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A New Genus and a New Species of Tetrastichinae (Hymenoptera, Eulophidae) from Malaysia and Japan

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Abstract *Pasohstichus* gen. n. is proposed for a species, *P. konishii* sp. n., from Malaysia and Japan. *Pasohstichus* is diagnosed by the following combination of features: compoundeye large (more than 0.8 times as high as head), pronotum and mesoscutum uniformly setose, anterior pair of scutellar setae situated before the middle of scutellum, petiole distinct with strong sculpture, and submarginal vein with 5–7 dorsal setae. Relationships between *Pasohstichus* and other genera are discussed.

Key words: Eulophidae, Tetrastichinae, *Pasohstichus*, new genus, Malaysia, Japan.

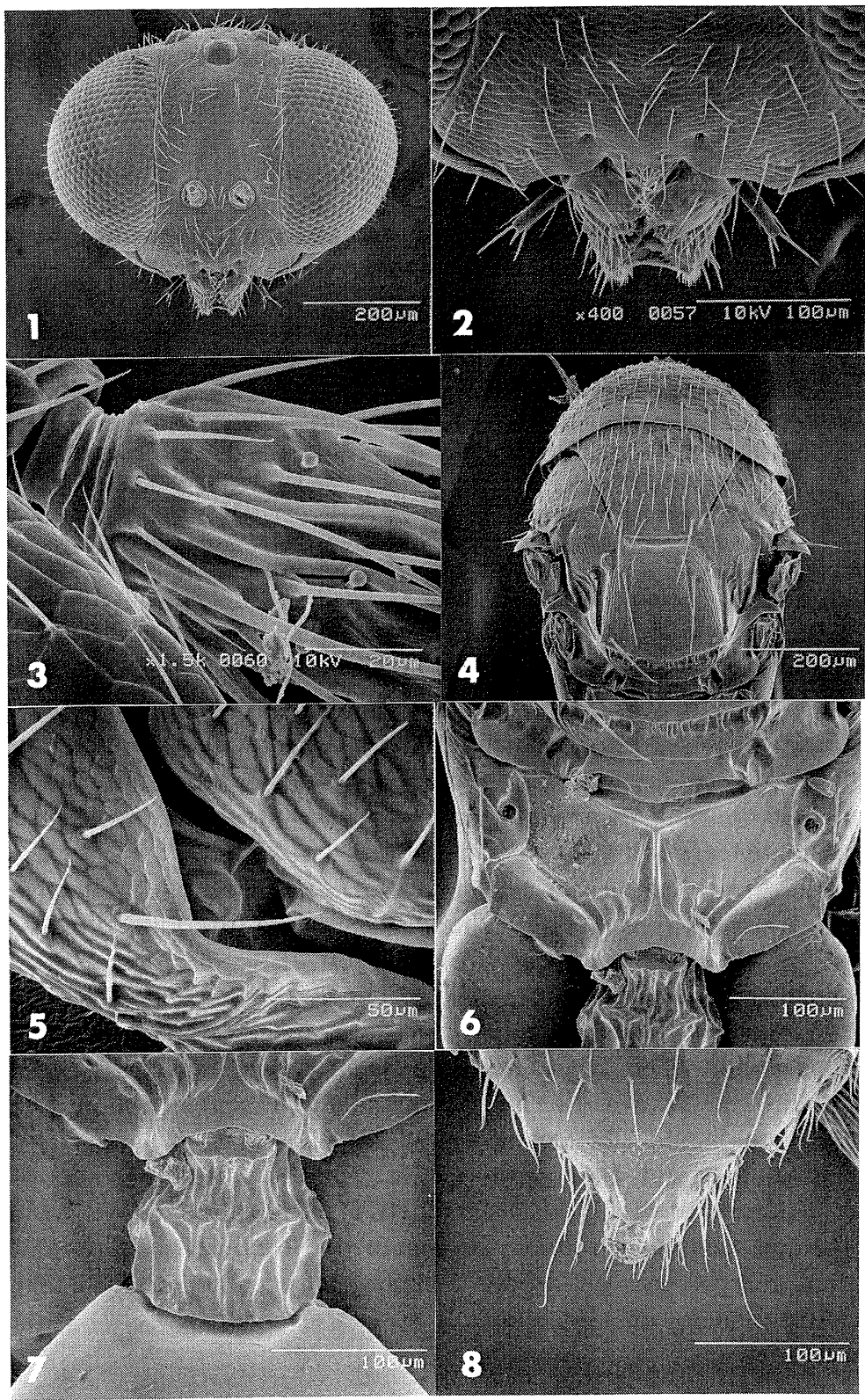
Introduction

The Tetrastichinae are the largest subfamily of Eulophidae (GRAHAM, 1987). The European (GRAHAM, 1987, 1991), Australasian (BOUČEK, 1988), and North American (LASALLE, 1994) faunas of Tetrastichinae recently have been revised. In comparison with these regions, we have little knowledge on the Asian fauna of this subfamily.

In this paper I propose a new genus for a new species of Tetrastichinae from Malaysia and Japan. In GRAHAM's (1991) and BOUČEK's (1988) keys, this species falls into *Tetrastichus* mostly because of the presence of Y-shaped paraspiracular carinae on the propodeum. In LASALLE's (1994) key, it falls into *Baryscapus* or *Styotrichia*. It is, however, not assigned to any of these genera because it differs from them in many characters.

I follow the GRAHAM's (1987) terminology, except for mouth opening instead of mouth, and side lobe instead of scapula.

The holotype and some paratypes are deposited in the collection of the Forest Research Institute Malaysia (FRIM), Kuala Lumpur. The other paratypes are deposited in the collections of the National Institute of Agro-Environmental Sciences (NIAES), Tsukuba, Japan, and the Entomological Laboratory, Faculty of Agriculture, Kyushu University (ELKU), Fukuoka, Japan.



Pasohstichus gen. n.

(Figs. 1–10)

Type species. *Pasohstichus konishii* sp. n.

Etymology. A combination of Pasoh-, from the name of the type locality, and -stichus, a common ending for the generic names in Tetrastichinae. Gender masculine.

Description.

Female. Compoundeye (Fig. 1) large, more than 0.8 times as high as head. Malar space (Figs. 1, 2) short; malar sulcus distinct. Tentorial pits distinct. Anterior margin of clypeus bilobed. Mandibles tridentate. Torulus situated much above the lower edge of eye and below the middle of head. Antenna (Figs. 3, 9): four anelli present; funicle 3-segmented; each funicular segment longer than wide; clava 3-segmented.

Pronotum (Fig. 4) short, with long setae posteriorly, and covered with many short setae; transverse carina absent. Mesoscutum uniformly covered with many setae; the seta at each hind corner of mid lobe longer than the others; median line absent. Axillae advanced. Scutellum with very shallow submedian lines which are sometimes indistinct, and with sublatetral lines distinct and groove-like; two pairs of long setae present; anterior one situated before the middle of scutellum; posterior pair situated close to frenal line and also to sublateral lines. Dorsellum without a median line or carina. Propodeum (Fig. 6) with short and wide triangular cup anteriorly, with median carina widened posteriorly, and with strong paraspicular carina branched in two posteriorly (Y-shaped carina); spiracle rounded, separated from the hind margin of metanotum by twice the diameter, having whole rim exposed. Wings hyaline; submarginal vein of forewing (Fig. 10) with 5–7 dorsal setae.

Petiole (Fig. 7) distinct, with strong sculpture. Tip of hypopygium situated around the middle of gaster. The longest cercal seta (Fig. 8) about 1.5 times as long as the next longest.

Male. Unknown.

Discussion.

Pasohstichus is easily distinguished from the other genera by the large compoundeye and short malar space. These features are sometimes seen in genera of the subfamily Entedoninae, but have not recorded in Tetrastichinae up to the present.

Figs. 1–8. *Pasohstichus konishii* sp. n., ♀, paratype from Pasoh Forest Reserve. — 1, head; 2, face and mouth; 3, anelli and first funicular segment; 4, pronotum, mesoscutum, and scutellum; 5, left pronotal spiracle; 6, dorsellum and propodeum; 7, petiole; 8, apex of gaster.

The three genera mentioned in the introduction, *Tetrastichus*, *Baryscapus*, and *Styotrichia*, are easily distinguished from *Pasohstichus* in having the following features in addition to the smaller compoundeye and relatively long malar space: in *Tetrastichus*, petiole short and without sculpture in most species, and submarginal vein with at most two dorsal setae; in *Baryscapus*, propodeum without paraspiracular carinae, and petiole indistinct and without sculpture; in *Styotrichia*, propodeum without paraspiracular carinae, petiole indistinct and without sculpture, and propodeal spiracles touching metanotum.

Each of the diagnostic features of *Pasohstichus* except the large compoundeye and short malar space is seen in some other genera of Tetrastichinae, e.g., the Y-shaped paraspiracular carinae in *Galeopsomyia* and *Tetrastichus*, the distinct petiole with strong sculpture in *Mestocharella*, *Oxypracetus*, and *Lisseurytonella*, the mesoscutum uniformly covered with setae in *Aranobroder*, *Nesolynx*, *Eriastichus*, *Cucarastichus*, *Comastichus*, *Chuiolia*, *Palmistichus*, *Styotrichia*, and some species of *Aprostocetus* and *Baryscapus*. *Pasohstichus*, however, differs from them in many other characters. Most of these similarities are probably due to convergence.

Among the genera mentioned above, *Mestocharella* and *Palmistichus* seem to be more similar to *Pasohstichus* than the other genera. *Mestocharella* is similar to *Pasohstichus* in the distinct petiole with strong sculpture, the small propodeal spiracle which is separated by a distance longer than the diameter from the hind margin of the metanotum, the whole rim of the propodeal spiracle exposed (KAMIJO, 1994). However, *Mestocharella* also has many different character states from *Pasohstichus*, e.g., the axillae which are not advanced, the distinct and deep submedian lines of the scutellum, the 4-segmented funicle in the female, the mesoscutum with only adnotaular setae, the dorsellum with a median carina, and the tip of the hypopygium situated near the apex of the gaster. *Palmistichus*, which is recorded from the Neotropical Region (DELVARE and LASALLE, 1993), is similar to *Pasohstichus* in the mesoscutum uniformly covered with setae, the fine submedian lines of the scutellum, the anterior pair of scutellar setae placed before the middle of the scutellum, the propodeal spiracle which is separated from the hind margin of the metanotum by twice the diameter. *Palmistichus ixtlilxochitli* (GIRAULT) has even Y-shaped paraspiracular carinae in the propodeum. However, *Palmistichus* differs from *Pasohstichus* in having the anterior margin of the clypeus which is weakly bilobed or truncate, the petiole which is very short and has no sculpture, and the infumated forewing.

At present it is difficult to state which genus is most closely related to *Pasohstichus* because the information about the Asian and Neotropical Tetrastichinae is limited. It is necessary to study the faunae of Tetrastichinae in those regions further to discuss the position of *Pasohstichus* in Tetrastichinae.

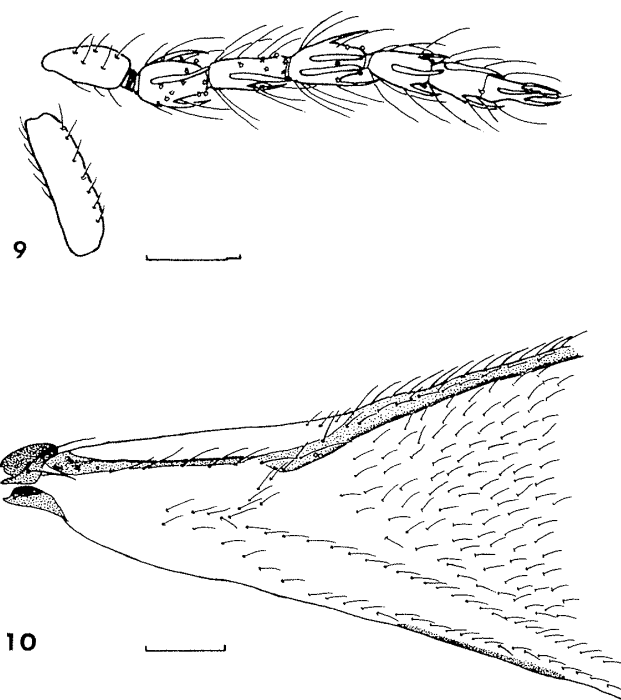
Pasohstichus konishii sp. n.

(Figs. 1–10)

Description.

Female. Body length 1.4–1.9 mm. Body dark brown to black; antenna pale brown; legs white; tips of tarsi and base of hind coxa infusate; hind femur partly pale brown; wings hyaline.

Head (Fig. 1) in dorsal view about 1.9 times as wide as long, in facial view about 1.5 times as wide as high, and about 1.2 times as wide as thorax. Occipital margin edged, but not carinated. Temples absent. Vertex narrow, very weakly and densely engraved-reticulate; ocelli large; OOL about 0.25 times, and POL about 1.5 times the diameter of median ocellus. Compoundeye about 0.85 times as high as head, about 4.6 times as high as malar space length; distance between eyes about 0.6 times eye height. Frons and face very weakly and densely engraved-reticulate; scrobal grooves smooth, not reaching median ocellus. Mouth opening about 2.2 times as long as malar space. Antenna (Figs. 3, 9): inner surfaces of scape and pedicel weakly engraved-reticulate; scape short, about as long as mouth opening; combined length of pedicel and flagellum about 1.3 times head height; pedicel about 0.45 times as long as scape; F1 about as long as pedicel; F2 and F3 each slightly longer than pedicel; clava about 2.6



Figs. 9–10. *Pasohstichus konishii* sp. n., ♀, paratype from Pasoh Forest Reserve. — 9, antenna; 10, basal part of forewing. Scale: 0.1 mm.

times as long as pedicel; first funicular segment with some setae basally in addition to seta-like processes (Fig. 3); the other flagellar segments with only seta-like processes which have no socket.

Thorax (Fig. 4) 1.4–1.5 times as long as wide; dorsal plate of mesoscutum, scutellum, and propodeum weakly arched. Pronotum with dense and engraved reticulation; hind marginal area of pronotum smooth, transparent, long over-spreading the anterior part of mesoscutum; spiracle partially covered by the posterior part of pronotum (Fig. 5). Mesoscutum with dense engraved reticulation like pronotum. Scutellum about as long as wide, with dense and weakly engraved reticulation; frenal area short, depressed, and with several longitudinal carinae. Dorsellum very short and smooth. Propodeum (Fig. 6) with weakly engraved reticulation, sometimes with two weak longitudinal carinae beside median carina; a thin plate produced over hindcoxal fovea; callus with 2 setae. Coxae weakly reticulate to smooth. Forewing (Fig. 10): speculum present, closed below; costal cell about as long as marginal vein; marginal vein about 4.0 times as long as stigmal vein; postmarginal vein absent.

Petiole (Fig. 7) as long as wide, as long as propodeum, with some strong longitudinal carinae. Gaster about 1.6 times as long as wide, 1.0–1.2 times as long as thorax, and smooth.

Male. Unknown.

Holotype: Malaysia: Pasoh Forest Reserve, Negeri Sembilan, Peninsula Malaysia, Coarse Malaise Trap, 3–10. XII. 1993. 1 ♀, (K. MAETO). The holotype is deposited in the collection of the Forest Research Institute Malaysia (FRIM).

Paratypes: Most of the paratypes have the same locality as the holotype. 26. III–3. IV. 1993, 2 ♀ (K. KONISHI & K. MAETO) (FRIM)/3–9. IV. 1993, 1 ♀, (K. KONISHI & K. MAETO) (FRIM)/26. XI–3. XII. 1993, 2 ♀ (K. MAETO) (FRIM)/3–10. XII. 1993, 1 ♀ (K. MAETO) (NIAES)/10–17. XII. 1993, 2 ♀ (K. MAETO) (NIAES). Japan: Kurio, Yaku Is., Kyushu, 8. VII. 1975, 1 ♀ (K. YAMAGISHI) (ELKU).

Distribution. Malaysia (Malay Peninsula) and Japan (Kyushu).

Host. Unknown.

Remarks. The paraspiracular carinae in the Japanese specimen are somewhat weaker than in Malaysian ones.

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