

Two New Fungus Gnats (Diptera: Mycetophilidae and Sciaridae) Associated with Cultivated Shiitake Mushroom¹

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Two new species of the mycetophilid and sciarid gnats, *Exechia insularis* and *Chaetosciara takahashii*, are described from Hachijō Island, Tokyo, Japan. Both of them are pests of cultivated shiitake mushroom.

Key words: New species, *Exechia*, *Chaetosciara*, mushroom, Japan

INTRODUCTION

Three fungus gnats, *Exechia shiitakevora* OKADA (1939), *Mycetophila fungorum* (DE GEER, 1776) and *Mycetophila lineola* MEIGEN (1818), and a crane fly, *Ula shiitakea* NOBUCHI (1954), have hitherto been recorded from Japan as pests of shiitake mushroom, *Lentinus edodes* (HENN.) SING. I have recently had an opportunity to examine two interesting fungus gnats occurring at a mushroom cultivation site on Hachijō Island, the Izu Islands, Tokyo. One of them belongs to the genus *Exechia* WINNERTZ of the Mycetophilidae and the other to the genus *Chaetosciara* FREY of the Sciaridae. They do not agree in the external characters with any of the other members of their respective genera, and are described as new to science in this paper. The holotypes are deposited in the collection of the Entomological Laboratory, Kyoto Prefectural University, Kyoto.

DESCRIPTIONS

Exechia insularis SASAKAWA, n. sp. (Figs. 1-2)

Female. Head black; vertex, frons, clypeus and postgena grayish pruinose; frons densely covered with yellowish setulae, of which several along ventral margin are distinctly longer than others; eye microscopically hairy; lateral ocellus reddish; antenna with scape and pedicel yellow to testaceous, flagellar segments brown but narrowly yellow to testaceous at base of 1st segment; palpus yellow except for 4th segment brown.

Thorax brownish black but yellow to testaceous on pronotum and propleuron, densely dusted with gray, especially on lateral sides of mesonotum; mesonotum with bristles brown and setulae yellowish; post-alar bristle nearly twice as long as dorso-centrals; scutellum with apical bristle longer than post-alar and accompanied by a pair of bristles, which are subequal to dorso-centrals in length, just before that; propleuron with 2 bristles. Wing yellowish hyaline, with 2 pale brown markings: apical

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one extending across the wing distad of level of Cu_1 -termination (on about apical 1/2 of cell R_1), becoming pale posteriorly, with a longitudinal hyaline spot stretching for anterior 2/3 and apical 2/3 of cell R_5 ; posterior one caudad of Cu-fork, triangular in outline, becoming pale posteriorly; Sc distinctly shorter than r-m, terminating abruptly; R_5 straight; r-m about twice as long as stem of M; forking point of Cu beyond level of R_5 ; halter yellow. Legs yellow; femora with brownish striation on proximal 1/6–1/5 of each ventral side and also on proximal 1/5 of dorsal side in hind femur; mid and hind knees and tarsi, and all spurs tinged with brown; fore metatarsus a little longer than tibia; hind tibia with 2 rows of 6–8 posterior bristles on external and internal sides; inner spur a little longer than the outer.

Abdomen dark brown; 2nd tergite with lateral margins yellow; 3rd, 5th and 6th tergites with yellow triangles, which are extended over almost the whole length of segment along lateral margin, on anterolateral sides; 4th tergite yellow on anterior 1/2–2/3; ovipositor yellowish brown.

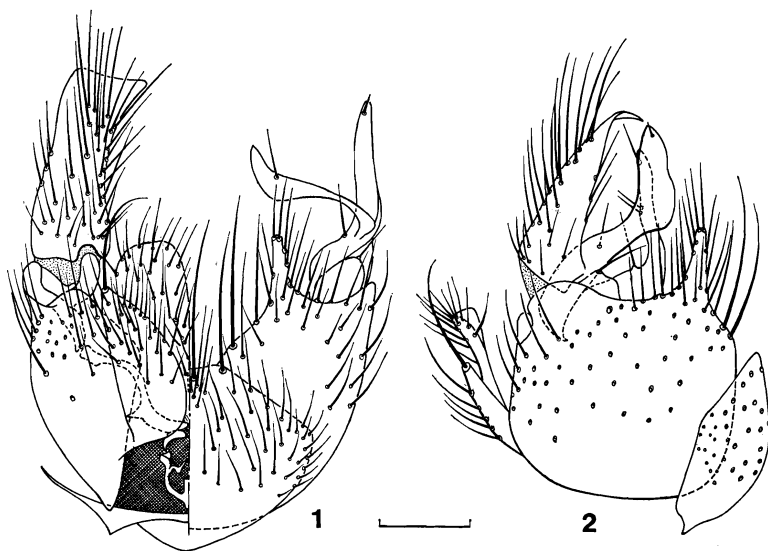
Length of body 3.5–3.8 (holotype) mm, of wing 3.1–3.5 (holotype) mm.

Male. Similar to female but abdomen entirely brown, cercus yellow; genitalia as in Fig. 1; length of body and wing 3.0 mm, respectively.

Holotype ♂, Ohkagou, Hachijō-jima, Tokyo, 12. IV. 1988, H. TAKAHASHI (KPU No. 249). Paratypes: 1 ♂ 5 ♀, same data as for the holotype.

Distribution. Japan (Is. Hachijō).

Remarks. This species is unique in the wing pattern. It differs from *E. shiitakevora* in the coloration of abdomen and structures of male genitalia. Its sexual dimorphism in the abdominal coloration shows a similarity to the European *Exechia fusca* MEIGEN (1804), but in *fusca* the wing is immaculate and the surstylus is strongly tapered toward apex.



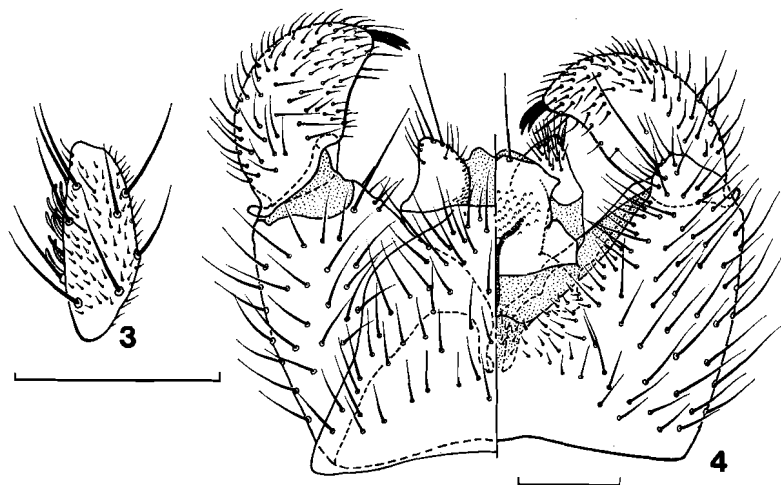
Figs. 1–2. Male genitalia of *Exechia insularis* n. sp. 1: dorsal (left half) and ventral (right) views, 2: lateral view. Scale, 0.1 mm.

Chaetosciara takahashii SASAKAWA, n. sp. (Figs. 3-4)

Male. Head shiny black; eye microscopically hairy, eye-bridge composed of 3-4 rows of facets; prefrons with 3-4 pairs of setae which are slightly longer than ventral setae on scape; clypeus bare. Antenna with flagellar segments brown, scape and pedicel paler; 4th flagellar segment 1.3-1.7 times as long as wide, with neck very short (nearly 1/20 length of segment), densely covered with short hairs which are less than 1/4 length of the segment. Palpus pale brown, 3-segmented, 1st segment with 8-10 long setae and a number of sensillae which are not grouped within a pit, 3rd segment narrow and subequal to the 1st in length.

Thorax dark brown; mesonotum brilliantly shining, with dorso-centrals in 2 irregular rows anteriorly but posterior 3-4 pairs in a row and longer than others, acrostichals in a row anteriorly; scutellum with posterior margin more or less pale, with apical seta distinctly longer than subapical and other marginal setae; pleura sparsely pollinose but meso- and sternopleura shining, pronotum and propleuron yellowish to pale brown; posterior pronotum setulose. All setae brown to black. Wing faintly tinged with brown; costa extending to 5/6 between apices of R_{4+5} and M_1 , R_1 ending before level of M-fork, r-m about twice as long as base of M ('x') and with several macrotrichia on apical 1/2, stem of Cu about 1/3 length of 'x'; halter with stalk yellow, knob brown. Legs yellow, coxae whitish, distal ends of metatarsi and tarsal segments 2-5 brown; hind femur with distal end slightly brownish; spurs yellow; for tibia with a subtriangular patch of many setae near inner apex; mid tibial spurs each 1.5 times as long as distal width of tibia and hind tibial ones 1.8 times; tarsal claw simple.

Abdomen dark brown, sparsely pollinose, weakly shining; genitalia pale brown, coxites with a small, membranous intercoxal lobe which is sparsely hairy, bearing long setae on inner dorsal and ventral apices; styles rather broad, each with 3 spines on tip.



Figs. 3-4. First palpal segment and male genitalia of *Chaetosciara takahashii* n. sp. 3: lateral view, 4: dorsal (left half) and ventral (right) views. Scale, 0.1 mm.

Length of body 2.0 mm, of wing 2.5 (holotype)–2.7 mm.

Female. Unknown.

Holotype ♂, Ohkagou, Hachijō-jima, Tokyo, 12. IV. 1988, H. TAKAHASHI (KPU No. 250). Paratypes: 3 ♂, same data as for the holotype.

Distribution. Japan (Is. Hachijō).

Remarks. This species is distinguished from *Chaetosciara estlandica* (LENGERSDORF, 1929) in its narrow eye-bridge and presence of a hairy and membranous intercoxal lobe.

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