

SHORT COMMUNICATION

**The first Levantine record of *Megaselia sandhui* Disney  
(Diptera: Phoridae), a pest of cultivated mushrooms  
(Agaricales: Agaricaceae)**

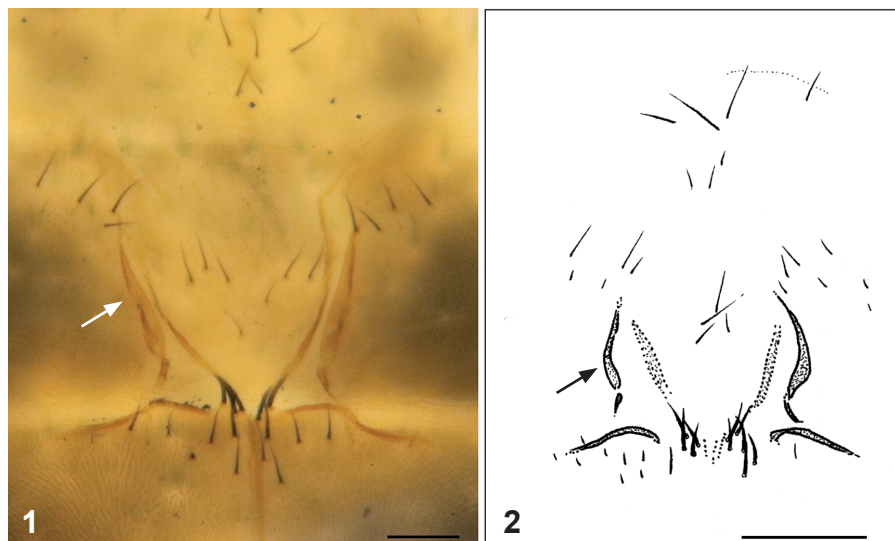
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Thirty-seven species of the megadiverse cosmopolitan genus *Megaselia* have been recorded in Israel (Mostovski 2016, and references therein), and this is only a fraction of the real number of *Megaselia* species in the country. Representatives of the genus have a remarkably broad range of life histories, with some 50 species developing in a variety of fungi (Disney 2008) and causing a serious problem in cultivated mushrooms (Navarro *et al.* 2021).

*Megaselia sandhui* Disney, 1981 was described from cultivated *Agaricus bisporus* in Punjab, India (Disney 1981), and its biology was covered by Sandhu and Bhattal (1987). The male of this scuttle fly is readily recognisable among its congeners and is characterised by a peculiar median ‘pocket’ between abdominal sternites 4 and 5, with several robust setae at the well-defined rear margin of sternite 4 and a pair of caudally diverging ridges behind these setae (Figs 1, 2). The female of *M. sandhui* is considerably more difficult to distinguish, but one may use—as a starting point and with some caveats—the key to the Arabian *Megaselia* females when dealing with scuttle flies from the southern Levant.

Since its original description, *M. sandhui* has been recorded in the United Arab Emirates, Oman, Yemen, Saudi Arabia ('Asir Province) (Disney 2009) and most recently from Iran (East Azerbaijan Province; Namaki-Khameneh *et al.* 2021). Due to the courtesy of Dr Malkie Spodek of the Steinhardt Museum of Natural History (SMNH), I had an opportunity to examine samples, which she collected with a Malaise trap at Kibbutz Lotan (29°59'N 35°05'E) between 9.i–2.ii.2017, and found two males (SMNH-441931, SMNH-441932) and one female (SMNH-441933) of *Megaselia sandhui*. The distinct features of the venter of the male abdomen (Fig. 1) leave no doubt as to the species identity of these specimens; the female found in association with the males also runs to this species in Disney's (2009) key. The present report significantly extends the distribution range of *M. sandhui* into the southern Levant. It is not uncommon that scuttle fly species are transported by man to other countries or even continents (e.g., Nickolls & Disney 2001; Disney 2008).



**Figs 1, 2.** *Megaselia sandhui* male, details of the abdominal sternites 4 and 5 when splayed, showing a 'pocket' associated with robust setae at the hind margin of sternite 4 and diverging sclerotised ridges (arrowed) on sternite 5: (1) a specimen from Lotan, Israel (SMNH 441931); (2) a specimen from the type locality in India (after Disney 1981). Scale bars: 0.05 mm (Fig. 1) and 0.1 mm (Fig. 2).

However, it seems to me that *M. sandhui* is native to the southern Palaearctic (except for its most arid parts), probably following the distribution of mushrooms suitable for its development and/or ancient trade routes, and is yet to be found in Hejaz or even west of the Red Sea.

It is unclear what fungus served as the host of *M. sandhui* in Lotan. There are over 90 species of the Agaricaceae known in Israel (Kosakyan *et al.* 2008), with *Agaricus bisporus* being the main mushroom species grown commercially (Danai *et al.* 2008). Although there is no mushroom farming in Lotan, the place is known to produce compost (<https://kibbutzlotan.com/compost-blog-heb>) that may serve as a substrate for (semi-)wildly growing mushrooms. In any case, the existing mushroom plantations in the region are to be closely monitored and treated to prevent a possible crop yield loss due to infestation by *M. sandhui*, or other scuttle flies.

For identification, alcohol-preserved scuttle flies were dissected and mounted on slides in Berlese Fluid (as per Disney 1983). The illustrated specimen (Fig. 1) was most kindly photographed by Dr S. Zonstein (SMNH) using an Olympus SZX16 stereomicroscope with a Canon EOS 80D camera, and layers were stacked with the Helicon Focus 6.3.2 Pro. Colour balance of the final image was done by me in Adobe Photoshop CS3. I take this opportunity to thank Dr R.H.L. Disney (University of Cambridge, UK) and Prof. N. Dorchin (SMNH) for their support and comments on this note.

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