

REARING RECORDS OF TWO SPECIES OF
MICROCHELONUS SZÉPLIGETI FROM BRITAIN,
WITH THE DESCRIPTION OF A NEW SPECIES
(HYM., BRACONIDAE: CHELONINAE).

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In the course of investigating the parasitoid complexes of Momphidae and Choreutidae (Lepidoptera), one of us (MRS) accumulated small numbers of two species of *Microchelonus* that remained unidentified until they were sent to the other (VIT). One, reared from the momphid *Mompha miscella* (Denis & Schiffermüller), is described below as a new species, and relevant data are listed for the other, reared from *Anthophila fabriciana* (Linnaeus) and *Prochoreutis myllerana* (Fabricius). The genus-group name *Microchelonus Szépligeti* has traditionally been used for those species of *Chelonus* Panzer *sensu lato* that have sixteen antennal segments in the female sex (though a few have more) and, especially, the metasoma with an apical foramen in the male sex (e.g. Tobias, 1986). Van Achterberg & Polaszek (1996) argue that it is at best impractical to recognise *Microchelonus* as a genus (or even a subgenus) separate from *Chelonus* on the basis of these characters and others proposed by Papp (1995), not least because unassociated females cannot easily be placed, and at worst suspect on the grounds that unnatural groupings may be the result. Nevertheless, we are using the name here pending a more thorough investigation of these points of view and, particularly, to remain nomenclaturally compatible with the large body of taxonomic work already published on this group by the senior author.

***Microchelonus miscellae* sp. n.**

(Figs 1–6)

Female (holotype). Body length 2.2mm. Head in front view oval, 1.2 times as wide as high, in dorsal view (fig. 1) roundly narrowed behind eye, 1.9 times as wide as long and 1.2 times as wide as mesonotum. Transverse diameter of eye 0.8 times the length of temple in dorsal view (fig. 1), eye 0.7 times temple in lateral view. Ocellar triangle as wide as OOL. POL twice as long as ocellar diameter. Longitudinal diameter of eye 1.7 times the transverse diameter, 0.8 times width of face, 2.5 times length of malar space. Face twice as wide as high, 1.4 times as high as clypeus. Maxillary palpus short, as long as height of face. Antenna with 16 segments, 3rd segment twice, 5th 1.5 times and 7th 1.3 times as long as wide, 13–15th wider than long, apical segment oval, longer than wide.

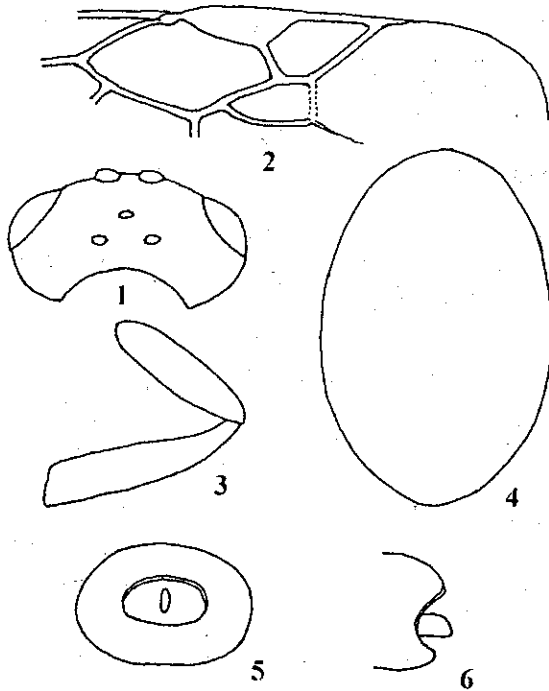
Mesosoma 1.4 times as long as high. Propodeum with a faint transverse carina, a pair of small lateral tubercles and a pair of small median tubercles. Forewing with pterostigma 1.5 times as long as metacarpus (fig. 2); 3rd abscissa of radial vein 5 times as long as 2nd, 1.5 times as long as 1st radiomedial vein; 1st abscissa of radial vein somewhat longer than 2nd abscissa (fig. 2). Hind femur 3.5 times as long as wide (fig. 3). Hind tibia as wide as hind femur, 4.5 times as long as its apical width (fig. 3), and 1.1 times as long as hind tarsus. Inner spur of hind tibia half as long as hind basitarsus. Apical segment of hind tarsus as long as 3rd, shorter than 2nd segment.

Carapace of metasoma oval, incurved apicoventrally for 0.1 of its length, 1.7 times as long as wide (fig. 4), 3 times as long as high.

Head behind eye and face faintly transversely striate, frons and upper part of face concentrically striate, face otherwise longitudinally striate. Mesoscutum rugulose-punctate, without longitudinal folds before the scutellum. Carapace reticulate-rugulose, without longitudinal folds, apically with granulate sculpture.

Body black, fore and middle tibiae brown, hind tibia dark brown with a yellowish spot before the middle on inner face. Wings infuscate; pterostigma, metacarpus and costal vein brown, other veins light brown.

Male. Body length 2.1–2.3mm. Head 1.3 times as wide as high in front view, roundly narrowed behind eye in dorsal view and twice as wide as long, 1.2 times as wide as mesoscutum. Transverse diameter of eye 0.7 times the length of temple in dorsal view, eye as long as temple in lateral view. Ocellar triangle somewhat wider than OOL (11 : 10). POL twice as long as ocellar diameter. Longitudinal diameter of eye 1.7 times the transverse diameter, 2.6–3.0 times length of malar space. Face twice as wide as high, 1.2 times as wide as longitudinal diameter of eye, 1.4 times as high as clypeus. Maxillary palpi as long as height of face and clypeus. Antenna with 18 segments (one specimen, the other without preapical segments); 3rd segment 2.2 times, 9th segment 1.5 times, 16th and 17th segments 1.1–1.2 times as long as wide, apical segment pointed oval, 1.6 times as long as wide.



Figs 1–6. — *Microchelonus miscellae* sp. n. 1–4, female holotype: 1, head, dorsal view; 2, part of forewing; 3, carapace (metasoma), dorsal view; 4, hind femur and tibia. 5–6, male paratype: 5, apex of metasoma, posterior view; 6, apex of metasoma, lateral view.

Mesosoma 1.3 times as long as high. Propodeum with a faint transverse carina, a pair of widely rounded lateral tubercles and a pair of weak median tubercles. Pterostigma 1.35 times as long as metacarpus. 3rd abscissa of radial vein 5 times as long as 2nd abscissa and 1.7 times as long as 1st radiomedial vein; 1st abscissa of radial vein 1.5 times as long as 2nd. Hind femur 3 times as long as wide, wider than hind tibia (11 : 9). Hind tibia 4.5 times as long as its apical width, 1.1 times as long as hind tarsus. Inner spur of hind tibia half as long as hind basitarsus. Apical segment of hind tarsus as long as 3rd.

Carapace of metasoma oval, 1.75 times as long as wide, incurved apicoventrally in 0.2 of its length. Apical aperture (= foramen) oval, almost 0.3 times as high as carapace, 0.3 times as wide as carapace; middle tubercle of apical aperture depressed laterally (figs 5,6).

Head with concentric wrinkles frontally, longitudinally striate along eye margin; vertex behind ocelli faintly transversely striate. Mesoscutum rugulose-punctate, areolate-rugose before scutellum and along notauli. Basal half of carapace areolate-rugulose, almost without longitudinal folds, apical half faintly reticulate-rugulose.

Body black; fore and middle tibiae brown, basal third of hind tibia with a brownish spot. Wings infusate, pterostigma and veins brown.

Holotype: ♀, "[ENGLAND] Buttlers Hangings NR, W. Wycombe, Bucks., ex *Mompha miscella*, *Helianthemum*, [coll.] 5.5.[19]79, em. 7.7.[19]79, M.R.Shaw". (In National Museums of Scotland (NMS), Edinburgh). Paratypes. 1♂, ENGLAND, Leckford, Hants., em. 21.v.1982, ex *Mompha miscella* coll. 16.iv.1982 as larva, *Helianthemum*, E.C. Pelham-Clinton; 1♂, ENGLAND, Avon Gorge, VC 34, Bristol, ST 5673, em.2.viii.2000, ex miner in *Helianthemum*, probably *Mompha miscella*, D. Gibbs (both in NMS).

Microchelonus miscellae sp. n. is close to *M. subcontractus* (Abdinbekova, 1971) from south-east Europe, Caucasus, Kazakhstan, central Asia and the south of the Russian Far East (Tobias, 1997a), but it differs in having the hind tibia widened, the inner spur of the hind tibia longer (in *M. subcontractus* 0.4 as long as hind basitarsus), the carapace sculpture of the female without medial longitudinal folds, the hind basitarsus dark coloured (in *M. subcontractus* usually yellowish). In having the hind tibia widened, *M. miscellae* sp. n. is similar to *M. kirvus* Tobias, 1997 from the Novgorod region of Russia (Tobias, 1997b) but differs in having the radial cell shorter (in *M. kirvus* the metacarpus is as long as the pterostigma), the sculpture of the female carapace without longitudinal folds, and the sculpture of the mesonotum weaker.

Although evidently widely distributed at least in southern Britain, *Microchelonus miscellae* sp. n. may be only a minor component of the parasitoid complex of *Mompha miscella*, to judge from its absence from several moderately large collections of this host (MRS, unpublished data). *Mompha* (*Lophoptilus*) *miscella* occupies a rather isolated ecological as well as taxonomic position in the British *Mompha* fauna, being the only species to feed on *Helianthemum* (Cistaceae) while the remaining 13 British species (placed in the subgenera *Anybia*, *Psacaphora* and *Mompha*) all feed on species of Onagraceae (Koster, 2002). No examples of *Microchelonus miscellae* sp. n. have been reared from any of these, despite fairly extensive sampling of several of them (MRS, unpublished

data). Cheloninae are solitary egg-larval koinobiont endoparasitoids – that is, the female parasitoid oviposits into the host egg and the host is not finally destroyed until its larval (or prepupal) stage – and oviposition into host eggs, which are poorly defended physiologically, may give chelonines a potential for a relatively wide host range (cf. Shaw & Huddleston, 1991). For this reason the host's egg form and placement may be a more crucial determinant of host range than the systematic position or feeding biology of the host larva, and it is conceivable that some other species of small microlepidoptera – perhaps living, as *Mompha miscella* does, in base-rich grassland – will turn out to be a more regular host(s) of this parasitoid.

Microchelonus contractus (Nees, 1816)

This is a widely distributed Eurasian species, and probably not rare in Britain. In the course of rearing literally several thousand parasitoids under carefully controlled conditions from *Anthophila fabriciana* collected (from a wide range of habitats) as larvae on *Urtica* (MRS, unpublished data), only three examples of *M. contractus* have been encountered, from just a single collection of the host (95 *A. fabriciana* in that particular sample). One failed to emerge; the others have the data ENGLAND, Norfolk, Catfield, Sharp Street, em. 10.ix.1980 (1♂) and 14.ix.1980 (1♂), ex *Anthophila fabriciana* coll. 15.viii.1980, *Urtica*, M.R. Shaw (in NMS). The site was the edge of an abandoned wet grazing-marshal that had reverted to herb-rich fen and reed bed. A further series of this parasitoid, reared from *Prochoreutis myllerana*, a species characteristic of herb-rich fens and other wet sites where its foodplants *Scutellaria* spp. grow, is in NMS: 4♀, 2♂, ENGLAND, Warwickshire, Ryton, em. viii.1978, ex *Prochoreutis myllerana* cocoons, coll. vii.1978, *Scutellaria gallericulata*, A.N.B. Simpson. The species has not otherwise been encountered in the course of fairly extensive sampling of the two British *Prochoreutis* species (which have similar larval habits) for parasitoids (MRS, unpublished data), so it seems probable that – as suggested in the case of *M. miscellae* above – the more usual hosts may not be the ones recorded here, but rather some other species of microlepidoptera that, in this case, probably inhabit(s) wetlands.

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REFERENCES

- Abdinbekova, A.A., 1971, Braconids of the genus *Chelonus* Jurine (Hymenoptera, Braconidae) from Azerbaidzan, *Entomologicheskoe Obozrenie* 50(2): 392-403. (In Russian.)
- Achterberg, C. van. & Polaszek, A., 1996, The parasites of cereal stem borers (Lepidoptera: Cossidae, Crambidae, Noctuidae, Pyralidae) in Africa, belonging to the family Braconidae (Hymenoptera: Ichneumonoidea), *Zoologische Verhandelingen Leiden*, 304: 1-123.
- Koster, J.C., 2002, Momphidae, pp. 224-254 in Emmet, A.M. & Langmaid, J.R. (eds), *The Moths and Butterflies of Great Britain and Ireland*, 4(1), Harley Books, Colchester.
- Papp, J., 1995, Revision of *C. Wesmael's Chelonus* species (Hymenoptera Braconidae Cheloninae), *Bulletin de l' Institut Royal des Sciences Naturelles de Belgique, Entomologie*, 65: 115-134.
- Shaw, M.R. & Huddleston, T., 1991, Classification and biology of braconid wasps (Hymenoptera: Braconidae), *Handbooks for the Identification of British Insects*, 7(11): 1-126.
- Tobias, V.I., 1986, Cheloninae, pp. 293-335 in Medvedev, G.S. (ed.) *Opredelitel' Nasekomykh Evropeiskoi Chasti SSSR Vol. 3, Pereponchatokrylye Part 4*, Leningrad, Nauka. (In Russian.) English translation 1995, pp. 512-588. Science Publishers Inc., Lebanon, U.S.A.
- 1997a, *Microchelonus* species of the group *M. contractus* (Hymenoptera, Braconidae) with very short radial cell from southern Russia and adjacent territories. *Zoologicheskii Zhurnal* 76(6): 684-694. (In Russian.) English translation in *Entomological Review*, 1997, 77(9): 1144-1154.
- 1997b, New species of the genus *Microchelonus* Szépl. from group *M. contractus* (Hymenoptera, Braconidae), *Entomologicheskoe Obozrenie* 76(3): 654-665. (In Russian.) English translation in *Entomological Review*, 1997, 77(8): 976-986.
- V.I.T., Zoological Institute, Russian Academy of Sciences, RU-199034 St. Petersburg, Russia.
- M.R.S., National Museums of Scotland, Chambers Street, Edinburgh EH1 1JF, U.K. October 15th, 2003.

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CORRECTION — In Whitehead, 2004, *Aniscopus albifrons* (L.) (Hem., Cicadellidae) in winter (*Entomologist's Monthly Magazine*, 140: 316), the correct generic name, *Anoscopus*, was misspelt by the author. I regret any confusion that this may have caused. — P.F. WHITEHEAD; Moor Leys, Little Comberton, Pershore, Worcestershire WR10 3EH, U.K.