ACTA ENTOMOLOGICA MUSEI NATIONALIS PRAGAE
Published 30.vi.2011 Volume 51(1), pp. 211–215 ISSN 0374-1036

A new species of fungus breeding *Megaselia* (Diptera: Phoridae) from Indonesia

R. Henry L. DISNEY[1)] & Jan ŠEVČÍK[2)]

[1)] Department of Zoology, University of Cambridge, Downing Street, Cambridge CB2 3EJ, U.K.; e-mail: rhld2@hermes.cam.ac.uk

[2)] University of Ostrava, Chittussiho 10, CZ-710 00 Ostrava & Silesian Museum, Tyršova 1, CZ-746 01 Opava, Czech Republic; e-mail: sevcikjan@hotmail.com

Abstract. A new species of Phoridae (Diptera), *Megaselia sororbata* Disney sp. nov., is described from northern Sulawesi (Indonesia). The type material was reared from the polypore fungus *Rigidoporus microporus* (Polyporales, Meripilaceae).

Key words. Diptera, Phoridae, scuttle flies, mycophagy, host fungus, taxonomy, Australasian Region

Introduction

Records of named Phoridae reared from named fungi in the Oriental Region are sparse apart from those that are pests of cultivated mushrooms. The latter include *Megaselia sandhui* Disney, 1981, whose larvae feed on the sporophores, and *M. halterata* (Wood, 1910), whose larvae feed on the mycelium of *Agaricus bisporus* (Lange) Pilát (Agaricaceae) (Disney 1981). The records of those feeding on cultivated oyster mushrooms (*Pleurotus* species – Lentinaceae) include the mycelium feeders *M. tamilnaduensis* Disney, 1996 (Mohan et al. 1996) and *Chonocephalus rostamani* Disney, 2004 (Rostaman & Disney 2004); and the sporophore feeders *M. scalaris* (Loew, 1866) and *M. pleurota* Disney, 1994 (Johal & Disney 1994), but the larvae *M. scalaris* are primarily feeders on decaying organic materials (Disney 2008a) and probably feed on fungi only when they are starting to decay. Apart from these pests of cultivated mushrooms the records of those attacking other fungi are sparse. The sporophores of *Termitomyces albuminosus* (Beck) Heim (Amanitaceae) are attacked by *M. termitomycana* Disney, 1996 (Disney & Chou 1996); those of *Auricularia delicata* (Fr.) Heim (Auriculariaceae) by *Triphleba fungorum* Disney, 2009 (Disney & Ševčík 2009); and those of *Pulveroboletus ravenelii* (Berk. et Court.) Murr. (Boletaceae) by *Megaselia pulveroboleti* Disney, 1998 (Disney & Chou 1998).

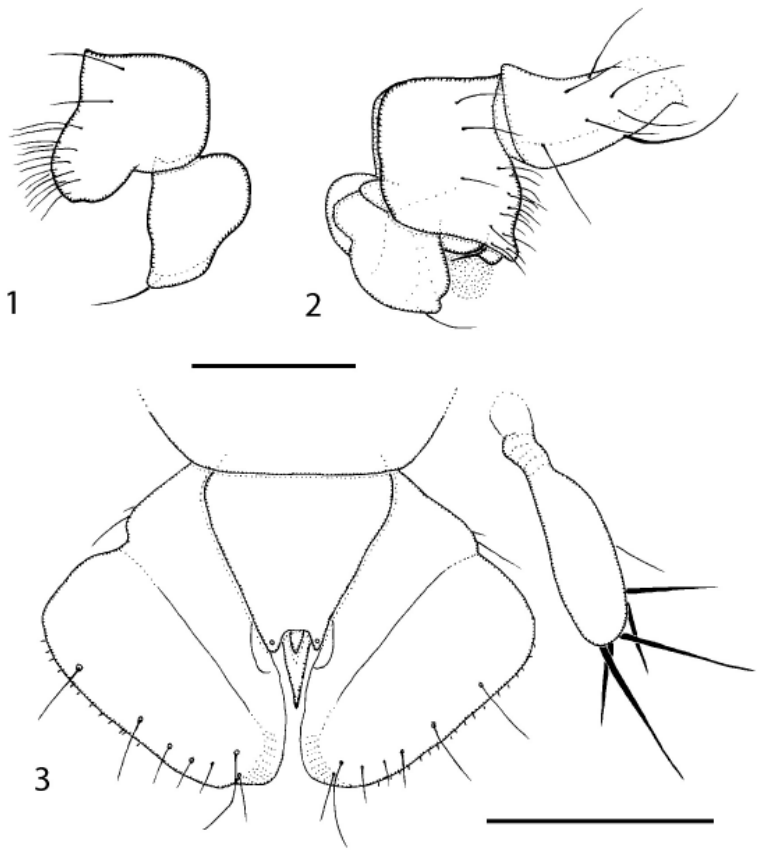
When JŠ reared a species of scuttle fly from a fungus in Indonesia and sent the specimens to RHLD it proved to be a new species, which is described below.

Megaselia sororbata Disney sp. nov.

(Figs. 1–4)

Type material. Holotype: ♂, INDONESIA, North Sulawesi, Minahasa, Tomohon env., 950 m, 01.32370°N, 124.86163°E, reared from sporophore of *Rigidoporus microporus* (Sw.) Overeem (Polyporales, Meripilaceae), 25 January 2010, J. Ševčík (coll. University of Cambridge, Museum of Zoology – 8-164). Paratypes: 2 ♂♂, 2 ♀♀ as holotype (coll. University of Cambridge, Museum of Zoology).

Description. *Male.* Frons brown, clearly broader than long, with 80–88 hairs and dense but very fine microtrichia. Lower pair of supra-antennal bristles (SAs) robust but clearly shorter than upper pair. The antials lower on frons than anterolaterals and about as far from upper SAs as either is from an AL bristle. Pre-ocellars and at most as far apart as upper SAs but further apart than either is from a mediolateral bristle, which is very slightly higher on frons. Cheek with 4 bristles and jowl with 2 that are longer and more robust. The subglobose postpedicels brown and without SPS vesicles. Palps (Fig. 3) yellow, at most a third as broad as postpedicel



Figs. 1–3. *Megaselia sororbata* Disney sp. nov., male. 1 – right face of epandrium and hypandrium; 2 – left face of hypopygium; 3 – proboscis and left palp from above. Scale bars = 0.1 mm.

but slightly longer than breadth of latter, with 5 bristles (the longest a little shorter than lower SAs) and at most as many small hairs. Labrum straw yellow and about 2.3–2.4× as wide as a palp. Labella enlarged (Fig. 3), coloured as palps but in part a little darker above, and with densely crowded short spinules below. Thorax brown. Two notopleural bristles and no cleft in front of these. Mesopleuron bare. Scutellum with an anterior pair of hairs (only as large as those in middle of scutum) and a posterior pair of bristles. Abdominal tergites brown with very small hairs, which are only a little stronger at rear of T6. Venter brown, and with small hairs on segments 6 and sometimes 1–2 on segment 5. Hypopygium brown, with a yellow anal tube, and as Figs. 1–2. Front legs largely yellow, but femora partly brown and tarsal segment 5 is brown. Fore tarsus with posterodorsal hair palisade on segments 1–5 and 5 clearly longer than 4. Middle and hind legs brown with straw yellow tarsi. Dorsal hair palisade of mid tibia extends about 0.7× its length. 1–4 hairs below basal half of hind femur clearly longer (the longest being 0.09–0.11 mm long) than those of anteroventral row of outer half. Hind tibia with about a dozen differentiated posterodorsal hairs and spinules of apical combs simple. Wings 1.1–1.3 mm long. Costal index 0.40–0.41. Costal ratios 1.5–2.0 : 1, vein 3 being unforked. Costal cilia (of section 3) 0.04–0.05 mm long. Hair at base of vein 3 (Rs) minute. With two axillary bristles, the outer being longer than costal cilia. Sc pale and clearly not reaching R1. Costa slightly swollen in basal half. It and rest of thick veins grey, thin veins 4–6 a little darker and 7 very pale. Membrane only very lightly tinged grey (not evident to naked eye when viewed against a white background). Haltere knob pale yellow.

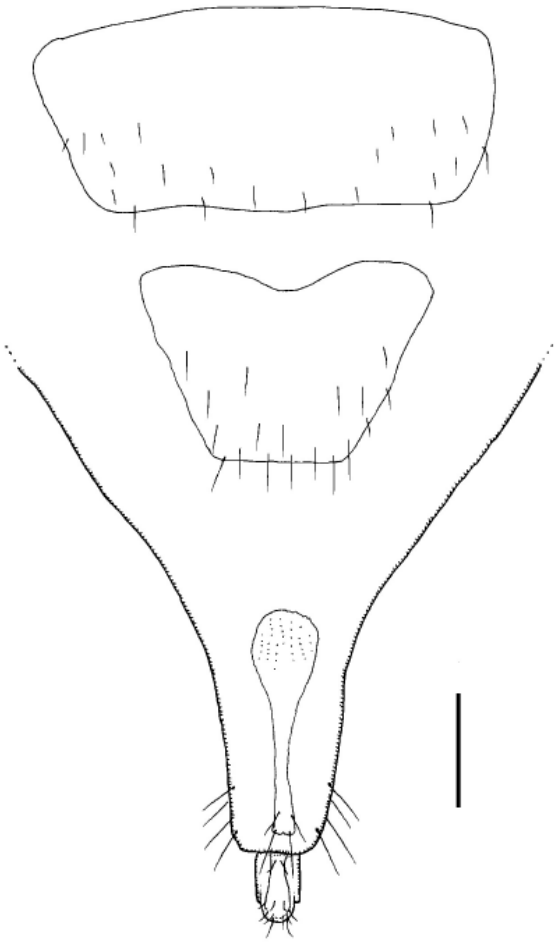


Fig. 4. *Megaselia sororbata* Disney sp. nov., female, abdominal tergite 5 and 6 plus terminal segments from above. Scale bar = 0.1 mm.

Female. Head similar to male but palps with about 10 conspicuous hairs in addition to the bristles and proboscis differs as follows. Labrum light brown and about 1.3 times as

wide as diameter of postpedicel and the width of the combined labella as wide or slightly wider than labrum. Thorax as male. Abdominal tergites brown. T5–T7 and terminalia as Fig. 4, the cerci being vestigial, and ventrally with a pair of pale, apical, tapered but slightly curved outwards spinules. Venter brown, and with hairs below segments 3–6. Sternite 7 at most three quarters as long as T7, tapered anteriorly and with 4–5 hairs in posterior quarter. Furca not evident. Dufour's crop mechanism pale, about 1.8 times as long as its greatest width, and rounded behind. Legs similar to male. Wing as male except 1.3 mm long. Costal index 0.39–0.42. Costal ratios 1.4–1.6 : 1. Otherwise it and haltere as male.

Etymology. Named after it being a sister species of *Megaselia orbata* Borgmeier, 1967 (see below).

Affinities. In the keys to the species of Group VIII of Borgmeier (1967) the males readily run to couplet 3, lead 1, to *M. orbata*. This species is only known from males from Queensland, Australia. The male of the new species is immediately distinguished by the vestigial posterior lobes of the hypandrium compared with well developed lobes of *M. orbata* and the distal margins of the labella of the proboscis being more steeply inclined rearwards compared with *M. orbata* (cf. Figs. 1 and 2 with Figs. 8 and 9 in Disney (2008b)).

Remarks. The host fungus was collected on the stem of live bamboo (Fig. 5) in a mixed secondary forest on the volcano Mt. Mahawu. Several unnamed species of Limoniidae, Cecidomyiidae, Ceratopogonidae, Psychodidae, Drosophilidae, Muscidae (Diptera) and two unnamed species of parasitic Hymenoptera were reared from the same sample.

Figs. 5–6. Habitat (5) and host fungus (6) of *Megaselia sororbata* Disney sp. nov. (photo by P. Kočárek and J. Ševčík).

Acknowledgements

We are grateful to Dr Peter Roberts (Royal Botanic Gardens, Kew) for the identification of the fungus. RHLD's research on Phoridae is currently funded by a grant from the Balfour-Browne Trust Fund (University of Cambridge). JŠ's studies are supported by the Czech Science Foundation (grant No. 206/08/1500).

References

BORGMEIER T. 1967: Studies on Indo-Australian phorid flies, based mainly on material of the Museum of Comparative Zoology and the United States National Museum. Part II. *Studia Entomologica* (Petropolis) **10**: 81–276.

DISNEY R. H. L. 1981: Megaselia sandhui sp. n. (Diptera: Phoridae), a pest of cultivated mushrooms in India. *Bulletin of Entomological Research* **71**: 509–512.

DISNEY R. H. L. 2008a: Natural history of the scuttle fly, Megaselia scalaris. *Annual Review of Entomology* **53**: 39–60.

DISNEY R. H. L. 2008b: Six new species of Megaselia Rondani (Diptera: Phoridae) from mainland Australia. *Zootaxa* **1899**: 57–68.

DISNEY R. H. L. & CHOU W.-N. 1996: A new species of Megaselia (Diptera: Phoridae) reared from the fungus Termitomyces (Agaricales: Amanitaceae) in Taiwan. *Zoological Studies* **35**: 215–219.

DISNEY R. H. L. & CHOU W.-N. 1998: A new species of Megaselia (Diptera: Phoridae) reared from the fungus Pulveroboletus (Boletales: Boletaceae) in Taiwan. *Bulletin of the National Museum of Natural Science, Taiwan* **11**: 135–139.

DISNEY R. H. L. & ŠEVČÍK J. 2009: A new species of fungus breeding Triphleba Rondani (Dipt., Phoridae) from Malaysia, including an intriguing mutant. *Entomologist's Monthly Magazine* **145**: 203–210.

JOHAL K. & DISNEY R. H. L. 1994: Phoridae (Diptera) as pests of cultivated oyster mushrooms (Agaricales: Pleurotaceae) in India. *Bulletin of Entomological Research* **84**: 247–254.

MOHAN S., MOHAN S. & DISNEY R. H. L. 1996: A new species of scuttle fly (Diptera: Phoridae) that is a pest of oyster mushrooms (Agaricales: Pleurotaceae) in India. *Bulletin of Entomological Research* **85** (1995): 515–518.

ROSTAMAN & DISNEY R. H. L. 2004: A new species of Chonocephalus Wandolleck (Diptera: Phoridae) that is a secondary pest of oyster mushrooms (Poriales: Lentinaceae) in Indonesia. *Fragmenta Faunistica* **47**: 73–80.