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Tethinidae (Diptera) in the Museum of Zoology, Lund University

LORENZO MUNARI

20 species of Tethinidae, including two species new to science, preserved in the collection of the Lund University Museum of Zoology, are listed and discussed. Two new species *(Tethina mima* and *T. stobaeana)*, both from the West Palaearctic Region, are described and figured. A new synonymy is proposed: *Dasyrhicnoessa phyllodes* Sasakawa, 1995, syn. nov. = *Dasyrhicnoessa tripunctata* Sasakawa, 1974. *Rhicnoessa cinerea* Loew, 1862 is downgraded again under synonymy (syn. rest.) with *Rhicnoessa grisea* (Fallén, 1823). The eggs of *Tethina longirostris* (Loew,1865) are described and figured for the first time.

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Thanks to the kind collaboration of Dr. R. Danielsson I have been able to study the collection of Tethinidae housed in the Museum of Zoology, Lund University, being the fruits of several years of both occasional and targeted collecting throughout temperate and tropical countries.

In agreement with recent taxonomic researches on this family, I follow here Beschovski's (1993) system as for ranking the European genera and species taxa, although I am not completely convinced about Beschovski's (1993) conclusions in separating *Rhicnoessa* Loew, 1862 from *Tethina* Haliday, 1838 on the basis of the characters of West Palaearctic taxa only (Munari, in press; Mathis & Munari, in press). Some species-groups and genera occurring outside the West Palaearctic Region are very often very peculiar in external as well as postabdominal features. On the other hand it is not possible to overlook Beschovski's painstaking and detailed taxonomic observations on these two genera, within the limits of the West Palaearctic fauna. Therefore, in order to avoid possible future misunderstandings when dealing with the West Palaearctic species of *Tethina* s. l., I will follow here Beschovski's taxonomical system. According to Beschovski (1993): "The most important features which distinguish both the genera *Tethina* and *Rhicnoessa* are: (1) the size of the ocellar and postocellar bristles; (2) the peculiarities of the genae; (3) the distance between facial callus and mouth edge; (4) the colour of the pubescence; (5) the correlation between the size of epandrium and surstyli; (6) the shape of the basiphallus; (7) the peculiarity of the epiphallus". The Bulgarian author also states:"The most part of the species treated as belonging to the genus *Rhicnoessa* (see Hendel 1934; Collin 1966) have to be related to the genus *Tethina*. The number of hairs above the first coxa is not included in the taxonomic characterization of the genera. They are used here to divide the species in two species groups: *albosetulosa* with one hair, and *czernyi* with two hairs above the first coxa."

Notes: In the present work the species are arranged within each genus, as far as possible, considering their phylogenetic relationships. The number of males and females examined is given as no. males / no. females, e.g. 1/0 for a single male, 1/3 for 1 male and 3 females.

As for illustrations, in most captions "scale bar" has been abbreviated as "s.b.".

List of species

Subfamily Pelomyiinae

Pelomyiella cinerella (Haliday, 1837)

Material examined: Sweden: Kullaberg, 24.vi.1973, H. Andersson, [3/1]; Öl. Halltorps hage, RN-1547/6297, 3–6.viii.1976, loc. 18c, Andersson-Danielsson, [3/1].
Distribution: Widely distributed throughout Palaearctic Region.

Pelomyiella mallochi (Sturtevant, 1923)

Material examined: Sweden: Boh. Elgö, 27.viii.1980, H. Andersson, [0/1]; Greece: Kavala, Keramoti, 20.vi.1982, loc. 54, R. Danielsson (DAYS), [2/2].
Distribution: Holarctic Region.

Subfamily Tethininae

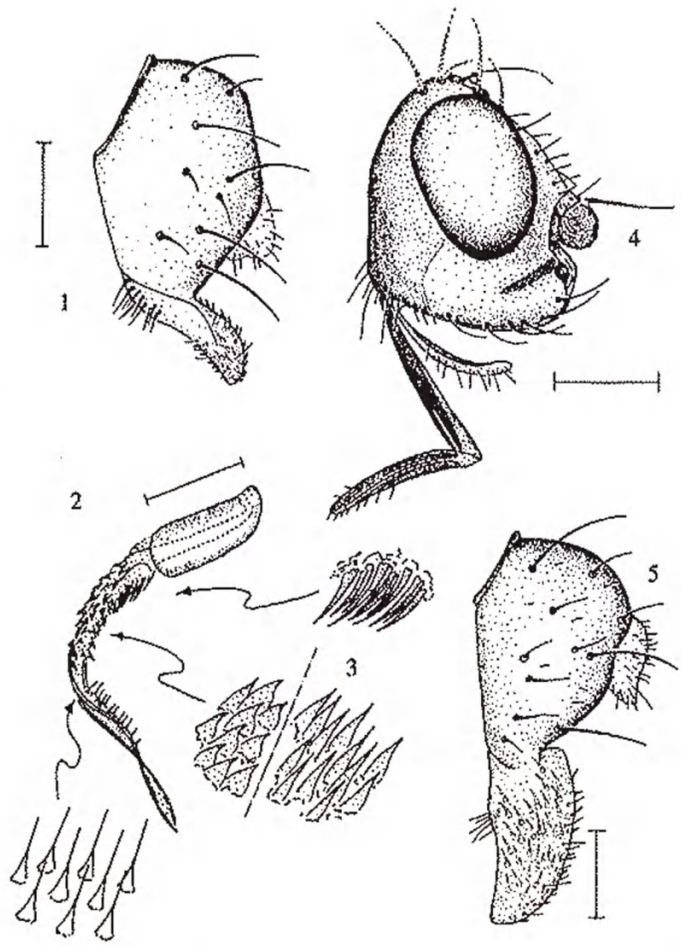
Rhicnoessa grisea (Fallén, 1823)

Rhicnoessa cinerea Loew, 1862 syn. rest.

Material examined: Sweden: Sandhammaren, 14.vi.1974, H. Andersson, [6/4]; Falsterbo, Nabben, 7.viii.1953, Ardö, [1/0]; Haväng, 3.vi.1956, R. Dahl, [1/0]; Haväng, 1550, 26.viii.1959, H. Andersson, [1/3]; Vitemölla, 27.v.1984, H. Andersson, [0/1]; Spain: (Castellon), Benicasim, 1987, P. Ardö, [5/4].
Distribution: West Palaearctic Region.

Discussion

Whether *T. grisea* and *T. cinerea* shall be considered as two good species or as the same taxon, this has been a matter of dispute since the beginnings of this century. Uncertainties have been particularly fueled by the strong variability in body size (I know of specimens with length 2.4 mm to 3.7 mm) and coloration of peristomal setae. Collin (1966:28) states: "As in so many cases in the Tethinidae, one of these two species *(grisea)* appears to be confined in its distribution to coasts of more northern latitudes in Europe, while *cinerea* has a more southern distribution. An additional distinction between these species is to be found in the more numerous small black spines on the paralobes of the male hypopygium of *grisea* compared with those in *cinerea*. Records of *cinerea* from the northern area, and of *grisea* from the Southern must be incorrect." After examining several specimens from both northern and southern latitudes, from Sweden to Mediterranean localities, I found no consistent character, not even at the genitalia level, justifying a distinction of these nominal species as distinct taxa. A few slight differences have been recorded in literature or observed here for the first time as to the male genitalia (shape of basiphallus, phallic papillae and microspinulae), but in all likelihood these are due to geographic variability (Figs. 1–3). Also, as for the color of body, legs, wings and peristomal setae in both sexes, I found several intermediate phenotypes between the typical northern and southern populations, so that Collin's (1966) taxonomic observations seem to lack foundation.



Figs. 1–5. — 1–3. *Rhicnoessa grisea* (Fallén, 1823). — 1. Male genitalia, lateral view (s.b. = 0.1 mm). — 2. Ditto, phallus (s.b. = 0.05 mm). — 3. Variability of phallic papillae. — 4. *Tethina mima* sp. nov., holotype, head, lateral view (s.b. = 0.3 mm). — 5. *Tethina czernyi* (Hendel, 1934), male genitalia, lateral view (s.b. = 0.1 mm).

Under these circumstances, in the present paper, I return to the opinion that *Rhicnoessa cinerea* Loew, 1862 is to be regarded as a junior synonym of *R. grisea* (Fallén, 1823), proposing the latin terms "synonymum restitutum" (syn. rest.) to mean "reinstated synonymy".

Tethina morpho-group "A"

[1 proepisternal, 0 proepimeral setae]

Tethina albosetulosa-group

[Abdominal setulae white, no distinct anteroventral spur on hind tibia]

Tethina albosetulosa (Strobl, 1900)

Material examined: Spain: (Castellón), Benicasim, 1987, P. Ardö, [11/6]; Italy: Udine, Meduno, vii.1962, P. Ardö, [3/1]; Greece: Rhodes, 5 km NE Mandrikon, 18.v.1983, loc. 77, R. Danielsson (DAYS), [0/2]; Rhodes, 4 km NW Kattawia, 21.v.1983, R. Danielsson, [1/2].
Distribution: West Palaearctic species southward also reaching Senegal.

The following chaetochromatic phenotypes, defined according to Munari & Canzoneri (1992), have been observed in this material:

Phenotype	No. of specimens	Country
A	4	Greece
A	1	Spain
C	3	Italy
C	1	Greece
D	15	Spain
D	1	Italy
E	1	Spain

Tethina illota (Haliday, 1838)

Material examined: Sweden: Hall, Laxvik, vii.1985, malaise, P. Ardö, [4/0]; Hall, Trönninge, Laxvik, 20.vii.1952, Ardö/Persson, (second label: "Slaghåv på dynraden"; third label: "Flygsandsundersökningarna 1952, Ardö/Persson"), [1/0]; Denmark: Ö. Anholt by, 9–18.vii.1953, Meurling (Ardö), [1/0].
Distribution: Atlantic-European species, southward also reaching Canary Islands.

Tethina mima-group

(Abdominal setulae black, two anteroventral spurs on hind tibia)

Tethina mima sp.nov.

Fig. 4.

Type material: Holotype, female. Greece, Rhodes, 4 km S Kattavia, loc. 86, 21.v.1983, leg. R. Danielsson (DAYS) in coll. Mus. Zool., Lund University.
Etymology: From the Latin *mimus* = imitator. Named for its close general similarity with the provisional species-group differently characterized in having both proepisternal and proepimeral setae.

Description

Dimensions. Body length 3.3 mm, wing length 2.55 mm, wing width 0.93 mm.

Habitus. Small species with normally sclerotized tegument. Body covered with gray microtomentum. Thorax with long setae and setulae, the latter rather scarce and scattered. Abdomen homogeneously grey with very small black setulae. Legs bicoloured, with grey femura and yellowish tibiae and tarsi.

Head (Fig. 4). Mostly yellowish with darker yellow-reddish frons; both ocellar triangle and cervico-occipital region covered with a grey microtomentum, lighter on occipital surface. Frontorbital vittae concolourous with the frons. Upper part of the head with setae mostly lost. Paraverticals short, moderately strong, widely spaced and convergent; both inner and outer vertical setae lost, only setigerous pores being visible. Ocellar triangle dark, this probably due to diffuse greasiness of tegument, with a few scattered setulae besides the strong ocellar setae. Two–3 lateroclinate upper orbitals, lower ones weaker and smaller, hair-like. Four interfrontal hairy setae, the anterior one proclinate. Antenna with yellow pedicel, dorsally bearing one strong erect seta; first flagellomere dark brownish on its outer side, pale yellow on inner one. Eye vertically elongated, its diameter 2.6x genal height.

Both facial cavity and gena entirely covered with a pale yellow-whitish microtomentum. Facial tubercle strongly glittering; a small paler shining patch on the anterior part of gena is also present, resembling, in part, the typical transverse glittering band of the *Tethina* species with both proepisternal and proepimeral setae. Head in profile with facial carina sufficiently protruding to be vertically beneath middle of the first flagellomere. Peristomal setae black, weak, anaclinate, the anterior one vibrissa-like. Palpi long and narrow, pale yellow; labellum large and pointed, a little shorter than buccal cavity length.

Thorax. Pleurae, mesonotum, scutellum, abdomen and femura concolourly and uniformly dull grey. Dorsocentral setae 2(?)+3 – the anterior one apparently a supernumerary seta – could be evaluated as either a consistent character or an isolated peculiarity simply due to anomalous growth of a more advanced setula. It will, of course, be possible to verify this when further specimens of both sexes are found and studied. Two rows of long, scarcely numerous acrostichals, the prescutellar pair characterized by very long setae. Mesonotal setulae rather scarce, long and strong, seta-like. Postpronotal lobe with 2 setae and 1–2 setulae, each with different inclination; lower postpronotal setae strong and very long, particularly the lower posterior one. 1 presutural, 2 notopleurals, 2 supra-alars (the posterior one stronger and longer), 2 posta-lars (the lower one longer). Scutellum bearing the usual 4 marginal setae; disc of scutellum bare. Pro-

episternal seta black, well developed, proepimeral one quite absent (see Discussion). Anepisternum anteriorly bare, posteriorly with scarce, short setulae and 2–3 postero-marginal setae (the mid one longer and stronger); 1 erect seta also present on postero-dorsal margin. Katepisternum with scattered pubescence, bearing 1 very long postero-dorsal seta. Both katatergite and meron entirely bare.

Legs. Slender, manifestly bicoloured, with dull grey femura and yellowish tibiae and tarsi, the latter with the last 2 tarsomeres darkened. Fore coxa darkened, bearing numerous long setae; fore femur setulose, with a few long setae on distal half, posteroventrally bearing a row of 9–10 thin setulae anteriorly decreasing in length. Mid femur anteriorly with numerous long setulae; mid tibia with 3 ventro-apical, spine-like setae, the mid one manifestly longer. Hind coxa concolourous with femur, bearing a long, thin seta; hind femur moderately swollen; hind tibia bearing 2 characteristically close paired, antero-ventral, apical, spine-like setae, the external one longer; 2 extremely similar, ventro-proximal setae are also present on the contiguous first tarsomere.

Wing. Veins and membrane pale yellowish. Costal index ($Cs_2 : Cs_3$) = 2.86. Costa reaching the end of M_1. Anterior crossvein (radial-medial) roughly at the middle of the contiguous discal medial cell. Anterior branch of cubitus (CuA_1) 2.5x longer than posterior crossvein (discal medial-cubital). Alula small, apically rounded. Halter entirely pale yellow.

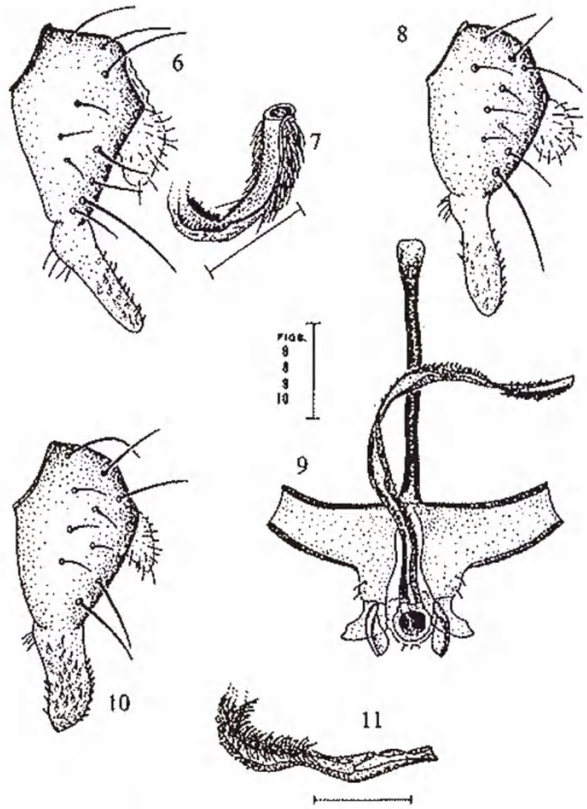
Only the left wing was present in the studied specimen but transversally fractured; it has, therefore, been detached and mounted in a drop of Faure's liquid and pinned below the specimen, in order to avoid a possible loss.

Abdomen. Both tergites and sternites with dull grey microtomentum, evenly covered with numerous black, small setulae (longer on the lateral sides of tergites). Tergites apically with narrow, faint withish, transverse stripe.

This species having been collected in a single female specimen and, on the other hand, being adequately defined on external characters, I have prudently avoided dissecting the abdomen.

Discussion

The head of this single specimen was partially detached from the thorax. In order to avoid a possible complete loss of this important part, a tiny drop of entomological gum has been used to secure the cervi-occipital zone to the thorax. Unfortunately, this procedure caused undesired greasiness in the surrounding teguments also including prothoracal ones and a large part of the mesonotum. At present, the strong proepisternal seta is quite visible; conversely it is not possible to observe the presence of setigerous pore of a further possible second seta (proepimeral seta). Nevertheless, before gumming the cervical foramen zone, I had previously examined by high magnification (100x) the "well clean" and ungreasy prothoracal sides in order to find possible traces of proepimeral seta or its setigerous pore. This examination confirmed this specimen as belonging to the genus *Tethina* sensu Hendel (1934:38: "Stigmatikalbörstchen fehlend"). On the other hand, this new species of *Tethina* (sensu Beschovski 1993) does not seem to be related to Beschovski's *albosetulosa*-group (even though both species share the absence of the proepimeral seta) but it probably forms a separate group of which, at the present time, only *Tethina mima* sp.nov. is known.



Figs. 6–11. — 6, 7. *Tethina* sp.nov. "A" (Beschovski, in press). — 6. Male genitalia, lateral view. — 7. Ditto, apex of distiphallus (s.b. = 0.02 mm). — 8, 9. *Tethina incisuralis* (Macquart, 1851). — 8. Male genitalia, lateral view. — 9. Ditto, hypandrial complex and phallus. — 10, 11. *Tethina pallipes* (Loew, 1865). — 10. Male genitalia, lateral view. — 11. Ditto, apex of distiphallus (s.b. = 0.02 mm). (S.b. of Figs. 6, 8–10 = 0.05 mm).

This new species also differs to a great extent from congeners of the morpho-group "A" particularly in having a faint glittering patch on gena, proepisternal seta and abdominal setulae black, and for the peculiar chaetotaxy apically to hind tibia and proximally to the

contiguous basitarsomere.

Tethina morpho-group "B"

[1 proepisternal, 1 proepimeral setae]

Tethina czernyi-group

(a provisional species-group also including a few species of uncertain phyletic position)

Tethina czernyi (Hendel, 1934)

Material examined: Tunisia: N of Sousse, 3 km S Hergia, 7 and 12.iv.1994, loc. 1, R. Danielsson, [12/14].
Distribution: Palaearctic Region, from Atlantic Europe to Mongolia.

Discussion

A robust species easily distinguishable from the congeners particularly for its very large and externally visible surstyli (Fig. 5) which often show a strongly variable outline (to compare my figure with Beschovski's (1993) ones).

Tethina sp. nov. "A"

Figs. 6–7.

(This species will be described by V. Beschovski in the framework of his study on the Tethinidae from East Mediterranean).

Material examined: Tunisia: Bou Hedma, 10–11.iv.1976, M. Olsson, [2/4]; 25 km S Kairouan, 11.iv.1994, loc. 23, R. Danielsson, [1/1].
Distribution: South Mediterranean species also reaching Canary Islands. New to Tunisia.

Discussion

Like several other species of *Tethina* from the Mediterranean coasts, this species shows moderate variability in both outline and inclination of the surstylus.

Tethina incisuralis (Macquart, 1851)

Material examined: Algeria: Laghouat, ?.i.1953, R. G:son Dahl, [1 male and 1 specimen without abdomen]; Jordan: Svaima, Dead Sea shore, 4.iv.1985, P. Ardö, [0/2].
Distribution: West Palaearctic (England, Canary Islands, Spain, North Africa, Middle East), Afrotropical (Cape Verde Islands). New to Jordan.

Discussion

Species widely distributed in the Mediterranean basin, particularly characterized for the hind tibia with a black ring usually limited to the apical region or, in a few cases, more extensively covering the distal half. The single male specimen examined appears with genitalia as in Figs. 8–9, with the surstylus very scarcely pigmented, diaphanous; also, this male from Algeria shows both the fore and mid femurs darkened.

Tethina soikai Munari, 1981

Material examined: Oman: Rosail, Barka, 8.iv.1985, P. Ardö, [1/0]; Yiti, Wadi, 7.iv.1985, P. Ardö, [1/0]; Qurayat, beach, 6.iv.1985, P. Ardö, [1/0]; Muscat, 10.iv.1985, P. Ardö [1/1].
Distribution: Afrotropical Region; hitherto only known from Senegal and Oman (new).

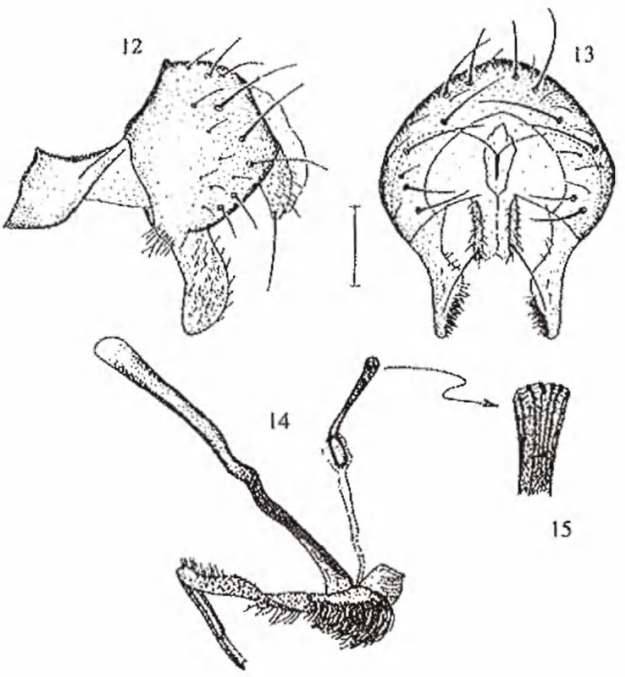
Redescription of species

Dimensions: Body length 1.32–2.05 mm, wing length 1.23–1.76 mm, wing width 0.44–0.63 mm.

Habitus: Small species with weakly sclerotized tegument. Body with grey-brownish ground colour and brownish-cinereous microtomentum on mesonotum. Abdomen brownish, transversely whitish striped. Wings yellow-brownish.

Head. Frons and antennae yellow; both the face and genae covered with dense white microtomentum, except for a glossy longitudinal golden band on each gena. Frontorbital vittae also covered with pale whitish microtomentum. Paravertical setae short and strong, widely spaced and convergent; inner vertical setae inclinate and long; outer verticals about as long as inner verticals, lateroclinate. Ocellar triangle slightly brownish with strong ocellar setae and one pair of short setulae behind them. Frons with 3 lateroclinate orbital setae and a few thin setulae anteriorly; 3 weak interfrontals, the anterior one weaker and proclinate. Antenna yellowish, slightly darker on its outer side. Eye large, subcircular, its diameter 4.3–5.5 (males), 3–3.6x (females) genal height. Peristomal setae weak and anaclinate but the anterior ones (pseudovibrissae) foreward directed and convergent. Palpi slender, pale yellowish; labella short, as long as palpi.

Thorax. Pleurae whitish, slightly paler than golden-brownish mesonotum and scutellum. 1+3 dorsocentral setae, 2 rows of somewhat regular acrostichals, the prescutellar ones longer. Postpronotal lobe bearing 3 setulae, each with different inclination; 1 presutural, 2 notopleurals, only 1 supra-alar visible, 2 postalars. Scutellum with 4 strong marginal setae. Both the proepisternal and proepimeral setae somewhat thin, hair-like. Anepisternum with scattered pubescence and 2 well developed postero-marginal setae; 1 erect seta also present on postero-dorsal margin. Katepis-



Figs. 12–15. *Tethina soikai* Munari, 1981. — 12. Male genitalia, lateral view. — 13. Ditto, caudally. — 14. Aedeagic apparatus. — 15. Apex of ejaculatory apodeme. (s.b. = 0.05 mm).

ternum pubescent, with very long black postero-dorsal seta. Both the katatergite and meron bare, without setae and setulae.

Legs. Slender, entirely pale yellow except for the last tarsomere which is dark brown. Fore femur with 4–6 dorsal setae, the distal ones longer and stronger; mid tibia with a strong ventro-apical spur, hind tibia similarly with a little shorter antero-ventral apical spur.

Wing. Membrane yellow-brownish, veins pale yellowish to brown. Costal index ($Cs_2 : Cs_3$) = 2.50–3.90. Costal vein reaching M_1. Alula small, rounded at apex. Halteres pale yellowish.

Abdomen. Ground colour brownish, whitish striped apically on terga; in the holotype from Senegal syntergite 1+2 is more widely yellowish with respect to remaining abdominal terga. Male surstylus large, with numerous black spinulae on inner side; cercus bearing a long apical seta (Figs. 12–17). Basiphallus strongly pubescent (Fig. 14); ejaculatory apodeme with distal apex not fan-shaped (Fig. 15); middle part of the long aedeagal apodeme strongly biflexuous. Cerci of female long and narrow, darkened apically; spermathecae simple, spherical.

Discussion

Tethina soikai is closely related to *T. ochracea* Hendel, 1913, but differs in being smaller, by a different outline of the surstylus (Figs. 17–18), and having basiphallus strongly pubescent and apex of the ejaculatory apodeme not fan-shaped. Females are not easily distinguishable.

Tethina ochracea (Hendel, 1913)

Fig. 18.

Material examined: Spain: (Castellón), Benicasim, 1987, P. Ardö, [1/0]; Greece: Rhodes, 2 km SW Lindos, 23.v.1983, loc. 91, R. Danielsson (Days), [1/0]; Tunisia: N of Sousse, 3 km S Hergia, 12.iv.1994, loc. 1, R. Danielsson, [0/1]; Algeria: Laghouat, ?.i.1953, R. G:son Dahl, [0/1].
Distribution: West Palaearctic (Mediterranean basin), Afrotropical and Oriental (Taiwan) Regions. New to Greece, Tunisia and Algeria.

Tethina cf. *ochracea* (Hendel, 1913)

Material examined: Spain: (Castellón), Benicasim, 1987, P. Ardö, [0/5]
Discussion: (see observations concerning the female specimens of *Tethina stobaeana* sp. nov.).

Tethina stobaeana sp.nov.

Figs. 19–22.

Type material: Holotype, male: Spain, (Castellón), Benicasim, 1987, P. Ardö. — *Paratypes:* Same data as holotype, [1/0]; Uzbekistan, Bukhara, 19.ix.1977, F. Florén, [1/1]; Uzbekistan, Tashkent, 17.ix.1977, F. Florén, [0/2].
Holotype and 4 paratypes are deposited in the collection of the Lund Univ., Mus. Zool., 1 paratype in the author's collection.
Etymology: Named after the founder of the Museum of Zoology of the Lund University, Kilian Stobaeus (1690–1742).

Description

Dimensions: Body length 1.86–2.34 mm, wing length 1.8–2.07 mm, wing width 0.63–0.78 mm.

Habitus: Small species with moderately sclerotized tegument. Body usually with brownish-cinereous microtomentum on mesonotum, contrasting with the grey pleurae. Abdomen pale brown. Wings brownish with dark veins.

MALE

Head. Mostly yellow except for the golden-brownish ocellar triangle and the grey occipital region. Frontorbital vittae narrow, very faintly greyish microtomentose. Frons yellowish to reddish. Paravertical setae short, widely spaced and convergent; inner vertical setae inclinate as with shorter upper postocular setae; outer vertical setae long, lateroclinate. Ocellar triangle golden-brownish to grey-brownish with strong ocellars; one pair of thin, short setulae are visible behind the ocellar setae. Frons bearing 3 lateroclinate

orbital setae, the anterior one shorter; a row of inclinate, short and thin setulae is present laterally to orbitals; 3 interfrontal setae, the posterior one inclinate, mid pair with crossing, longer setae, anterior seta hair-like and proclinate. Antenna externally dark brownish, pale yellow on inner side; arista darkened. Eye large, subcircular, its diameter 2.8–3.2x genal height. Both facial cavity and gena covered with white-yellowish microtomentum; face with small carina; large longitudinal golden band on gena, like that in *ochracea*. Peristomal setae and pseudovibrissa black, rather short and weak. Palpi slender, pale yellow; labellum about as long as buccal cavity.

Thorax. Pleurae dull grey, contrasting with the darker, golden brown mesonotum and scutellum. Dorsocentral setae 1+3 (in a specimen from Spain a supernumerary dorsocentral presutural seta is also present); 2 rows of irregular, long acrostichals (2–3 on presutural zone); prescutellar acrostichals rather long, only a little shorter than posterior dorsocentral setae; intra-alar setulae more or less numerous and scattered; postpronotal lobe with 3 setae, each with different inclination, intermixed with few short setulae; 1 presutural, 2 notopleurals, 2 supra-alars, 2 postalars (the lower one manifestly the longest). Scutellum with four marginal setae. Both proepisternal and proepimeral setae well developed. Anepisternum with scattered pubescence on its posterior half, 2–3 postero-marginal setae (the mid one longer and stronger), 1 erect, long seta on postero-dorsal margin. Katepisternum sparsely pubescent, with a very long postero-dorsal seta. Both katatergite and meron without setae and setulae.

Legs. Fore leg: Coxa greyish, anteriorly with a few long submarginal setae intermixed with short setulae; femur dark grey, setulose, sensibly swollen; tibia and tarsus brownish-yellow, evenly setulose. *Mid leg:* coxa greyish, anteriorly long setulose; femur dark grey, slender, bearing 3–5 anterior setae on its distal half; tibia and tarsus brownish yellow, evenly setulose, with the last two tarsomeres darkened. *Hind leg:* Coxa dull grey, dorsally bearing 1 long seta and few small setulae; femur strongly darkened, not particularly swollen, without strong setae; tibia evenly setulose, yellowish in the proximal portion, the remaining surface being strongly brown darkened; only the first tarsomere yellowish, the others being manifestly darkened. In the specimen from Uzbekistan both tibia and tarsus are much paler, fully yellowish, except for the last tarsomere which is sligtly darker.

Wing. Veins and membrane brownish. Costal index ($Cs_2 : Cs_3$) = 2.69–3.00; costa reaching the end of M_1. Anterior crossvein (radial-medial) roughly at one third from beginning of the contiguous discal medial cell. Anterior branch of cubitus (CuA_1) 1.50–2.00x longer than posterior crossvein (discal medial-cubital). Alula small, apically rounded. Halter pale yellow.

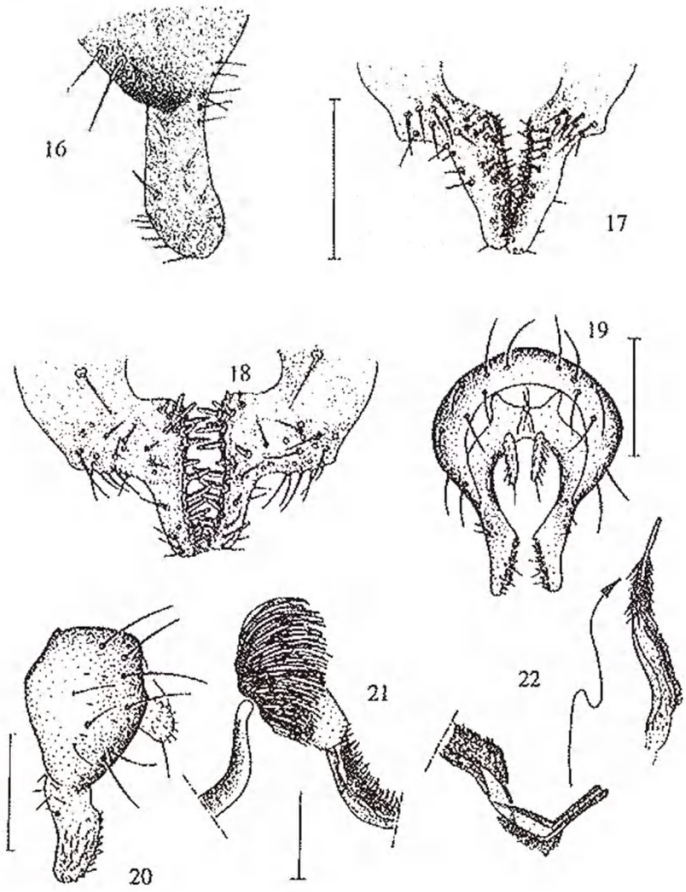
Abdomen. Grey-brownish, evenly covered with short setulae, longer on the lateral sides of tergites. Tergites apically with narrow, rather faint whitish, transverse stripes. Genitalia with elongated and apically broadened surstylus (Figs. 19–20); inner surface of surstylus bearing thin, pale spinulae, much weaker and less numerous than in *ochracea*. Basiphallus strongly pubescent, more setulose than in *ochracea* (Fig. 21); distiphallus slender and with numerous microtrichia (Fig. 22). Aedeagal apodeme very long and narrow, strongly sinuous in the middle.

Female

In Benicasim, Spain, this species was found to be sympatric and syntopic with *Tethina ochracea* and extremely similar to the latter in external morphological features. Therefore I prefer, for the moment, to treat the female specimens simply as "cf. *T. ochracea/stobaeana*", whereas I regard the females from Uzbekistan as belonging to *Tethina stobaeana* sp.nov., although their legs are much paler than in individuals from Spain; as for the other characters they are quite similar to the males, particularly to the single male specimen from Uzbekistan. As these specimens could be well considered as belonging to a subrelict inland population, the differences observed particularly in the legs coloration are probably due to both environmental and geographical factors in conditions of partial or complete isolation from the rest of the populations of *stobaeana*.

Discussion

Tethina stobaeana sp.nov. is closely related to both *T. ochracea* (Hendel, 1913) and *T. soikai* Munari, 1981, differing from them particularly for the different shape of surstylus. The outline of epandrium and surstylus in *stobaeana* resembles that in *Tethina marmorata* (Becker, 1908) as figured by Beschovski (1993:105, 1994:200) but the new species has neither black spots surrounding setigerous pores nor longitudinal dark stripes on mesonotum. Of these characters in *Tethina marmorata*, Czerny (1928) stated: "Thorax düstergraubraun, Mesonotum mit zwei dunkelbraunen Mittel- und je einem vorn abgekürzten Seitenstreifen, Makrochaeten auf dunkelbraunen Flecken, die Börstchen auf solchen Punkten. Diese Flecken und Punkte verleihen dem Rücken ein gesprenkeltes Aussehen.".



Figs. 16–22. (Figs. 16–18 after Munari 1981, drawings by G. D'Este. s.b. = 0.05 mm). — 16, 17. *Tethina soikai* Munari, 1981, holotype. — 16. Right surstylus — 17. Ditto, apex of surstyli, ventral view. — 18. *Tethina ochracea* (Hendel, 1913), apex of surstyli, ventral view. — 19–22. *Tethina stobaeana* sp.nov. — 19. Male genitalia, caudal view (s.b. = 0.1 mm). — 20. Ditto, lateral view (s.b. = 0.1 mm). — 21. Ditto, basi- and epiphallus (s.b. = 0.03 mm). — 22. Ditto, apex of distiphallus, lateral (left) and dorsal view (right).

Tethina pallipes (Loew, 1865)

Material examined: Tunisia: 10 km SW Bizerta, 7.iv.1994, loc. 4, R. Danielsson, [1/2].
Distribution: West Palaearctic (Azores, Canary Islands, Mediterranean subregion), Afrotropical (Cape Verde Islands).

Discussion

Possibly *pallipes* is a senior synonym of both *T. nigripes* (Czerny, 1928) and *T. strobliana* (Mercier, 1923). As a matter of fact it is probable these taxa belong to a single polymorphic species morphologically varying in relation to the different habitats or geographical sites. In the material studied the male genitalia are indeed very similar to those in *strobliana* (Figs. 10, 11); the specimens examined also have mesonotum with golden-brown microtomentum, contrasting with the pale grey postpronotal lobe and notopleura; 3–4 rows of acrostichals; epistoma rather produced to be vertically beneath the middle of first flagellomere, as in *strobliana;* labellum rather short and stumpy; fore and hind femurs dark, hind tibia dark greyish to yellowish.

Tethina strobliana (Mercier, 1923)

Material examined: Spain: (Castellón), Benicasim, 1987, P. Ardö, [0/1]; Greece: Kreta, Malia "2 km S om. Vid pumpstationen", loc. 4, 10.v.1979, R. Danielsson, [0/1]; Tunisia: 25 km SW Bizerta, 10.iv.1994, loc. 20, R. Danielsson, [1/0]; 25 km S Kairouan, 11.iv.1994, loc. 23, R. Danielsson, [1/2]; 10 km SW Bizerta, 7.iv.1994, loc. 4, R. Danielsson, [1/0]; 17 km SE Zaghuan, 12.iv.1994, loc. 2, R. Danielsson, [0/1, cf. *strobliana]*
Distribution: European species, southward also reaching North Africa (Tunisia: new) and Madeira.

Discussion

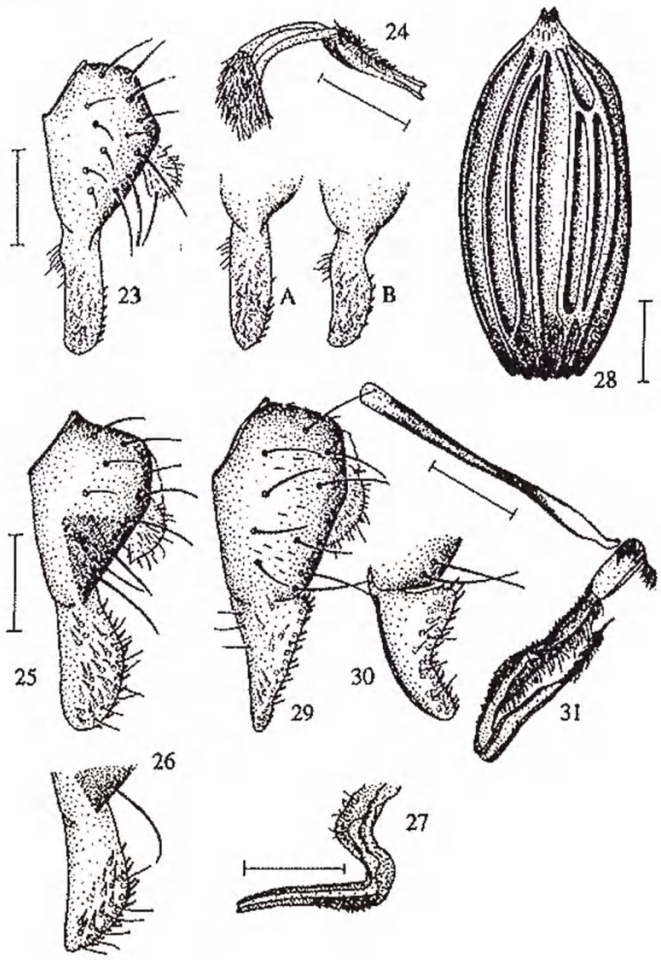
A common species characterized in particular for the strongly protruding epistoma, lower portion of face with nose-shaped carina, labellum large, long and stout, both fore and hind femurs strongly darkened, hind tibia never darkened, yellowish. In the specimens examined the surstylus is usually strongly elongated and straight, with parallel sides and widely rounded apex, except for a few individuals with more convex surstylar sides and less widely rounded apex (Figs. 23, 23A). In one specimen identified by Hendel, in coll. Nat.hist. Mus., Wien, the basis of surstylus is angular, such as to modify the whole outline of the surstylus (Fig. 23B). Therefore, this species, showing a rather marked variability in the shape of surstylus, might generate some difficulties in identification.

Tethina longirostris (Loew, 1865)

Material examined: Tunisia: Kairouhan, 6 km E–NE, 4.iv.1976, loc. 1, M. Olsson, [28/6]; ibid., 4.5 km E–NE, loc. 2, [3/1]; N of Sousse, 3 km S Hergia, 7 and 12.iv.1994, loc. 1, R. Danielsson, [29/29]; Sbikha, 34 km N Kairouhan, 11.iv.1994, loc. 22, R. Danielsson, [2/0]; W of Tunis, 1 km SE El Bathan, 12.iv.1994, loc. 27, R. Danielsson, [1/0]; 17 km SE Zaghuan, 12.iv.1994, loc. 2, R. Danielsson, [0/1].
Distribution: Hitherto only known from Azores and Mediterranean basin.

Discussion

A common species, well represented in the material examined, characterized by the following features: rather prognathous epistoma; gena with longitudinal, strongly marked and thorn-shaped golden band; labellum long and narrow, longer than buccal cavity length;



Figs. 23–31. — 23, 24. *Tethina strobliana* (Mercier, 1923). — 23. Male genitalia, lateral view (s.b. = 0.05 mm). — 23A, B. Variability of surstylus (surstylus B of specimen from coll. Nat.hist. Mus., Wien, det. Hendel). — 24. Ditto, apex of distiphallus (s.b. = 0.03 mm). — 25–28. *Tethina longirostris* (Loew, 1865). — 25. Male genitalia, lateral view (s.b. = 0.05 mm). — 26. Ditto, variability of surstylus. — 27. Ditto, apex of distiphallus (s.b. = 0.03 mm). — 28. Ditto, egg in flattened side view (s.b. = 0.1 mm). — 29–31. *Tethina* sp. nov. B (Freidberg & Beschovski, in press). — 29. Male genitalia, lateral view. — 30. Ditto, left surstylus, caudal view. — 31. Ditto, aedeagic apparatus; [s.b. of Figs. 29–31 = 0.05 mm).

3–4 rows of acrostichal setulae; femurs strongly dark slate; hind tibia with the distal 2/3 dark brown, contrasting with both grey-yellowish fore and mid tibiae; inner postero-basal fusion between epandrium and surstylus characterized by a triangular sclerite much darker and more sclerified than in other congeneric species (Fig. 25); outline and chaetotaxy of surstylus rather variable (Figs. 25–26) with apex of surstylus widely rounded to more or less narrow and a little pointed. In the present material a male specimen stands out, for its very small size and mesonotum very scarcely setulose and with only two rows of acrostichals; hind tibia almost entirely dark brown. Its genitalia, however, are identical to those of the other larger, and more setulose individuals.

Among the specimens examined I have also found a female with the abdomen full of mature eggs. Because of the very scanty knowledge of the preimaginal stages in Tethinidae, the eggs of this specimen were taken out from the pregnant abdomen, prepared, coloured with a solution of chlorazole (Azo Black), figured (Fig. 28), and are described for the first time here: body of the egg elongate ovoid with rounded end and pointed micropyle, slightly curved and flattened at one side; surface of chorion creamy white, with longitudinal ribbings of both straight (curved side) and branching (flattened side) types.

Tethina alboguttata-group

(crossveins of wings white, cerci of female with strong lateral microspinulae)

Tethina alboguttata (Strobl, 1900)

Material examined: Tunisia: Sousse, 0–1 km Hotel Alyssa, 3.iv.1976, M. Olsson, [1/4].
Distribution: West Palaearctic (southern Mediterranean basin to Canary Islands), Afrotropical (St. Helena).

Tethina sp. nov. "B"

(This species will be described by A. Freidberg and V. Beschovski in the framework of their study on the Tethinidae from Israel).

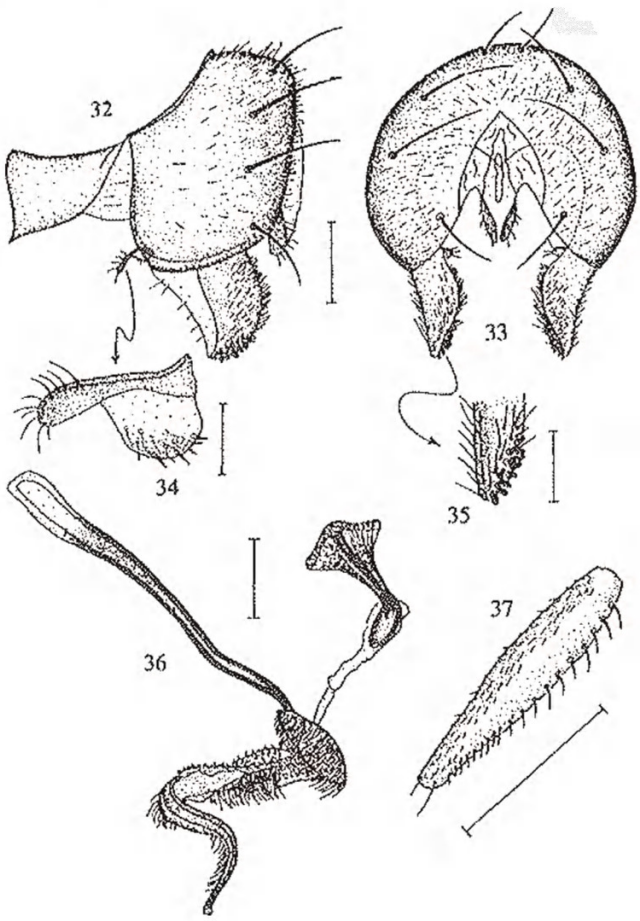
Material examined: Tunisia: 1 km E Tabarka, 9.iv.1994, loc. 5, R. Danielsson, [4/13]
Distribution: Southern Mediterranean basin. New to Tunisia.

Discussion

The examined specimens from Tunisia are very similar to those of the typical series from Israel, only differing from the latter for the scutellum extensively velvety-brown rather than marked by a dark central brown spot, for the general darker coloration of body and legs (types from Israel are paler), and for a few slight, even if consistent, differences in the outline of surstylus. These and other features compared with type material (I have examined two males and two females from Israel) can be summarized as shown in the table below,

Genitalia in both populations (Tunisia and Israel) extremely similar (Figs. 29–31).

This species is easily distinguishable from the other species of the *alboguttata*-group, having very small, scattered, and weak acrostichals, they also being extremely scarce in number to almost completely absent



Figs. 32–37. *Dasyrhicnoessa tripunctata* Sasakawa, 1974. — 32. Male genitalia, lateral view (s.b. = 0.1 mm). — 33. Ditto, caudal view (s.b. = 0.1 mm). — 34. Ditto, left anterior surstylus (s.b. = 0.025 mm). — 35. Apex of left surstylus, ventro-caudal view (s.b. = 0.025 mm). — 37. Male mid femur, antero-ventral view (s.b. = 0.5 mm).

(except for the first pair often difficult to see being very small and weak).

Material from Tunisia	Type material
Scutellum extensively brown, velvet-like	Scutellum with central brown spot
Mesonotum golden-greyish microtomentose	Mesonotum much paler, grey-whitish microtomentose
Legs yellow to reddish yellow	Legs pale yellow
Abdominal tergites brown with narrow light apical stripes	Abdominal tergites paler, brownish, with evident whitish apical stripes
Crossveins of wings not particularly clear white and without surrounding pale white halo	Crossveins of wings more manifestly white, with the presence of surrounding pale white halo

Pseudorhicnoessa spinipes Malloch, 1914

Material examined: Borneo: Sarawak, Bako Nat. Park, coastal forest clearing, at light, 26–31.xii.1978 and 1–10.i.1979, Gärdenfors and others, [7/7].
Distribution: Oriental and Australasian/Oceanian Regions.

Dasyrhicnoessa tripunctata Sasakawa, 1974

Dasyrhicnoessa phyllodes Sasakawa, 1995, syn. nov.

Material examined: Borneo: Sarawak, Bako Nat. Park, coastal forest clearing, mostly at light, 26–31.xii.1978 and 1–10.i.1979, Gärdenfors and others, [47/99].
Distribution: Oriental and Australasian/Oceanian Regions.

Discussion

A look at Sasakawa's (1995) figures illustrating the male genitalia of *D. phyllodes* from Micronesian Islands, made me suspect a possible conspecificity of this species with *D. tripunctata*, previously described from Philippines by the same author (Sasakawa 1974). Sasakawa's figures of *D. tripunctata* show a more angulate surstylus and therefore a slightly different outline. Thanks to the courtesy of Dr. N. Evenhuis and Mr. K. Arakaki (B. P. Bishop Museum, Honolulu) I have been able to examine the type material of *tripunctata* (2 males and 2 females), taking particular care of studying the genitalia of the two male specimens, one of these (holotype) with postabdominal sclerites mounted as slide preparation.

The results of this examination corroborated my first guess: both males have genitalia identical to those figured for *phyllodes*. The peculiar outline of the surstylus in *tripunctata* as figured by Sasakawa (1974) is due to anomalous flattening and twisting of the piece caused by the cover glass compression. Consequently, Sasakawa's (1974) drawings of this sclerite also reproduce the misleading artificial condition.

According to these observations, *Dasyrhicnoessa phyllodes* Sasakawa, 1995 is to be regarded as a junior synonym of *D. tripunctata* Sasakawa, 1974. The latter is abundant in the examined material from Borneo and easily distinguishable from congeners particularly for its characteristic black spotted abdomen.

Dasyrhicnoessa vockerothi Hardy & Delfinado, 1980

Material examined: Sri Lanka: Kadaimparu, 15 mls N Negombo, loc. 36, at shore of lagoon, 31.i.1962, (Lund University Ceylon Expedition 1962, Brinck-Andersson-Cederholm), [0/3, cf. *vockerothi*]; Borneo: Sarawak, Bako Nat. Park, coastal forest clearing, at light, 1–10.i.1979, Gärdenfors et al. [1/0].
Distribution: Widely distributed throughout Indo-Pacific areal, from Seychelles to Japan (Ryukyus) and Pacific islands.

Discussion

After re-examining specimens from Hawaii (one paratype), Malaya, Borneo, Aldabra and the Seychelles

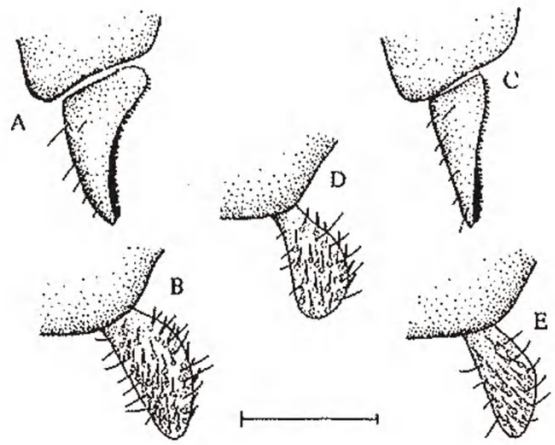


Fig. 38. *Dasyrhicnoessa vockerothi* Hardy & Delfinado, 1980. Variability of surstylus. Male posterior surstylus, caudal (A, C) and lateral view (B, D, E). — A, B = Morphological pattern of specimens from Aldabra. — C–E = Morphological patterns of specimens from Hawaii (paratype) and Borneo; s.b. = 0.1 mm.

of this taxon, I am now able to give a better definition of the limits of the morphological variability within this species, especially as far as male genitalia are concerned.

The posterior surstylus in specimens of the westernmost populations (Seychelles and Aldabra), already described as *D. occidentalis* Munari, 1986, shows a much larger inner-caudal protrusion with respect to that in specimens from both Indonesian and Pacific localities (Figs. 38A, C). Also, the number and size of the spinulae on the inner side of the posterior surstylus and the shape of this sclerite (in lateral view), is rather variable (Figs. 38B, D, E).

Furthermore, the composite morphological pattern of the anterior surstylus is basically the same in both the eastern and western populations even though it is shorter and more stumpy in the latter.

The possibility of resurrecting (perhaps with subspecific rank) the taxon *occidentalis* Munari, 1986, which I myself considered as a junior synonym of Hardy & Delfinado's species (Munari 1990), will be taken into account when further material from the Bay of Bengal and West Indonesian coasts is available for examination. As a matter of fact the above-mentioned area (from India to Indonesia), from a biogeographical point of view, would have to be considered as a threshold effect area between the populations of tethinid flies inhabiting the coastal environments of the Indian Ocean and those of the West Pacific. In other words, the race occurring in the eastern littorals of Afrotropical Region could be regarded as the western vicariant "form" of *D. vockerothi* Hardy & Delfinado, 1980.

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