Redescription of Sycoscapter gibbus Saunders, a parasitic fig wasp from Madagascar and Réunion (Hymenoptera, Chalcidoidea, Torymidae)

by

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ABSTRACT. — Collections of fig insects made by Dr. L. H. M. Blommers in Madagascar and Dr. J. Etienne in Réunion, contain a species of the genus *Sycoscapter* Saunders. Its recognition makes possible a correlation of the sexes, and a better definition of the genus.

The first part of the Transactions of the Entomological Society of London for the year 1883 began with two papers on fig insects. In one, Saunders (1883: 25) described the male of a new species, *Sycoscapter gibbus*, from Madagascar. In the other, Westwood (1883: 34-35) gave the formal publication of the genus ("*Sycoscapter*, S.S. Saunders MSS., n.g."), with the description of another species (also with Saunders as author) — *S. insignis*, designated type-species by Gahan & Fagan (1923: 139) — from India. Further in the same paper, two other species by Westwood were alluded to the same genus *Sycoscapter*.

Of Saunders' *Sycoscapter gibbus* from Madagascar, I have seen some of the original slides in the British Museum (Natural History) viz, two males in a rather poor condition. Recently, my friend Dr. L. H. M. Blommers collected insects from the sycones of *Ficus soroceoides* Baker, a Malagasy species of fig: the samples consisted of *Kradibia cowani* Saunders (the pollinator) and males and females now recognizable as *Sycoscapter gibbus* Saunders (1883: 25, "cum *Kradibia cowani* in ficubus ipsis commixti"). An identical entomofauna was found to occur in the sycones of *Ficus morifolia* Lam. from the isle of Réunion, collected and sent for my study by Dr. J. Etienne. It should be stated that the fauna of *F. soroceoides* and *F. morifolia* differs from that of other species in the group, in that it contains a *Sycoscapter* next to the Agaonid: in *Ficus exasperata* Vahl the parasite fauna consists of *Sycoscapteridea longipalpis* (Joseph) and *Philotrypesis quadrisetosa* (Westwood). The difference between the figs *F. morifolia* and *soroceoides*, does not seem real; moreover, *F. morifolia* Lam. as used in the Mascarenes, evidently is not the same as *F. morifolia* Forsk. from India, Arabia, and the Horn of Africa, which has a species of *Blastophaga* for a symbiont (Joseph, 1954: 408).

In 1967, I redescribed *Sycoscapter stabilis* (Walker) (the valid name for the type species of *Sycoscapter* Saunders) and fell into the mistake — so obvious in fig wasps, where the correlation of the sexes may be very difficult — to identify a mixture of females with the male of *Sycoscapter insignis* Saunders (= *stabilis* Walker). I noted on some differences with Joseph's description of the female (Wiebes, 1967: 413, figs. 27-37; *Indothymus crenulatus* Joseph, 1953: 77-81 — another synonym), but only after having studied the present sample I realized that Joseph was right and that I had confused the true relations.

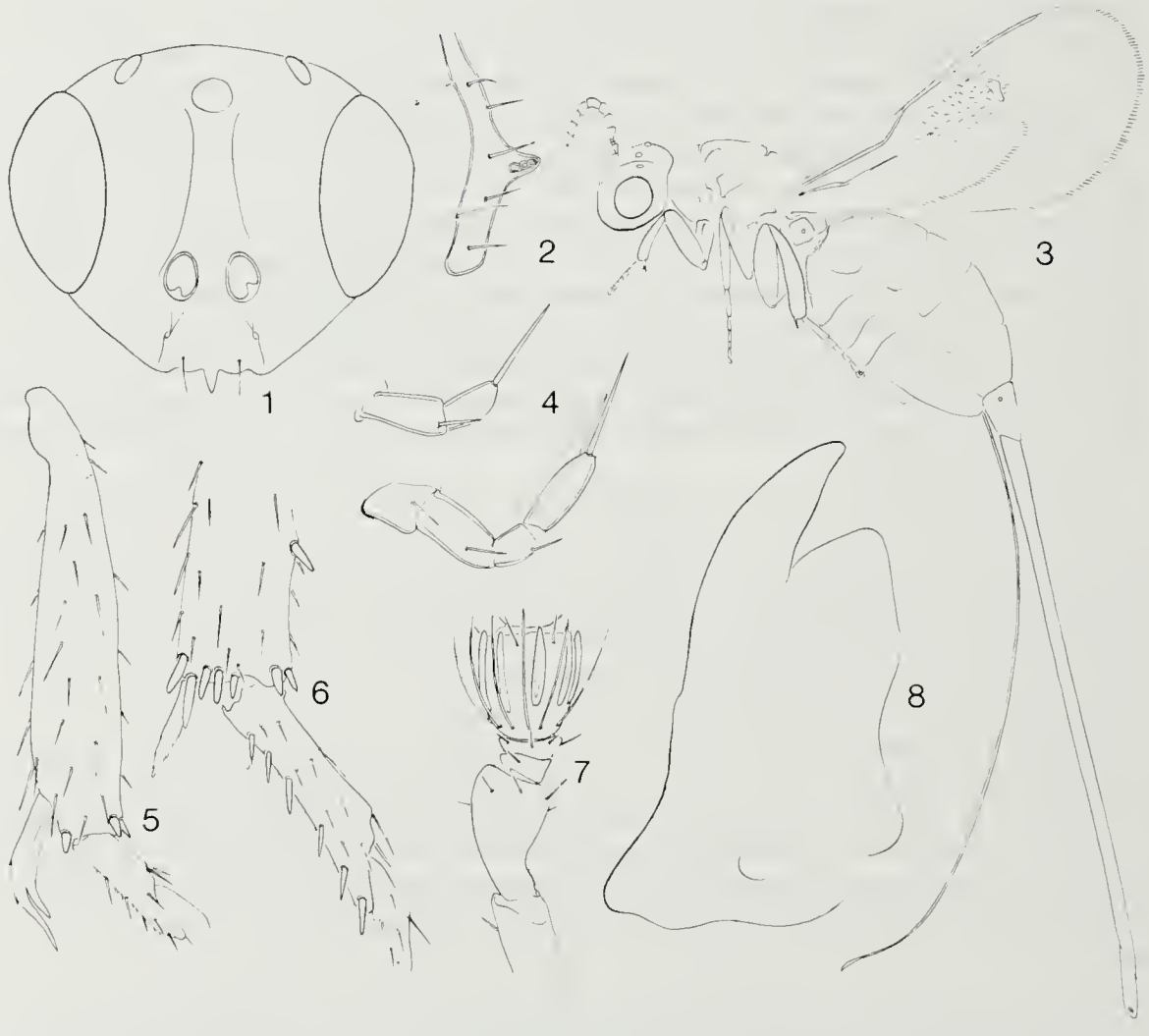
The female *Sycoscapter* has a rather large number of long and conspicuous pilae in the margino-stigmal angle of the fore wing. In this, it resembles *Arachonia* Joseph, 1957, but in *Sycoscapter* the stigmal vein is remarkably elongate, while in *Arachonia* it is not; moreover, the antennal segments are quite normal, not asymmetrical as in *Arachonia;* the antenna has two anelli. Most species have an acute median prominence on the epistomal margin, but this was not clearly mentioned or figured in all descriptions. The maxillary palpi have three or four segments, the labial two.

The male has rather heavily armed tibiae, widening distad but not expanded (with long setae) as in *Arachonia*; the tarsi are short and compact, without setiferous expansions of the basitarsus — so characteristic for *Sycoryctes* Mayr, 1885 — but the last segments are inflated. The thorax is relatively simple, compared to that of *Sycoryctes*, but also in comparison with *Sycoscapteridea* Ashmead, 1904, where the second sclerite of the notum is divided in a peculiar way (see e.g., Wiebes, 1967, figs. 74-75). In some *Sycoscapter* males (viz, *S. arnottianus, montis, punctatus*) the

mesonotum is separated from the metanotum-propodeum; in *S. stabilis* and *triformis*, the mesonotum, metanotum, and propodeum are fused, while in *S. gibbus* and *reticulatus* faint sutures do separate lateral parts from such a compound tergite.

As a preliminary correction of my catalogue of *Sycoscapter* (Wiebes, 1964: 83), I suggest the following list of species.

arnottianus Abdurahiman & Joseph (1976, Oriental Insects 10: 545, ♀♂, India, *F. arnottiana* Miq.);
? gajimaru (Ishii, 1934, *Kontyû* 8: 89, ♀, Japan, *F. microcarpa* Linn.f.);
gibbus Saunders (1883: 25, ♀, Madagascar; *F. soroceoides* Baker);
infectorius (Joseph, 1953: 74, ♀, India, *F. virens* Ait.);
inubiae (Ishii, 1934, *Kontyû* 8: 87, ♀♂, Japan, *F. erecta* Thunb.);
montis Wiebes (1971, *Mém. IFAN* 86: 369, ♀♂, Sierra Leone, *F.* cf. *eriobotryoides* K. & B.);
punctatus Abdurahiman & Joseph (1975, *Entomophaga* 20: 73, ♀♂, India, *F. amplissima* J. E. Sm.);
reticulatus Wiebes (1966, *Tijdschr. Ent.* 109: 180, ♀♂, Borneo, *F. stupenda* Miq.);
stabilis (Walker, 1871, Notes on Chalcidiae 4: 62, ♀, India, *F. benghalensis* L. — synonymy, see Wiebes, 1967: 407);
triformis Joseph (1957, *Ann. Soc. ent. France* 125: 103, ♀♂, India, *F. drupacea* Thunb. var. *pubescens* (Roth) Corner).



Figs. 1-8. *Sycoscapter gibbus* Saunders, female. 1, head; 2, stigmal vein of fore wing; 3, total lateral aspect; 4, labial and maxillary palpi; 5, fore tibia and metatarsus, antiaxial aspect; 6, apex of hind tibia, and metatarsus, antiaxial aspect; 7, detail of antenna; 8, mandible. Figs. 1, × 105; 2, 5-7, × 210; 3, × 30; 4, 8, × 420.

The mentioned host *Ficus* are species of various sections of the subgenus *Urostigma*, but two (viz, *F. erecta* and the host of *S. gibbus*) belong to subgenus *Ficus*.

Sycoscapter gibbus Saunders

Material[1]). — Series ♀♂, Madagascar, leg. L. H. M. Blommers, ex *Ficus soroceoides*; Perinet — Analamazoatra, forêt ombrophile, 900 m, 6.II.1972 (no. 2), coll. Rijksmuseum van Natuurlijke Historie (RMNH) 2044, 2046, 3111; 25.XII.1972 (no. 25), RMNH 2389.

Series ♀♂, La Réunion, leg. J. Etienne, ex *Ficus morifolia;* Plaine des Palmistes, route de Bébour, 1200 m, 17.IV.1975 (no. R 739), RMNH 2560; Forêt de la Mare longue, 18.XII.1975 (no. R 1075), RMNH 2749.

Female (fig. 3). — The description is made from a specimen from Madagascar (RMNH 2044). Head (fig. 1): the length three-quarters of the width across the compound eyes (10 : 13); the longitudinal diameter of the compound eye half as long as the head, and almost twice as long as the cheek (65 : 35), the cheeks convergent; three ocelli in a wide triangle; a shallow scrobe runs from the median ocellus to the antennal toruli, which are as far apart as their width; the epistomal edge produced into an acute median projection. Antenna (fig. 7) twelve-segmented, with two anelli; the scape almost five times as long as wide, three times as long as the pedicel; the anelli rather long, subequal; the funicular segments subequal, with one row of about ten long sensilla, and long basal setae. Trophi (figs. 4, 8): the mandible long (5 : 2), bidentate, with two glands; the labial palp consisting of two segments (5 : 4), the maxillary palp of four (3 : 5 : 3 : 6), with one and two apical setae, respectively.

Thorax. The surface rather dull, alutaceous; the parapsidal furrows obsolete at two-thirds of their length. Fore wing (12 : 5), 1.3 mm long; the submarginal, marginal, stigmal, and postmarginal veins approximately in ratio 5 : 3 : 2 : 3, the membrane with a large number of rather stout setae before and around the stigmal vein, which is much prolonged (fig. 2). Hind wing (4 : 1), 0.9 mm long. Fore tibia (fig. 5): the armature consisting of a number of apical, conical spines and a long bifid spur; the tarsal segments approximately in ratio 6 : 5 : 3 : 1 : 5. Mid leg, tarsal ratio 7 : 3 : 2 : 2 : 2. Hind tibia (fig. 6) with six antiaxial conical spines at the apex, two inequal spurs, and with five conical spines along the dorsal margin viz, the subapical one, one at approximately one-fifth, one at one-third, one at two-fifths, and one at two-thirds of the length; the tarsal segments approximately in ratio 12 : 5 : 4 : 3 : 5.

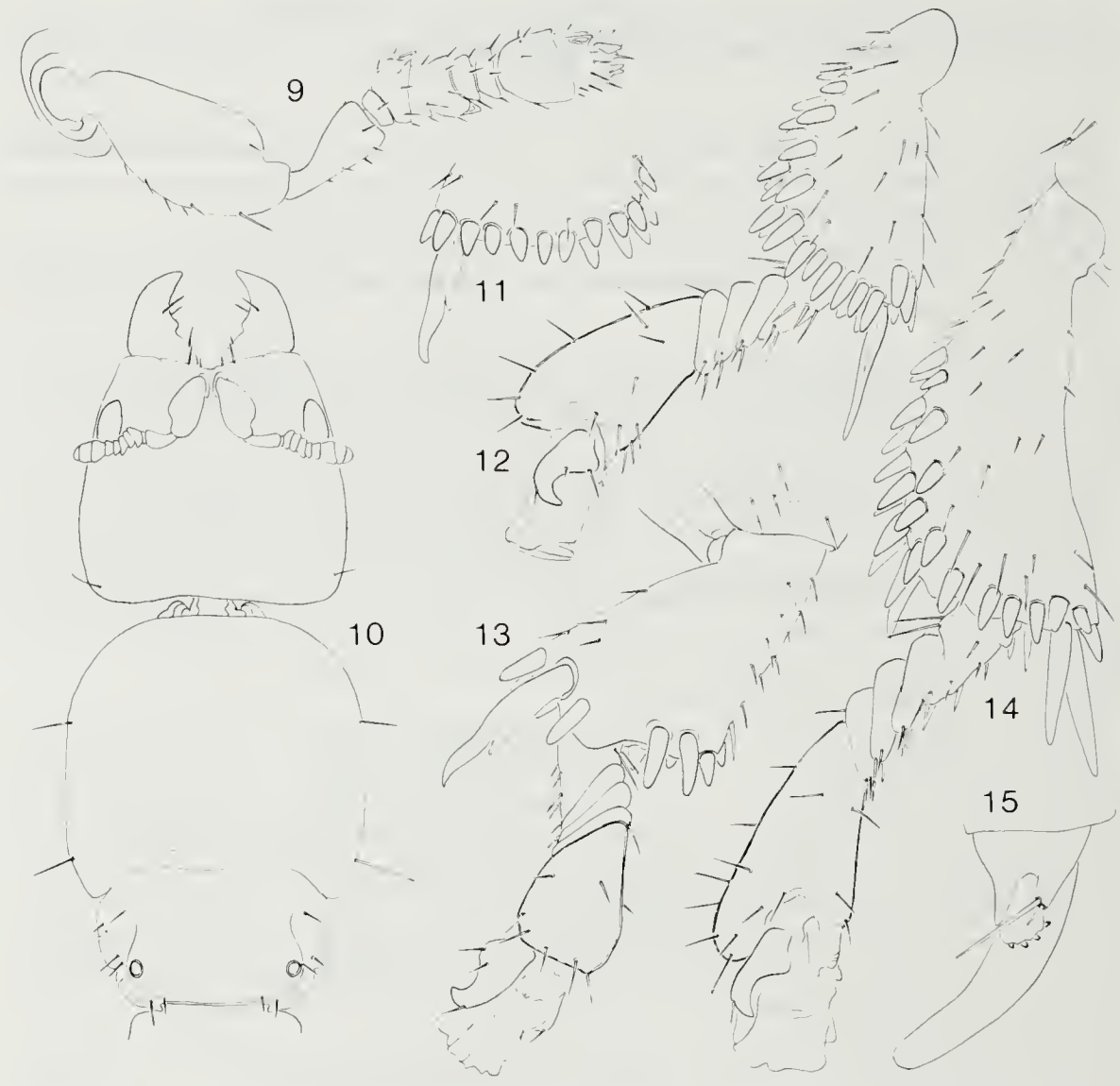
Gaster. The ninth tergite over two times as long as the apparent gaster (25 : 11), without pygostyles; the valves short.

Length (head, thorax, and apparent gaster), ca. 1.6 mm. Colour dark brown, the legs yellowish except for the coxae.

Male. — The description is made from a medium-sized male (head and thorax, 1.1 mm) from Madagascar (RMNH 3111). Head (fig. 10) wider than long (17 : 15); the longitudinal diameter of the compound eye one-quarter of the length of the head, and longer than the cheek (4 : 3); the toruli close together at the epistomal margin, which is almost straight. Antennae (fig. 9) eleven-segmented, with one anellus; the scape distinctly expanded, 2½ times as long as wide, twice as long as the pedicel; the anellus rather long; the funicular segments of an irregular shape, the first and third large, with apical sensilla situated axially and antiaxially, respectively, the sixth to eighth shaped so as to form a club, the seventh and eighth with large sensilla. Trophi: the mandible robust, falcate, with some molar teeth and one apical, two glands; the labial and maxillary palpi with two (3 : 2) and four (4 : 6 : 2 : 5) segments, respectively.

Thorax. The pronotum 1½ times as long as the posterior tergite, which consists of the fused mesonotum, metanotum and the, partly separate, propodeum; the lateral and posterior borders

[1]) Although the samples were not collected to that purpose, they allow of a general remark on the sex ratio. Over a grand total of ca. 100 ♀ and 50 ♂, it amounts to about 0.3 (males/total). This compares with a similar ratio in *Philotrypesis caricae* (Linnaeus) (Joseph, 1958: 220), but it is larger than what seems usual in Agaonids e.g., about 0.1 for *Blastophaga psenes* (Linnaeus) (Grandi, 1929: 104; Joseph, 1958: 209).



Figs. 9-15. *Sycoscapter gibbus* Saunders, male. 9, antenna, dorsal aspect; 10, head and thorax, dorsal aspect; 11, detail of fore tibia, antiaxial aspect; 12, mid tibia and tarsus, antiaxial aspect; 13, fore tibia and tarsus, antiaxial aspect; 14, hind tibia and tarsus, antiaxial aspect; 15, genitalia, lateral aspect. Figs. 9, 11-15, × 210; 10, × 65.

are indistinct, subhyaline. In none of the specimens a trace of a wing-remnant could be found. All legs have a heavy tibial armature of conical spines, mainly situated apically in the fore leg, and mainly dorsally in the mid and hind legs; the fore tibia (figs. 11, 13) with a bifid ventral spur, the tarsi approximately in ratio 3 : 1 : 1 : 1 : 9; the mid tibia (fig. 12) with one long spur, the tarsi approximately in ratio 8 : 4 : 3 : 3 : 25; the hind tibia (fig. 14) with two spurs, the tarsal segments approximately in ratio 5 : 3 : 2 : 2 : 12; in all legs the fifth segment is inflated and dark in colour.

Gaster. Claspers of the genitalia (fig. 15) with four claws.

Length (head and thorax), 0.8-1.2 mm. Colour yellow-brown, the tibiae (especially those of the hind legs) and the inflated last tarsal segments a little darker.

Variation. — There is some difference between the females from Madagascar (one sample of fourteen specimens, RMNH 2044, 3111) and those from Réunion (two samples of fifty specimens, RMNH 2560, 2749), in which the ninth urotergite is 3.5 times as long as the apparent gaster (vs. 1.5 in Madagascar); the number of dorsal spines on the hind tibia is six instead of five. Males may vary considerably in length, although they are quite constant structurally. In large specimens, the mandibles are more robust than in fig. 10, and the molar edge has more large

teeth. In small examples, the molar edge of the mandible may be almost smooth; here, the eyes are relatively large i.e., almost one-third of the length of the head, but the relative proportions of the head itself do not vary much. In specimens from Réunion, the penultimate segment of the maxillary palpus may be much reduced, so as to suggest a trimerous condition.

Diagnostic remarks. — The female is recognizable by its short ninth urotergite that, even in the relatively long-tailed Réunion specimens, is shorter than in most other species. It compares only with that of *S. arnottianus* which, however, has ten dorsal spines on the hind tibia versus five or six in *S. gibbus;* in *S. stabilis*, which also has a relatively short tail (four times the apparent gaster), the number of these spines is eight; in *S. punctatus* the maxillary palpi have only three segments. As mentioned above, the male thorax resembles that of *S. reticulatus*, but there the eyes are smaller relative to the length of the head, the thorax bears wing-remnants, and the tarsi are much more elongate.

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PERSONALIA

Op 7 september 1978 promoveerde aan de Katholieke Universiteit te Nijmegen ons lid de heer B. van de Lustgraaf tot Doctor in de Wiskunde en Natuurwetenschappen. De titel van zijn dissertatie luidt: „Ecological relationships between microorganisms and house-dust mites (Acarida: Pyroglyphidae)".

Promotor was prof. dr. H. F. Linskens, coreferent dr. J. E. M. H. van Bronswijk.

TALRIJKE LIEVEHEERSBEESTJES. Tijdens een wandeling op 1.III.1978 op de zuidpunt van het natuurreservaat „de Lemelerberg" (Overijssels Landschap) onder Lemele vonden wij duizenden exemplaren van de soort *Coccinella septempunctata* (Linnaeus). De pas ontwaakte kevers koesterden zich in de zon. Het was die dag ± 16°C warm. Ze bevonden zich geconcentreerd in groepjes van 10—25 onder langs de randen van heidepollen en pollen puntgras en pijpestro in