

Studies on Cynipidae Alloxystinae

5. *Alloxysta citripes* (Thomson) and *Alloxysta ligustri* n.sp., with remarks on host specificity in the subfamily

by

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ABSTRACT. — The identity of *Alloxysta citripes* (Thomson, 1862) is elucidated and a lectotype designated. *Alloxysta citripes britannica* Kieffer is considered to be a synonym; a lectotype is designated. *Alloxysta citripes* seems to be a hyperparasite of a number of aphid species, belonging to the Callaphididae, through *Trioxys pallidus* (Haliday) as a primary parasite. *Alloxysta ligustri* n.sp. is described. It is a hyperparasite of *Myzus ligustri* Mosley through *Monoctonus cerasi* (Marshall). Considerations on the host specificity of Cynipidae Alloxystinae are given.

Alloxysta citripes (Thomson)

Allotria citripes Thomson, 1862: 410, ♀.

Alloxysta citripes (Thomson) var. *britannica* Kieffer, 1902: 43, ♀.

Alloxysta citripes britannica, Dalla Torre & Kieffer, 1910: 262, ♀.

Over the past years I have quite often reared from aphid mummies in the Netherlands a black *Alloxysta* species with conspicuous light yellow legs and antennae. I have reared it from *Tuberculoides annulatus* (Hartig) on the under side of oak leaves (*Quercus* spp.), and also often from mummies of *Pterocallis alni* (De Geer) on the under side of leaves of alder (*Alnus glutinosa* (L.) Vill.) and a few from mummies of *Myzocallis coryli* (Goeze) on hazel (*Corylus avellana* L.). The primary parasite in all cases was *Trioxys pallidus* (Haliday).

The *Alloxysta* species fits well with the original description of *Allotria citripes* Thomson, 1862. I have borrowed the two syntypes of this species from the Zoological Institute of Lund (Sweden) and find that they belong to different species. One of them, a female, is identical with the species that I reared, and I designate this as the lectotype of *Allotria citripes* Thomson. It is mounted on the tip of a white, triangular piece of card-board. It lacks the antennae for the greater part. The pin also bears a very small, green, square piece of paper and a rectangular, light blue label: "1972 38" (printed).

In his monograph of the British phytophagous Hymenoptera (1890), in which also the entomophagous Cynipidae are dealt with, Cameron included *Allotria citripes* Thomson, for which he gave some additional characters. Kieffer (1902) discussed Cameron's conception of the species and concluded, obviously exclusively from Cameron's description, that it is different from Thomson's *Allotria citripes*. However, he did not sharply indicate the differences. Kieffer considered it a "variety", which he named var. *britannica*. In 1910, von Dalla Torre & Kieffer raised this "variety" to the rank of subspecies, with the remark that it might even be a full species.

I borrowed the four specimens, comprising one male and three females, identified by Cameron as *Allotria citripes* Thomson, from the British Museum at London. They belong to one species. One of them, a female, I designate as the lectotype of *Alloxysta citripes britannica* Kieffer. It is mounted with its left side on a white card-board, written on the under side the locality: "Dumfries" and "citripes", and a label: "Cameron 96-76" (printed), and on the under side: "Dumfries" (written). The other three specimens are labelled as paralectotype.

As I could not find any differential character warranting the taxonomical status of even a subspecies, I consider *Alloxysta citripes britannica* Kieffer, 1902, a synonym of *Allotria citripes* Thomson, 1862. Thomson's remark: "Xystus trapezoideus Hart. . . (forte)" (translated by Kieffer, 1902: "Peut-être identique à Xystus trapezoideus") does not hold as the only type of *Xystus trapezoideus* Hartig, a male that I examined, is a different species.

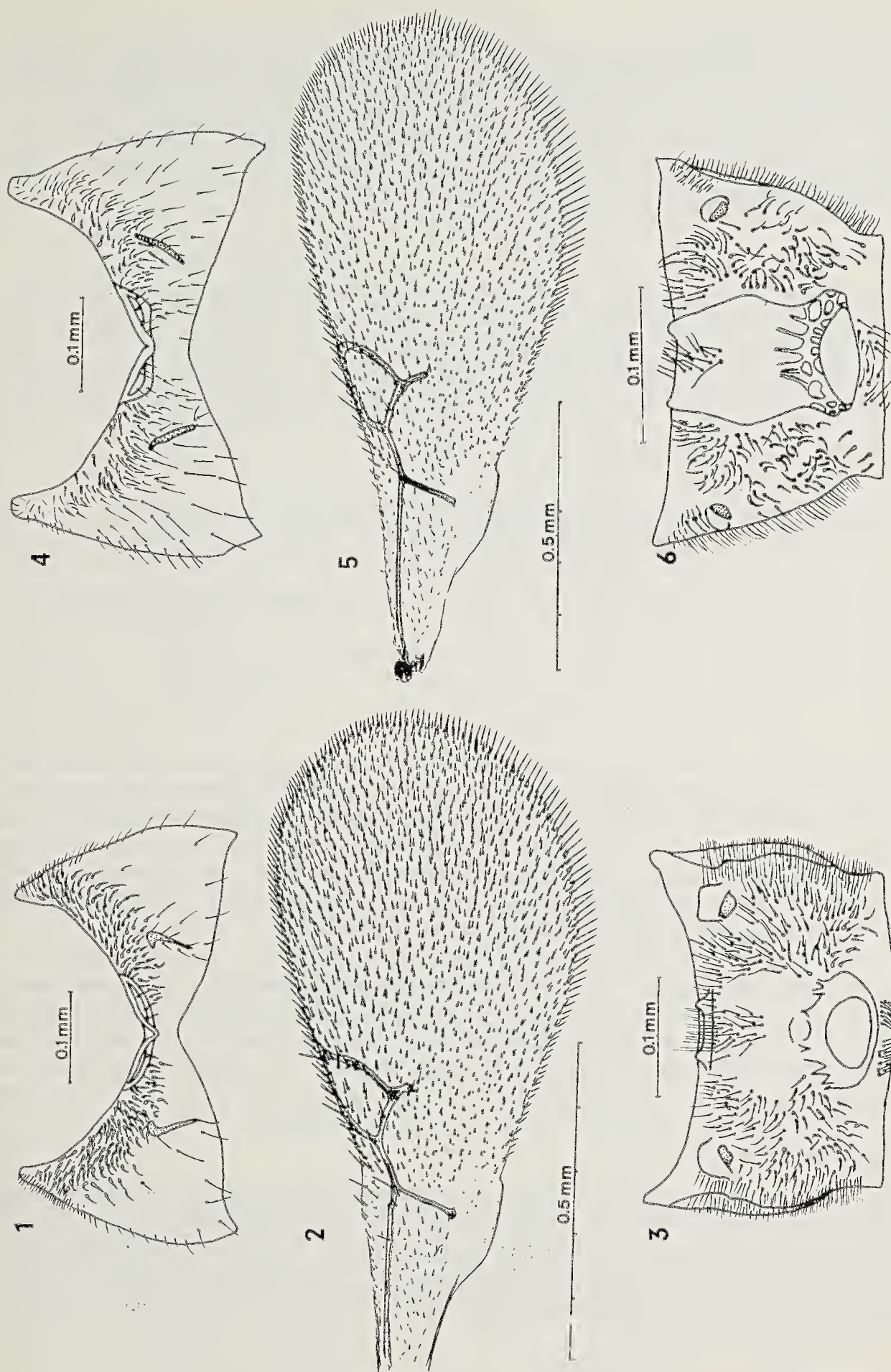


Fig. 1—3. *Alloxysta citripes* (Thomson). Fig. 4—6. *Alloxysta ligustri* n.sp.

1 and 4: Pronotum, 2 and 5: Fore-wing, 3 and 6: Propodeum. The figures refer to both sexes.

Morphological characters

Antennae in male somewhat longer and in female about as long as body, flagellar segments straight in both sexes. Pronotum densely covered with short hairs at its proximal margin; a few long, thin hairs scattered over the rest, but distolateral corners and centre almost bare (Fig. 1). Radial cell small, open along the front side of the fore-wing (Fig. 2). Propodeum without carinae, densely covered with short hairs over most of its surface, but bare in the middle, except for a proximomedial strip (Fig. 3).

Colour pattern

Male: Black or piceous. Face, cheeks, lower part of temples and mouth-parts pale yellow, antennae unicolourous pale yellow. Propodeum often more piceous, legs unicolourous pale yellow, wing veins very pale. Abdomen reddish at base.

Female: As male, but head to a larger extent black or piceous, only clypeus and mouth-parts pale yellow, fading to dark brown in the lower face; antennae mostly a little darkened towards the tip.

Length male and female: 0.7-1.05 mm, average 0.85 mm.

This species may be rather easily recognized by its small size, by the dark colour of its body, the conspicuous light yellow legs and antennae, and by the pattern of pubescence on the pronotum and especially of the propodeum. It seems to be a common parasite of *Trioxys pallidus*, which, in its turn, is a common parasite of aphids belonging to the Callaphididae, on several food plants. It must be pointed out that *Trioxys pallidus* may be regarded as a complex species, comprising several host specific strains (cf. Mackauer & Starý, 1967).

Alloxysta ligustri n.sp.

For several years, I have reared an *Alloxysta* species in rather large numbers from mummies of the aphid *Myzus ligustri* Mosley, through the primary Aphidiid parasite *Monoctonus cerasi* (Marshall) on leaves of cultivated *Ligustrum ovalifolium* Hassk., in my garden at Bennekom. Its characters fit well to the description of *Allotria versicolor* Kieffer, 1904. According to Dessart (1969), there are four type specimens in the collection Léon Carpentier labelled with this name. The collection Léon Carpentier belongs to the "Musée d'Histoire Naturelle" at Amiens, France. There are no data available on the host of this species.

I sent a few of my specimens to Mr. F. Barbotin, Poitiers, France, who compared them with the types of *Allotria versicolor*. He wrote to me that only one of the types comes rather near to my specimens, but differs in having the second part of the radial vein less regularly curved, the radial cell more pointed distally, the antennae of different shape and the legs reddish and not yellowish. I think this is reason enough to accept my specimens as belonging to a different, not yet described species.

Morphological characters

Antennae in male somewhat longer, and in female about as long as body, flagellar segments straight in both sexes. Pronotum densely covered with rather short hairs along its proximal margin; only a few, long, thin hairs scattered over the rest (Fig. 4). Radial cell small, closed (Fig. 5). Propodeum with two longitudinal carinae which are curved outwards in the middle; area between the carinae bare, except for an anteromedial strip, for the greater part outside the carinae covered with hairs (Fig. 6).

Colour pattern

Male: Black or piceous. Head yellow or reddish yellow, mostly somewhat darker above, antennae unicolourous yellow. Thorax, especially propodeum, tending to reddish. Legs unicolourous yellow. Base of abdomen often reddish.

Female: As male, but antennae darkened towards the tip.

Length male: 0.7-0.9 mm (average 0.8 mm), female: 0.8-0.95 mm (average 0.85).

Holotype: Female, length 0.85 mm, length fore-wing 1.2 mm. "Bennekom, Netherlands, leg. H.H. Evenhuis; 30-5-1971, mummy of *Myzus ligustri* on *Ligustrum ovalifolium*". The specimen has been glued on a card-point; the aphid mummy has been glued on a separate card.

Paratypes: 9 females and 10 males mounted in the same way as the holotype, and four females, one male and one fore-wing of a female specimen, each in a slide. All paratypes were reared from mummies of *Myzus ligustri*, collected from cultivated *Ligustrum ovalifolium* in my garden at Bennekom in the summer season of 1971, 1972 and 1973.

Types in the collection of the author.

In an earlier paper (Evenhuis, 1971) I discussed that *Monoctonus cerasi*, as a parasite of *Myzus ligustri* on *Ligustrum ovalifolium*, and *Monoctonus cerasi*, as a parasite of *Rhopalosiphum insertum* (Walker) on apple, might be in fact two species. Their bionomics are quite different, though till yet, they can not be distinguished morphologically. They were considered as one species by Mackauer (1968) and Mackauer & Stary (1967). A remarkable fact is, that the Alloxystine hyperparasites of both aphids through *Monoctonus cerasi*, are different too. I reared *Alloxysta ligustri* exclusively from mummies of *Myzus ligustri*, whereas I reared a species of *Phaenoglyphis* Förster sensu Hellén from mummies of *Rhopalosiphum insertum*. The description of *Allotria perplexa* Cameron, 1889, fits well to this *Phaenoglyphis* species. Till yet, however, I did not have the opportunity to compare my specimens with Cameron's type(s).

Host specificity in Cynipidae Alloxystinae

Cynipidae Alloxystinae are hyperparasites; they have direct hosts, belonging to the Hymenopterous families Aphidiidae and Aphelinidae, and indirect hosts, the aphids. It seems logical to presume that the direct hosts, with which the endoparasitic Alloxystinae are most intimately connected, determine the host specificity in the first place. This indeed, is demonstrated in *Alloxysta citripes*, which, as far as my observations may be generalized, seems a strictly specialized parasite of *Trioxys pallidus*, eventually of the *Trioxys pallidus* complex. *Trioxys pallidus*, in its turn, is a specialized parasite too, so that *Alloxysta citripes* could be regarded as well as a specialized hyperparasite of Callaphididae.

Alloxysta ligustri may be considered as an example of a still more strict specialization. Here not merely the direct host, *Monoctonus cerasi*, seems to determine host specialization, but also the species of indirect host, *Myzus ligustri*. This even holds, if *Monoctonus cerasi* as a parasite of *Myzus ligustri* and as a parasite of *Rhopalosiphum insertum* may turn out to be in fact different, but nevertheless very closely related species. It can not be excluded, however, that other factors as habitat, food plant etc. may play some role.

A similar case of strict host specialization seems to exist in *Alloxysta rubriceps* (Kieffer), a hyperparasite of the mealy plum aphid, *Hyalopterus pruni* (Geoffroy), through the primary parasite *Praon volucre* (Haliday), both on the winter host plants of the aphid, *Prunus* spp., and on the summer host plant, reed, *Phragmites australis* (Cav.) Trin. ex. Steud. I have reared different Alloxystine species — not yet identified — through *Praon volucre* from other aphid hosts than *Hyalopterus pruni*.

Alloxysta victrix (Westwood) seems more widely specialized. It is commonly reared from the rose aphid, *Macrosiphum rosae* (Linnaeus), through the primary parasite *Aphidius rosae* Haliday. However, I have reared it also from *Macrosiphoniella artemisiae* (De Geer) on *Artemisia vulgaris* L. and on *Achillea millefolium* L. through *Aphidius absinthii* Marshall; as well as from *Acyrtosiphon pisum* (Harris) on *Lathyrus odoratus* L., and from *Microlophium evansi* (Theobald) on *Urtica dioica* L. through *Aphidius ervi* Haliday. I am inclined to consider *Alloxysta victrix* a parasite of *Aphidius* species, parasitizing *Macrosiphum* and allied genera.

Much rearing has still to be done before we can have a more complete opinion about the host specificity of the several Alloxystine species. A prerequisite is that we will have to be much more acquainted with the taxonomy of this group of interesting hyperparasites than we are at the moment.

I am indebted to Mr. F. Barbotin, Poitiers, France, for informations on Kieffer's types, to Mr. E. Diller, Munich, West Germany, Mr. R. Danielsson, Lund, Sweden, and Dr. J. Quinlan, London, England, for loan of Hartig's, Thomson's and Kieffer's types respectively, and to Dr. J. Quinlan and Prof. Dr. J. T. Wiebes, Leyden, for reading the manuscript critically.

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Blacus achterbergi nom. nov. (Hym., Braconidae)

von

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Herr C. van Achterberg hatte die Freundlichkeit mich darauf hinzuweisen, daß *Blacus gracilis* Haeselbarth, 1973 (*Veröff. zool. StSamml. Münch.* 16: 121) durch *Blacus gracilis* Brues, 1908 (*Bull. Wisc. nat. Hist. Soc.* 6 : 55) praeokkupiert ist. (Die letztere Art wird heute zu *Orgilus* gestellt, cf. Shenefelt, 1970 (*Hymenopt. Cat.* (ed. nova) 5(2): 256). Ich ergreife die Gelegenheit, der erstgenannten Art nun den Namen *Blacus achterbergi* nom. nov. zu geben.

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PERSONALIA

EREDOCTORAAT P. ZONDERWIJK — Op 26 maart 1976 werd aan ons lid P. Zonderwijk door de Rijksuniversiteit Utrecht het eredoctoraat in de Wiskunde en de Natuurwetenschappen toegekend.

De heer Zonderwijk is hoofd van de afdeling Onkruidkunde en Onkruidbestrijding van de Plantenziektenkundige Dienst. Vanuit deze positie heeft hij veel werk verzet om het overmatig gebruik van chemische onkruidbestrijdingsmiddelen terug te dringen. Een voor iedereen duidelijk herstel van de biologische rijkdom van wegbermen, spoordijken, enz. is hiervan het gevolg geweest.