

New *Tetrastichus* species parasitoids of Diopsidae (Diptera) in Cameroon II (Hymenoptera: Eulophidae)

by

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ABSTRACT. — *T. flavobrunneus* and *T. risbeci* are described for the first time. They are parasitoids of diopsid flies (rice stemborers) in Cameroon, and were formerly considered to be varieties of *T. diopsisi* (Risbec).

Introduction

In addition to previous reports (Schulten & Feijen, 1983, and in press) two new *Tetrastichus* species are described which were bred by Descamps (1957) from diopsid flies and described as varieties of *T. diopsisi* by Risbec (1956). Both species do not key out to *T. diopsisi* with Risbec's key (1958).

Types and paratypes are kept by Orstom, Bondy, France, and one and three paratypes of the respective species by the Institute of Taxonomic Zoology (Zoölogisch Museum) University of Amsterdam, the Netherlands.

Tetrastichus flavobrunneus n. sp. (figs 1, 2, 5, 6)

Female. — Length 2.2-2.3 mm; abdomen about twice the length of thorax, head and abdomen somewhat deformed due to desiccation.

Colour. — Head yellow but ocellar triangle and mandibles brown; antenna with scapus and pedicellus light brown but upperside darker, flagella brown. Thorax yellow but posterior part of pronotum and mid lobe of mesoscutum, especially anteriorly, largely dark-brown; side lobes of mesoscutum and auxillae anteriorly with brown spot, central part of scutellum brown, propodeum dark-brown; abdomen with tergites yellow with irregular brown areas especially along the margin and posterior tergites, sternites yellow, stylus dark-brown, legs white, but fifth tarsal segment brown; wings hyaline, venation yellow brown.

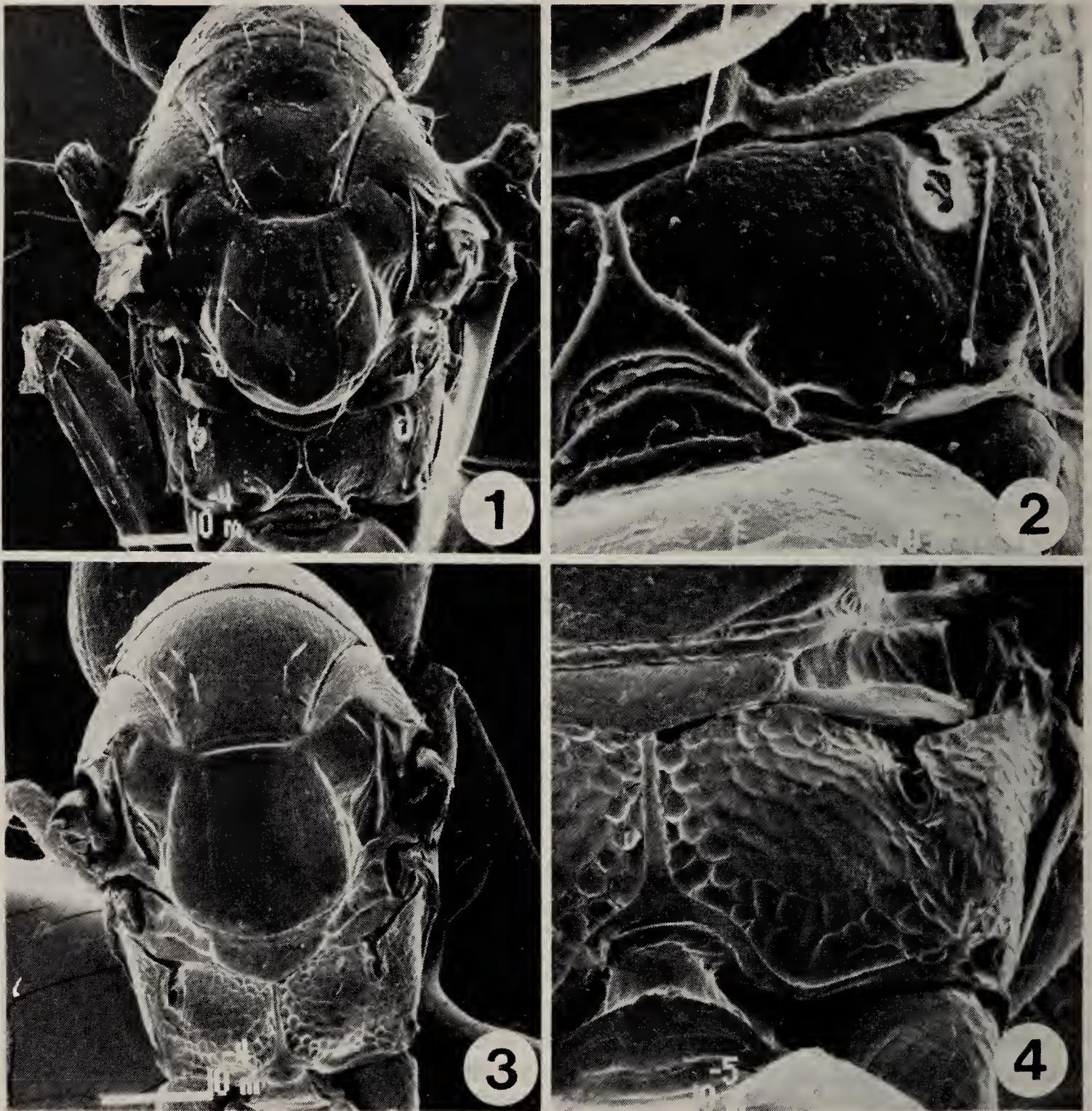
Structure. — Head transverse somewhat depressed anteriorly, ocellar triangle elevated, groove from lateral ocellus to eye margin, distance between lateral ocelli 0.8 times distance from lateral ocellus to eye margin, eye small, somewhat oval with few dispersed bristles. Malar space 0.8 times length of eye, malar sulcus foveate near eye margin; head frontally with deep depression broadest in the middle, antenna clearly inserted above lower eye margin; clypeus with two rounded protusions, mandible with two sharp teeth and a smaller, more blunt tooth.

Thorax (figs 1, 2) 1.5-1.6 times as long as broad; mid lobe of mesoscutum on posterior half with a row of 3 adnotaular bristles on either side, notaulices deep, scutellum with two submedian sutures and two pairs of admarginal bristles; propodeum with one bristle next to spiracle, another bristle more laterally of spiracle and a third bristle more posteriorly of second bristle; no postspiracular carina.

Antenna with pedicellus and flagellum about as long as thorax (fig. 5).

Legs slender, spur of mid tibia 0.4 times the length of first tarsal segment, second segment 0.9 times the first; spur of hind tibia 0.5 times first tarsal segment, second segment 0.8 times first segment.

Forewing 2.8 times as long as broad, clearly not reaching tip of gaster; costal cell about 14 times as long as broad; proximally on ventral side of costal cell near submarginal vein a row of 5 bristles located closely together, the central part of the cell without bristles but posteriorly a row of bristles in the middle of the cell; dorsally on submarginal vein 4 large bristles; marginal vein 6-7 times as long as stigmal vein; stigma well defined; speculum rather small, wing beyond thickly pilose (fig. 6); longest marginal fringe one tenth of width of wing. Hindwing rather



Figs 1-4. Scanning electron micrographs of *Tetrastichus*. Figs 1-2. *T. flavobrunneus*, female paratype. 1, thorax; 2, propodeum. Figs 3-4. *T. risbeci*, female paratype. 3, thorax, 4, propodeum.

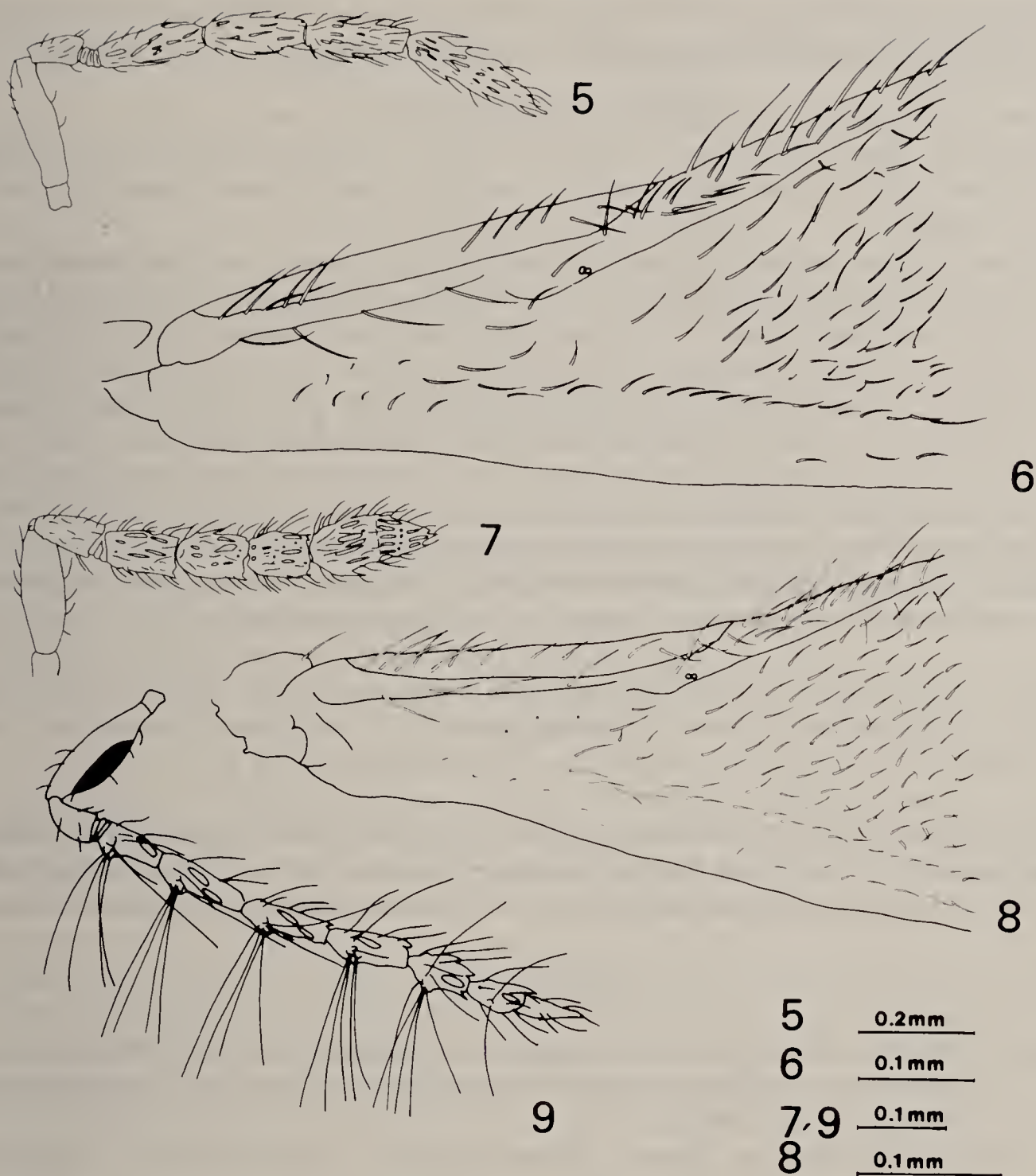
broad apically and blunt; longest fringe about half the breadth of wing at hamuli. Gaster oblong-lanceolate, distinctly narrower than thorax, ovipositor sheaths clearly exposed; pygostylar bristles three times as long as next longest bristle.

Sculpture: head, thorax and abdomen shining with an irregular reticulate pattern; coxae not reticulated, propodeum more coarsely reticulated (figs 1, 2).

Male. — Not present in slide, but according to Risbec 1956 male specimens were bred from *Diopsis ichneumonea* (Linnaeus).

Holotype: One female on card point from slide: "*Aprostocetus diopsisi* Risbec, var 2, ex pupa *Diopsis ichneumonea* [misidentification cf. Feijen 1978], Descamps 175 [= ? 178], Garoua". Paratypes: 8 ♀ from the same slide. Label added by us: Cameroon, Garoua, 1955.

Other material: One slide: *Aprostocetus diopsisi* R., var. 2, ex pupa *Diopsis* sp. Descamps 280 [= ? 250], Garoua, 8-'55".



Figs 5-6. *Tetrastichus flavobrunneus*, female paratype. 5, antenna; 6, forewing. Figs 7-9. *Tetrastichus risbeci*. 7, antenna, female paratype; 8, forewing, female paratype; 9, antenna, male.

Tetrastichus risbeci n.sp. (figs. 2, 3, 6-9)

Female. — Length 1.4-1.6 mm; abdomen 1.5 times longer than thorax; head strongly deformed due to desiccation.

Colour. — Head blue greenish but malar area reddish brown; antenna with scapus white, pedicellus and flagellum brown; thorax blue greenish but propodeum greenish; tergites reddish brown with a blue-green gloss, sternites reddish brown; front coxae white, middle coxae largely brownish, hind coxae brownish with a blue-green gloss; legs white but fifth tarsal segment brown; wings hyaline, venation yellow-brown.

Structure. — Ocellar triangle elevated; no groove between lateral ocellus and eye margin; distance between lateral ocelli about equal to distance from lateral ocellus to eye margin; eye oval, almost bare; malar space about length of eye; malar sulcus not foveate; head frontally with a deep depression, broadest in the middle; antenna inserted a little above lower eye margin.

Thorax (figs 3, 4) 2-3 times as long as broad, mid lobe of mesoscutum on posterior half with a row of 3 adnotaular bristles on either side, notaulices deep; scutellum with two submedian su-

tures and two pairs of admarginal bristles; propodeum with one bristle on exterior rim of spiracle, another bristle more exteriorly and a third bristle posteriorly of second bristle; no postspiracular carina.

Antenna with pedicellus and flagellum about as long as thorax, details as in fig. 7.

Legs slender, spur of mid tibia 0.5 times the length of first tarsal segment, second segment 0.6-0.7 times the first; spur of hind tibia 0.5 times first tarsal segment, second segment 0.8 times first segment.

Forewing 2.5 times as long as broad, just reaching tip of gaster, costal cell eleven times as long as broad, proximally on ventral side of costal cell near submarginal vein a row of 5-6 bristles located closely together and a more widely dispersed row of smaller bristles on the middle of the cell; dorsally on submarginal vein 4 bristles, marginal vein 6 times as long as stigmal vein; stigma well defined, speculum small, wing beyond thickly pilose (fig. 8), longest marginal fringe one eleventh breadth of wing. Hindwing rather broad apically and blunt, longest fringe about half the breadth of wing at hamuli; gaster ovoid, strongly narrowing towards apex; tips of ovipositor just exposed. Terga with single row of bristles but apex of gaster with many bristles and a pair of pygostylar bristles about 3 times as long as next longest bristle.

Sculpture: head, thorax and abdomen shining with a regular reticulate pattern; larger part of hind coxae reticulate, propodeum with a much coarser reticulation (figs 5, 6).

Male. — Length cannot be given since the head is detached and the abdomen broken; same colouration, structure and sculpture as female; scapus with a long carina, antenna with 6 funicular segments with basally an incomplete whorl of 6-8 long bristles (fig. 9).

Holotype: One female on card point from slide: "*Asyntomosphyrum diopsisi* Risbec, ex pupa *Diopsis tenuipes* [= *D. apicalis* Dalman complex] Descamps 182 [= ? 183], Garoua". Paratypes: Nine females and one male from the same slide. Label added by us: Cameroon, Garoua, 1955.

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