

**Revised synonymy in the genus *Cotesia* (Hymenoptera: Braconidae: Microgastrinae): the identity of *Microgaster vestalis* Haliday, 1834, as a senior synonym of *Apanteles plutellae* Kurdjumov, 1912**

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In his work on the Haliday collection of Braconidae, van Achterberg (1997) designated many lectotypes and proposed much synonymy. One of the nominal species he dealt with in this way was *Microgaster vestalis* Haliday, 1834, with which he formally synonymised *Apanteles melitaeorum* Wilkinson, 1937. The latter nominal species is much recorded as a parasitoid of larvae of various melitaeine butterflies in the genera *Euphydryas* (s.l.) and *Melitaea* (s.l.). Haliday's description of *M. vestalis* is without an indication of either host or locality, and the name has seldom been used. These taxa are now classified in the genus *Cotesia* Cameron (cf. Mason, 1981).

Van Achterberg's (1997) conclusion, in which he alluded to Lyle's (1916) previous conviction that *vestalis* was the correct specific name of the parasitoid of melitaeine butterflies, came as a surprise because it was in direct contradiction of Wilkinson's (1937) clear rejection of that possibility which he (Wilkinson) discussed in the process of describing a new species, *Apanteles melitaeorum* (now *Cotesia melitaeorum*), the holotype of which was reared from *Euphydryas aurinia* (Rottemberg) in S. England. It appears that Wilkinson had not sought type material of *Microgaster vestalis* Haliday: the basis of his objection to Lyle's interpretation was that Haliday's brief description of *M. vestalis* mentioned (in fact, twice mentioned) reddish tegulae ('squamulis ... ferrugineis' and later 'squamulae ferrugineae'), which is not a feature of the taxon that Wilkinson was describing as *A. melitaeorum*. Nevertheless, the synonymy formally proposed by van Achterberg (1997) has started to be followed, and the name *Cotesia vestalis* has also been applied (Waeyenbergh & Baguette, 1996) as a suspected senior synonym of a species closely related to *C. melitaeorum*, *C. cynthiae* (Nixon), though without a formal proposal of synonymy.

Building on perceptions in the biological pest control literature (e.g. Cock, 1985), Papp (1986) had earlier suggested that *Apanteles* (now *Cotesia*) *vestalis* may be a (senior) synonym of *Apanteles plutellae* Kurdjumov, 1912 (now *Cotesia plutellae*), which is a well-known parasitoid of the diamond-back moth *Plutella xylostella* (Linnaeus) among other hosts, but Papp refrained from proposing the synonymy formally on the grounds that he had not seen type material of either nominal species nor 'authenticated' representatives of *Apanteles* (now *Cotesia*) *vestalis*. Nevertheless, Papp's (1986) speculation (see also Papp, 1988) is likely to encourage use of the name *Cotesia vestalis* in the biological control literature relating to *P. xylostella*, especially as the specific name had already been sporadically in use (e.g. Bennett & Yaseen, 1972, as *Apanteles vestalis*).

In order to try to establish the identity of *Microgaster vestalis* Haliday beyond

doubt, I have examined the lectotype designated by van Achterberg (1997) and also the holotype of *Apanteles melitaeorum* Wilkinson. The type material of *Apanteles plutellae* Kurdjumov is believed to be lost (Wilkinson, 1939), but Wilkinson's recognition and redescription of this taxon seems to be secure, and I base my interpretation of *A. plutellae* on that and on material in the National Museums of Scotland reared from known hosts of *A. plutellae*, in particular the vanessine butterfly *Aglais urticae* (Linnaeus), as Wilkinson (1939) demonstrated that adults reared from *A. urticae* readily and successfully parasitised *Plutella xylostella*, the host from which *Apanteles* (now *Cotesia*) *plutellae* was originally described.

There is no doubt that the lectotype of *Microgaster vestalis* Haliday, 1834 (to be placed in *Cotesia*) is conspecific with *Cotesia plutellae* (Kurdjumov, 1912), **syn. nov.**, and that *Cotesia melitaeorum* (Wilkinson, 1937) is a distinct species, **stat. rev.** Also, *C. vestalis* is certainly not conspecific with *Cotesia cynthiae* (Nixon), the type of which I have seen. The lectotype of *Microgaster vestalis*, which agrees well with Haliday's (1834) description, fits into the substantial range of variation (cf. Wilkinson, 1939; Nixon, 1974) of what has hitherto been recognised as *Cotesia* (or *Apanteles*) *plutellae* as a moderately large specimen with a marked rugose element posteriorly in the strong puncturation of the mesoscutum, the metasomal tergites wholly black and the hind femora strongly infuscate except basally, like others I have seen (including specimens reared from *A. urticae*) from northern/western Britain but superficially rather unlike the more brightly coloured and sharply punctured specimens (including those reared from *A. urticae*) that also arise (perhaps most commonly in warmer areas). It is worth noting that Nixon's (1974) key to the north-western European species now placed in *Cotesia* contains, in addition to a misspelling of *melitaeorum*, a lapsus in each of couplets 12 (for 'as long as wide' read 'as wide as long' in both halves) and 13 (for 'single row on anterior half of segment' read 'single row on posterior half of segment' in the first half) which, together with the somewhat abraded state of the setae on the third metasomal tergite of the lectotype of *Microgaster vestalis* (especially on its right hand side), could easily have led to difficulty in using Nixon's (1974) key to place that specimen successfully.

Despite the extensive use of the name *Cotesia* (or *Apanteles*) *plutellae* in the large applied entomological literature relating to *Plutella xylostella*, a cosmopolitan pest of crucifers, it would be unwise to attempt to conserve the name *C. plutellae* (Kurdjumov), not least because its fall from use will help to alleviate the confusion that has sometimes been evident between that species and another microgastrine braconid parasitoid of *P. xylostella*, *Microplitis plutellae* Muesebeck, 1922.

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