van afzonderlijke delen kan stimuleren.

De twee reeds verschenen afleveringen maken een voortreffelijke indruk: uitstekend papier, duidelijke letter en overzichtelijke indeling. Er kan geen twijfel aan bestaan, dat de *Catalogus* in een lang gevoelde behoefte zal voorzien en een degelijke basis zal vormen, waarop verder gebouwd kan worden. Wij wensen de uitgever en de beide redacteuren succes met deze zeer belangrijke publicatie. — LPK.