REICHENBACHIA

Staatliches Museum für Tierkunde Dresden

Band 32 Ausgegeben: 30. Juli 1997 Nr. 23

Contribution to the study of the Tethinidae species from the East Mediterranean region, with description of two new species (Insecta: Diptera: Tethinidae)

With 8 Figures

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Abstract. Ten Tethinidae species from the East Mediterranean region are recorded, belonging to two genera: *Tethina* and *Rhicnoessa*. Two new taxa are described: *Tethina flavoidea* spec. nov., and *T. nigrofemorata* spec. nov. Four species are new for the Asian Mediterranean coasts: *Tethina albosetulosa* (STROBL), *T. strobliana* (MERCIER), *T. pallipes* (LOEW) and *Rhicnoessa grisea* (FALL.).

Introduction

Publications on the East Mediterranean Tethinidae fauna and especially on the fauna of Asian Mediterranean sea-shores are very scarce. Totally, eleven species are known from this region at the present: *Tethina longirostris* (LOEW, 1865) (Egypt: HENDEL, 1934), *T. incisuralis* (MACQUART, 1851) (= *Rh. pictipes* BECKER, 1903) (Egypt and Syria: HENDEL, 1934), *T. nigripes* CZERNY, 1928 (Syria: HENDEL, 1934), *T. ochracea* (HENDEL, 1913) (= *T. canzonerii* MUNARI, 1981) (Asia Minor: MUNARI, 1981, 1990), *T. czernyi* (HENDEL, 1934) (Asia Minor: HENDEL, 1934); *T. karatasensis* MUNARI, 1981 (Asia Minor: MUNARI, 1981); *T. mima* MUNARI, 1996 (Greece, Rhodos: MUNARI, 1996); the next four species are described as new taxa by FREIDBERG & BESCHOVSKI (1996): *Tethina acrostichalis* (Israel), *T. guttata* (Israel, Egypt), *T. quadricephala* (Egypt), *T. shalom* (Israel).

The present investigation gives new data on the Tethinidae fauna of the Mediterranean Region.

Material and methods

The present paper has resulted from an investigation on part of a tethinid collection from Israel deposited in the Zoological Museum, Tel Aviv University, augmented by specimens from the National Museum of Natural History (Smithsonian Institution), Washington D.C. Some undetermined or misidentified Mediterranean specimens from the Hungarian Natural History Museum, Budapest are included too. The investigated specimens are collected chiefly in the East Mediterranean Region, especially from Israel and adjacent territory. Separate specimens from several species from the West Mediterranean region are included too. Known taxonomic methods are used for investigation and description of the material.

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The examined material belongs to two genera: *Tethina* and *Rhicnoessa.* Two new species are described and illustrated. The type specimens and the resting tethinid material are deposited in the Entomological collection of Tel Aviv University (TAU). Paratypes are also deposited in the National Museum of Natural History, Washington (NMW).

Results and discussion

I. Genus ***Tethina*** HALIDAY, 1839

Group *albosetulosa:*
Tethina species with one propleural hair above the first coxa

1. ***Tethina albosetulosa*** (STROBL, 1900)

Material examined. All phenotypes (MUNARI & CANZONERI, 1992) are represented in the material studied. ISRAEL: Rosh Haniqra, 3. VI. 1982, 1 ♀. Herzliyya, 23. IX. 1979, 5 ♂♂, 5 ♀♀; Ziqim, 29. II. 1984, 1 ♂, 2 ♀♀; Shave Ziyyon, 25. IV 1976, 1 ♀; 25. IX. 1976, 2 ♂♂; Akhziv, 9. VIII. 1982, 1 ♀. SINAI: Dahab, 23. V 1981, 1 ♀; 5. IX. 1976, 1 ♀. LEBANON: Zaharani, Spill, 19. VI. 1982, 1 ♂, 1 ♀. Coll. A. Freidberg, I. Yarom, Hadar (TAU).

An Euro-Mediterranean species distributed along the Mediterranean sea shore, Atlantic coast of Europe and Senegal (Africa). New data: Asia – Israel, Lebanon.

Group *czernyi:*
Tethina species with 2 hairs above first coxa

2. ***Tethina czernyi*** (HENDEL, 1934)

Material examined. ISRAEL: Akko, 29. III. 1971, 1 ♂, 1 ♀, leg. A. Freidberg (TAU), 31. III. 1980, 9 ♂♂, 12 ♀♀, leg. W. Mathis (NMW). EGYPT: Nahal Yam (Sinai, near El Arish), 3. II. 1973, 1 ♀, leg. A. Freidberg (TAU).

A Euro-Mediterranean species distributed from North and East Sea coasts through Germany, Hungary, Bulgaria, Transcaspia to Asia Minor. New data: Israel, Egypt.

Taxonomic notes. The face is produced, resembling *T. longirostris;* the colour of legs varies, femora are brownish, the end part of 3rd tibia is sometimes brown as by *T. incisuralis* (MACQ.). *T. czernyi* is distinguished very well by the following external characters: head shorter than high; gena very high, about $^1/_3$ of eye height, and 1.5 times as wide as the 3rd antennal joint. Acrostichals are always biseriate, only some specimens have separate acrostichals lateral to the median rows. Epandrium with large surstyli almost rhomboidal (BESCHOVSKI, 1993, 1994).

3. ***Tethina flavoidea*** **spec. nov.** (Figs. 1–4)

Material examined. ISRAEL: Holotype, male, En Avedat, 29. III. 1980, leg. Mathis & Freidberg. Paratypes: 17 ♂♂, 7 ♀♀, same data as holotype; Nahal Qumeran (near Qalya), 20. III. 1980, 13 ♂♂, 10 ♀♀, leg. A. Freidberg & W. Mathis (TAU), 31. III. 1980, 1 ♂, 1 ♀, leg. W. Mathis. SINAI: Quseima, 24. V 1981, 1 ♂, 3 ♀♀, leg. W. Mathis; 'En Mur, 31. III. 1981, 2 ♂♂, leg. F. Kaplan; Qalya, 3. III. 1981, 5 ♂ ♂, leg. F. Kaplan, 8. III. 1976, 3 ♀♀, leg. A. Freidberg. Material is deposited in NMW and TAU.

Diagnosis. Labellum long, yellow, legs yellow, only the distal part of 3rd femora and the 5th joint of all tarsi brown.

Description. Male. Head slightly higher than long (Fig. 1), antennae yellow, arista brown-yellow, 3rd antennal joint sometimes brownish around the arista, almost as high as gena. Frons orange, lightly narrowed forward, only ocellar triangle grey dusted. Face projected forward before facial callus. Eye large, oval, gena narrow, about $^1/_3$ as high as eye, with large shining stripe; vibrissa and the first peristomal bristle strong, brownish, the last peristomals smaller and paler. Rostrum brown, labellum and palpi long, yellow and slender. Chaetotaxy conform with that of the genus.
Thorax yellow grey dusted. Chaetotaxy conform with that of the genus, black. Acrostichals in 2 complete and outside of them 2 incomplete rows, intraalars 1–2-seriated. Wing yellowish, the last cubital section and *ta-tp* each twice as long as *tp*. Legs predominantly yellow, with more or less grey dusted femora especially on the apical half of third femora; all tarsi yellow, only the 5th tarsal joints black-brown.
Abdomen brown, grey dusted, tergites with narrow light apical band. Male genitalia (Figs. 2–4) with long lateroventral bristles on the epandrium, large surstyli with arch-like hind margin, small basiphallus and clearly visible gonites in hypandrial complex. Length: 2.1–2.5 mm.
Female similar to male. Head as high as long, often higher. Acrostichals in 3–4 rows. Length: 2.3–3.2 mm.

An East Mediterranean species, presently known from Israel and Sinai.

Taxonomic notes. *T. flavoidea* spec. nov. is very similar to *T. strobliana* (MERCIER), clearly distinguished from it by the colour of legs and shape of male genitalia. The male genitalia are similar to those of *T. longirostris* (LOEW), but *T. flavoidea* has short head and yellow labellum. The yellow legs are similar to those of *T. pallipes* (LOEW), but the latter species has genitalia very similar to *T. strobliana,* with elongated surstyli (BESCHOVSKI, 1993, 1994).

4. ***Tethina longirostris*** (LOEW, 1865)

Material examined. ISRAEL: Haifa, 31. III. 1980, 2 ♂♂, 1 ♀, leg. W Mathis (NMW); 'En Besor, 31. III. 1975, 1 ♀, leg. F. Kaplan (TAU).

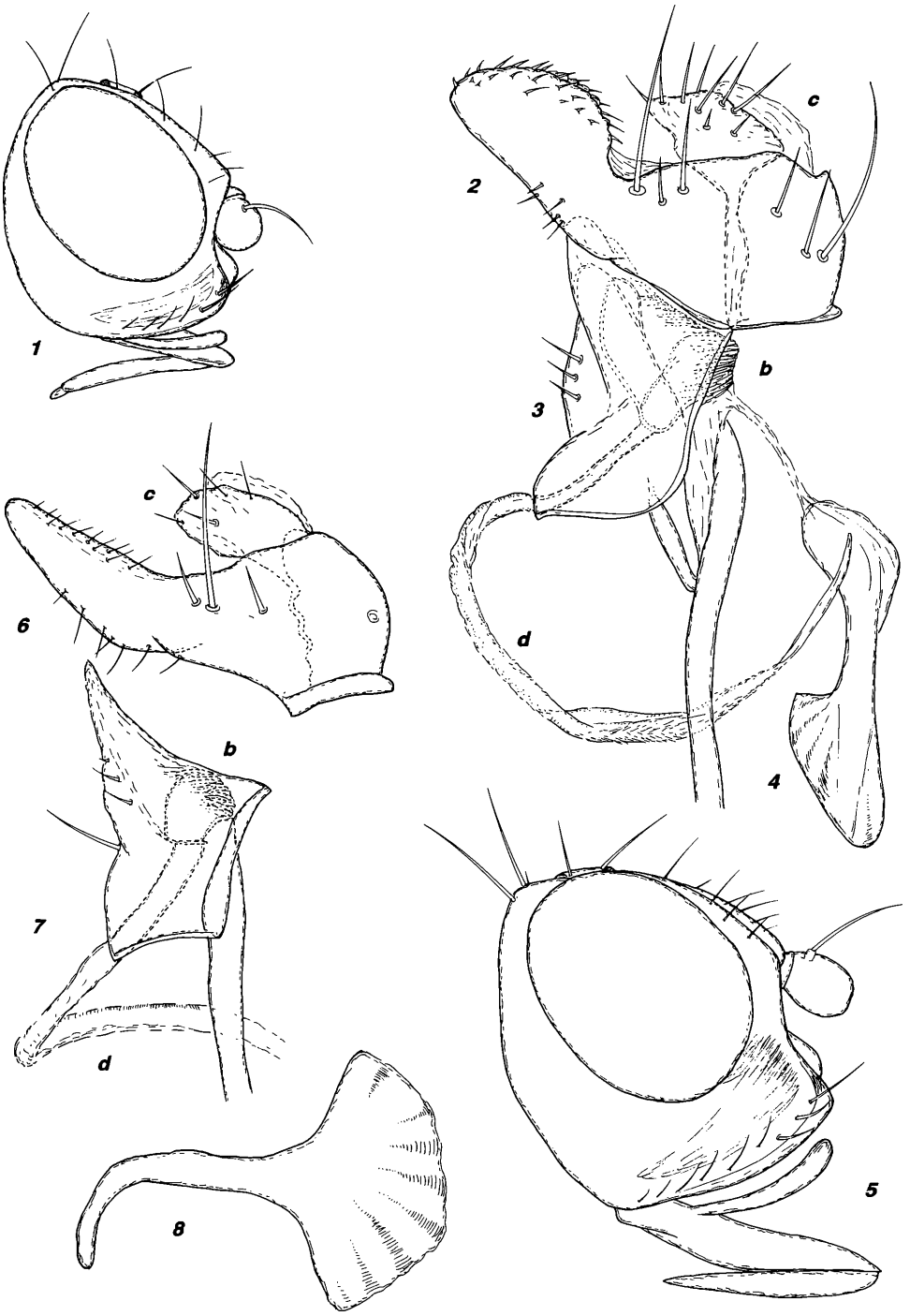
A Mediterranean species, known from: Europe: Spain, Italy and penetrating in the North to Great Britain; North Africa: Tunisia, Egypt. New region: Asia: Israel.

Taxonomic notes. The length of the head is slightly longer than or almost equal to height of head, but proboscis is longer than head; male genitalia of the investigated specimens have comparatively smaller epandrium and basiphallus and enlarged surstyli.

5. ***Tethina nigrofemorata*** **spec. nov.** (Figs. 5–8)

Material examined. ISRAEL: Holotype, male, Nahal Yam, 3. II. 1973, leg. A. Freidberg. Paratypes: 10 ♂♂, 14 ♀♀, same locality and data as holotype; Qalya, 13. II. 1975, 1 ♂, leg. F. Kaplan, 8. III. 1976, 1 ♂, leg. F. Kaplan; Herzliyya, 25. III. 1980, 10 ♂♂, 3 ♀♀, leg. Mathis & Freidberg; Nahal Qumeran (near Qalya), 20. III. 1980, 3 ♂♂, 3 ♀♀, leg. A. Freidberg & W. Mathis; Migdal Zedek (near Rosh ha´Ayin), 24. III. 1980, 1 ♂, leg. A. Freidberg & W Mathis; Yeriho, 20. III. 1980, 1 ♂, leg. W. Mathis & A. Freidberg; Tel Aviv, 18. III. 1974, 2 ♂♂, leg. A. Freidberg; Tel Aviv, Dunes, 8. IV 1981, 1 ♂, 1 ♀, leg. A. Freidberg; Nahal Sekher, 5. IV 1988, 1 ♀, leg. F. Kaplan. In NMW
Other material studied from the Hungarian Natural History Museum, Budapest: NORTH AFRICA: 1 ♂, 1 ♀, labelled: „Teneriffe, Th. Becker, Rhicnoessa cinerea Lw., dt. Becker"; 1 ♂ with the same data but labelled „Rhicnoessa sp. ? det. Becker", and 3 ♂♂: "Teneriffe, Th. Becker" SPAIN: 1 ♂, labelled: „Südspanien, Prof. G. Strobl, Rhicnoessa cinerea Loew, Alicante"

Diagnosis. Facial keel clearly produced before facial callus, all femora brown-black, mid tibia always yellow, fore and hind tibiae more or less brown in apical half.



Figs. 1–4: *Tethina flavoidea* spec. nov.; Figs. 5–8: *Tethina nigrofemorata* spec. nov.
1,5 – head from right; 2,6 – epandrium with surstyli; 3,7 – hypandrial complex; 4,8 – ejaculatory apodeme. b – basiphallus; c – cerci; d – distiphallus.

Description. Male. Head (similar to Fig. 5) in profile with face produced before facial callus to be vertically before the middle of the 3rd antennal joint. Gena wide, about $^1/_3$ as high as eye and 1.5 times higher than 3th antennal joint, with wide shining stripe, peristomal bristles brown; vibrissa brown. Antennae yellow, arista brown. Frons slightly narrowed forward. Proboscis brown, labellum yellow, shorter than mouth edge, palpi slender, long, yellow.
Thorax uniformly grey dusted. Acrostichals with 2 full median rows and two incomplete lateral rows. Scutellum grey, in the middle slightly brownish. Legs: Coxae yellowish, femora dark, grey dusted, trochanters yellow, mid tibiae yellow, the other tibiae more or less brown-black in the apical part, tarsi predominantly yellow, last two joints black-brown. Wings colourless, veins yellow, apical part of *Cu* twice as long as *tp*.
Abdomen brownish, grey dusted, with wide yellow hind margins. Male genitalia (Figs. 6–8) with comparatively small epandrium, and long bristles on its upper part, large hemispheric cerci, tapering surstyli, small basiphallus and very large ejaculatory apodeme. Body length: 2.2 mm.
Female. Gena higher than in male (Fig. 5), about 2 times wider than 3rd antennal joint and about one half of eye. Acrostichals in 2–5 rows. Tibiae yellow-brownish, female genitalia with brown, short cerci. Length: 2.3–2.75 mm.

Probably circummediterranean species, known from Israel, the Canary Islands, and southern Spain.

Taxonomic notes. The male genitalia of *T. nigrofemorata* spec. nov. resemble those of *T. flavigenis* (HENDEL) and *T. incisuralis* (MACQ.), but clearly differ by having the surstyli directed backward and downward (those of *T. flavigenis* are directed downward), and slightly tapering (those of *T. incisuralis* are widened in the apical half) (BESCHOVSKI, 1993, 1994).

6. ***Tethina incisuralis*** (MACQUART, 1851)

Material examined. ISRAEL: Qalya, 13.II.1975, 2 ♂♂, 25.II.1975, 2 ♀♀; Elot, 26.IV 1974, 2 ♂♂, 1 ♀, 6.IV.1973, 1 ♂; Nahal Sekher, 5.IV 1988, 2 ♂♂, 1 ♀; Nahal Hiyyon, 17.III.1988, 1 ♂, 1 ♀; Tel Aviv, 1.V 1973, 1 ♂; Zomet Lehavim, 5.IV 1988, 1 ♀. Collectors: A. Freidberg ♀ F. Kaplan; in TAU. Nahal Qumeran (nr. Qalya), 2.III.1980, 4 ♂♂, 8 ♀♀; Nahal 'Iddan, 22.III.1980, 3 ♂♂, 3 ♀♀; En Avedat, 29.III.1980, 1 ♂, 2 ♀♀; Makhtesh Ramon, 23.III.1980, 1 ♀; Haifa, 31.III.1980, 1 ♀; En Aqrabbim, 22.III.1980, 1 ♀; Elot, 22.III.1980, 1 ♀. Coll.: W. Mathis & A. Freidberg; in NMW. EGYPT: Sinai, Firan, 9.IV.1973, 1 ♂; Nahal Yam, 3.II.1973, 2 ♂♂, 2 ♀♀. N. Sinai, Quseima, 24.V.1981, 3 ♀♀. In NMW.

A circummediterranean species known from North Africa: Egypt, Tunisia, Algeria; Europe: Spain and in the north penetrating to Great Britain (SOÓS, 1984); Asia: Syria. New data: Israel.

Taxonomic notes. Gena about one third as high as eye, with wide shining band. Acrostichals 2–4-seriated: 2 full median rows and 2 incomplete lateral rows. Legs with brownish fore and hind femora and yellow mid femora, tibiae and first 3 tarsal joints; hind tibia in apical $^1/_3$–$^1/_4$ with brown-black band. Epandrium large, with a long and strong bristle on the lower part, and yellow, narrow surstyli, lightly widened in the distal half. Body length: 2.4 mm.

7. ***Tethina pallipes*** (LOEW, 1865)

Material examined: ISRAEL: Ein Arus, 11.04.1963, 1 ♂, leg. Margalit. Type material from the Entomological collection of the Zoological Institute of the Humboldt Universität, Berlin: 1 ♂ (holotype), without abdomen, and 1 ♀, headless, both labelled: "Griechenland, H. Loew S."

A circummediterranean species, known from Greece, the Azores, Canary Isl. and Bulgarian Black Sea coast. New data: Israel.

Taxonomic notes. The both type specimens of *T. pallipes* are not yellow coloured, as COLLIN (1966) writes. The face is not so clear produced before the facial callus. Unfortunately, the male holo-

type is without abdomen, and there is no possibility to know the true male genitalia of *T. pallipes*. The male genitalia of the species presented by me belong to specimens from Bulgaria (BESCHOVSKI, 1993, 1994), and they are similar to those from Israel.

8. ***Tethina strobliana*** (MERCIER, 1923)

Material examined. ISRAEL: Jeriho, 20. III. 1980, 1 ♂, leg. Mathis & Freidberg (NMW), 31. III. 1980, 1 ♀, leg. Mathis & Freidberg (NMW).

An Euromediterranean species, distributed in Spain, France, Germany, Italy (Sicily), Poland (Soós, 1984); N. Africa: Tunisia. New data: Asia: Israel.

Taxonomic notes. The face is produced not more than to the middle of third antennal joint; proboscis short; achrostichals in 4 complete rows.

9. ***Tethina ochracea*** (HENDEL, 1913)

Material examined. ISRAEL: N. Sinai, Quseima, 24. V 1981, 1 ♂, 2 ♀♀; Herzliyya, 26. V 1981, 1 ♀; Nahal 'Iddan, 22. III. 1980, 1 ♀. Coll.: W. Mathis & A. Freidberg (NMW). N. AFRICA (Tunisia): 2 ♂♂, 2 ♀♀, Sfax, Biro, 7. III. 1903; 1 ♀, same data as the last but determined „Rhicnoessa pallipes Loew, det. Becker". EUROPE (Spain): 1 ♂, "Andalusia, Rhicnoessa cinerea Loew, coll. Thalham". In NMW.

A Palaeotropic-mediterranean species, known from Afrotropical and Oriental region, penetrating through the Mediterranean region to the Balkan Peninsula.

Taxonomic notes. Head higher than long (7:5). Face almost flat, facial callus produced on the same level as the face. Genae wide, 1.5 times wider than third antennal joint in the male, and 2 times in the female, $^1/_3$ as high as eye in the male and about half as high as eye in the female, with elongated, large triangular shining band. Rostrum brownish, not extending before peristome. Legs predominantly yellow, only femora on the upper side brown-grey and last two tarsal joints brown. Wings yellow, transparent, with comparatively long discoidal cell, *ta-tp* = 3 times of *tp;* last section of cubital vein twice as long as *tp*.

II. Genus ***Rhicnoessa*** LOEW, 1862

10. ***Rhicnoessa grisea*** (FALLÉN, 1832)

Material examined. ISRAEL: Ziqim, 29. II. 1981, 6 ♂♂, 5 ♀♀, coll. A. Freidberg (TAU).

Taxonomic notes. The specimens agree well with a previous description (COLLIN, 1966). Epandrium slightly lower than in European specimens, but the shape of basiphallus is very similar to that of European specimens.

An atlantomediterranean species, distributed from the Canary Isl. along the Atlantic coast of Europe to Great Britain, Sweden. N. Africa: Tunisia. New data: Asia, Israel.

Zoogeographic review of the species

The established 17 species in the East mediterranean region belong to 6 zoogeographic groups.

I. Palaeotropic-Palaearctic – 1 species: *T. ochracea.*
II. Euromediterranean – 3 species: *T. albosetulosa, T. czernyi, T. strobliana.*

III. Circummediterranean – 4 species: *T. longirostris, T. incisuralis, T. nigrofemorata* spec. nov., *T. pallipes.*
IV Atlantomediterranean – 1 species: *Rh. grisea.*
V South Mediterranean – 1 species: *T. guttata.*
VI. East Mediterranean – 7 species: *T. flavoidea* spec. nov., *T. mima, T. nigripes, T. karatasensis, T. acrostichalis, T. quadricephala,* and *T. shalom* (endemic for the present).

According to the recent ranges, *T. ochracea* is palaeotropic by the origin, penetrating in the south part of Palaearctic region. All others are Palaearctic, especially mediterranean by the origin. Some of them have penetrated more or less northward along the sea coasts, with limited populations on sandy or salty biotopes. The East Mediterranean group is the most numerous, including almost the endemic (for the present) species. This fact determined the East Mediterranean area as a region of speciation or better preservation of the species diversity of the tethinids.

Acknowledgements

I am very grateful to Dr. A. FREIDBERG, Tel Aviv University, and Dr. W.N. MATHIS, Smithsonian Institution, Washington D.C., for the material kindly sent to me for investigation, and especially to Dr. FREIDBERG for the corrections of the manuscript.

References

BESCHOVSKI, V (1993): Taxonomic and systematic notes on the genera *Tethina* HALIDAY, 1838, and *Rhicnoessa* LOEW, 1862 (Insecta: Diptera: Chloropidae). – Reichenbachia Mus. Tierkd. Dresden **30,** Nr. 16: 103–107.

BESCHOVSKI, V (1994): Contribution to the study of the west Palaearctic Tethinidae (Diptera). – Acta zoologica bulgarica **47:** 16–29.

FREIDBERG, A. & V BESCHOVSKI (1996): A new species group within *Tethina* HALIDAY (Diptera: Tethinidae) with description of six new Mediterranean species. – Israel Journal of Entomology **XXXX:** 91–130.

COLLIN, J.E. (1966): A revision of the Palaearctic species of Tethina and Rhicnoessa. – Boll. Mus. civ. St. nat. (formerly Boll. Mus. Civ.) Venezia **16:** 19–32.

HENDEL, F. (1934): Revision der Tethiniden (Dipt., Muscid. acal.). – Tijdschrift v. Entomologie **77:** 37–54.

MUNARI, L. (1981): Tre nuove *Tethina* HALIDAY raccolte dal Prof. A. Giordani SOIKA in Asia Minore e Senegal (Diptera, Tethinidae). – Boll. Mus civ. St. nat. (formerly Boll. Mus. Civ.) Venezia **31:** 139–144.

MUNARI, L. (1990): Contributo alla conoscenza dei Tethinidae Afrotropicali. IV Tethinidae raccolti ad Aldabra dalla "Aldabra Atoll Royal Society Expedition (1967–68)" e nel Sud Africa da R.E. TURNER, E.B. & P. STUCKENBERG, con descrizione di due nuove specie (Diptera, Acalyptratae). – Lavori Soc. Ven. Sc. Nat. **15:** 51–68.

MUNARI, L. (1996): Tethinidae (Diptera) in the Museum of Zoology, Lund University. – Strobaeana **6:** 1–11.

MUNARI, L. & S. CANZONERI (1992): Polimorfismo postaddominale e variabilita chetocromatica in *Tethina (Tethina) albosetulosa* (STROBL, 1900) con proposta di alcune nuove sinonimie e descrizione di *Tethina (Tethina) inopinata* sp. nov. (Diptera, Tethinidae). – Lavori Soc. Ven. Sc. Nat. **17:** 25–40.

SOÓS, A. (1984): Family Tethinidae. In: SOÓS, A., Catalogue of Palaearctic Diptera, Vol. **10,** 402 pp. Academiai Kiado, Budapest. (Tethinidae: 107–110).

(Received on 27. I. 1997)