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New species of the Miridae and Lygaeidae (Heteroptera) from the Middle East

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The article contains descriptions of the following new taxa: Miridae: *Heterocordylus nausikaa* sp.n. from Israel, *Hyoidea hermione* sp.n. from Israel, *Atomophora bast* sp.n. from Israel, *Asthenarius melpomene* sp.n. from Iraq, *Chlamydatus penthesileia* sp.n. from Israel, *Campylomma kalliope* sp.n. from Israel; Lygaeidae: *Lasiosomus terpsikhore* sp.n. from Israel.

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Index words: Heteroptera, Miridae, Lygaeidae, Middle East, new species, taxonomy

New species of the Miridae

***Heterocordylus (Bothrocranum) nausikaa* sp.n.**
Fig. 2e–j.

Length ♂ 4.5–4.75 mm, ♀ 3.75 mm. Shiny. Black. Vertex with small pale spot close to each eye. Eyes reddish. Antennae in ♂ black with 1st joint dark yellow-brown, in ♀ black with 1st joint and basal two-thirds of 2nd yellow-brown. Legs yellow-brown, in ♂ darker than in ♀, tarsi blackish.

Hair covering black and dense, whitish scale-like hairs also present. Rostrum extending to apex of mesosternum. ♂: Body parallel-sided. Head 0.67–0.68 × as broad as pronotum, finely and densely striated; ocular index 2.16. Proportions between antennal joints 8:27:13:8, 1st joint 0.59 × as long as synthlipsis, 2nd joint slender, slightly broadening apicad, 1.04–1.08 × as long as diatone. Pronotum 1.73–1.77 × as broad as long in middle, disk moderately convex, densely transversely striated. Scutellum subopaque, densely rugose. Elytra much longer than abdomen, costal margins parallel, clavus and corium subopaque, densely rugose. ♀: Subopaque. Body broadening caudad, broadest at apex of corium. Head 0.79 × as broad as pronotum, finely striated; ocular index 2.4. Proportions between antennal joints 7:25:14:9, 1st joint 0.47 × as long as synthlipsis, 2nd joint moderately broadening apicad, 0.91 × as long as diatone. Pronotum 1.7 × as broad as long in middle, disk convex, densely rugose. Scutellum densely rugose. Elytra as long as abdomen, costal margins basally subparallel, apically diverging caudad.

Male genitalia in Fig. 2e–j. Right style: margin of sensory lobe recurved mesad and provided with 6 strong teeth; hypophysis ending in an apical tooth, inner surface with 2–3 small teeth. Left style: sensory lobe broadish, with several marginal teeth; hypophysis slender, digitate. Structure of vesical appendages not seen in specimens studied.

Biology. Swept from macchia vegetation in the *Quercus* zone in Mt. Meron and the Judean Hills. The related species, *H. erythrophthalmus* and *H. carbonellus* live on *Rhamnus*.

Comparative notes. Closely related to *H. carbonellus* Seidenstücker (known from Turkey; an apparently incorrect record from Israel in Wagner 1973:125). In *H. carbonellus* the male is smaller, length 3.8–4.6 mm, the antennae are shorter, 2nd joint in ♂ 0.95–1.0 ×, in ♀ 0.83–0.86 × as long as diatone, and basally pale in both sexes, and the legs are bright orange. Male genitalia: Right style (Fig. 2a–b): margin of sensory lobe with two strong teeth, inner surface of hypophysis with a transverse row of 4 conical teeth. Left style (Fig. 2c–d): sensory lobe much narrower, apex provided with a group of several teeth.

Etymology: Greek mythology. Nausikaa, daughter of Alkinoos, a character in the Odyssey.

Material. Holotype ♂ and 1♀ paratype: Israel, Upper Galilee, Mt. Meron, 6.V.1986; 1♂ paratype: Israel, Jerusalem District, Jad Hashmona near Qiryat Anavim, 15–17.V.1986, Linnavuori. Types in coll. Linnavuori.

Key to the species of the subgenus *Bothrocranum* Reuter

1 (2) Rostrum extending only slightly beyond fore coxae. Vertex in ♂ nearly twice as broad as eye..... .....*pectoralis* Wagner (Egypt)

2 (1) Rostrum extending to apex of mesosternum. Ocular index >2.0 3

3 (4) Eyes small, ocular index 2.2–2.3 in ♂, 2.5–2.8 in ♀. Antennae long, 2nd joint 1.25 (♂) or 1.16 (♀) × as long as diatone, gracile. Microsculpturing of pronotum relatively weak and sparse. Styles (Fig. 1a–b) with long, horn-like basal tooth..... ..... *erythrophthalmus* (Hahn) (Holomediterranean)

4 (3) Eyes larger. Antennae shorter, 2nd joint thicker, broadening apicad. Styles different 5

5 (6) 2nd antennal joint with pale base in both sexes, in ♂ 0.95–1.0, in ♀ 0.83–0.86 × as long as diatone. Styles in Fig. 2a–d..*carbonellus* Seidenstücker (Turkey)

6 (5) 2nd antennal joint in ♂ uniformly black, in ♀ with pale base, in ♂ 1.04–1.08, in ♀ 0.91 × as long as diatone. Styles in Fig. 2e–j.....*nausikaa* sp.n.

Hyoidea hermione sp.n.
Figs. 2k–s.

Length ♂ 4.5–4.75 mm, ♀ 5.25 mm. Pale grayish or grayish ochraceous. Head and pronotum with black pattern as in the related species. Eyes grayish brown. Antennae in ♂ black, in ♀ blackish with basal two-thirds of 2nd joint yellow-brown or dark reddish brown. Pronotum and elytra with minute fuscous dots, dotting on pronotum dense, on elytra sparse. Scutellum slightly embrowned. Membrane of elytra brownish smoky. Dorsum of abdomen and under surface ochraceous. Legs dark yellowish brown, femora with dark spots.

Resembling *H. horvathi* Montandon. Body relatively small, parallel-sided. Hair covering adpressed, pale, scale-like. Ocular index in ♂ 2.19–2.57, in ♀ 2.70–3.03. Proportions between antennal joints 12:39:17:10 (♂), 11:35:16:10 (♀), 1st joint in ♂ 0.75–0.90, in ♀ 0.60–0.67 × as long as synthlipsis, 2nd joint in ♂ 1.07–1.22, in ♀ 0.90–0.97 × as long as basal width of pronotum. Rostrum extending to near middle coxae.

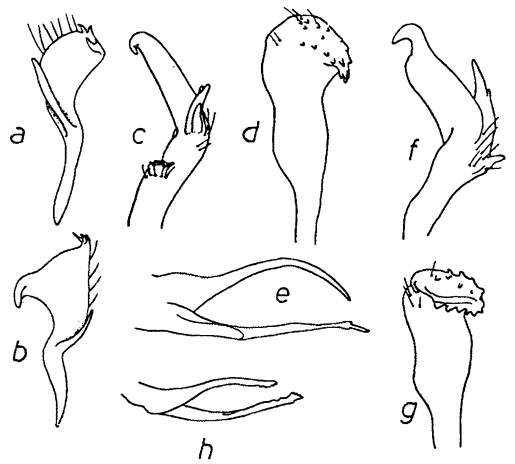

Fig. 1. — *Heterocordylus erythrophthalmus* (Hahn): a) right style; b) left style. — *Hyoidea lindbergi* Hoberlandt: c) left style; d) right style; e) vesical appendages. — *H. horvathi* Montandon: f) left style; g) right style; h) vesical appendages. — After Wagner 1973 and Hoberlandt 1963.

Pronotum about 1.80–1.95 × as broad as long in middle, lateral margins slightly insinuated; disk flattish, finely rugose. Elytra in ♂ much longer than abdomen, in ♀ extending to posterior margin of 7th tergite.

Male genitalia in Figs. 2k–s. Right style more gracile than in *H. horvathi*. Left style: hypophysis long and slender; sensory lobe: upper process tridentate, lower process directed upward, parallel to lateral margin of style. Two vesical appendages, which are distinctly dentate apically.

Biology: On *Ephedra campylopoda* in sandy habitats.

Etymology: Greek mythology. Hermione, one of the Tantalids, daughter of Menelaos and Helena.

Material. Holotype ♂ and several paratypes: Israel, Southern District, 17 km S of Be'er Sheva 27.IV.1986; several paratypes: Israel, Nahal Ze'elim, 26.IV.1986, Linnavuori. Types in coll. Linnavuori, two paratypes in Mus. Helsinki.

The genus *Hyoidea* Reuter was revised by Hoberlandt (1963). *H. hermione* is derivative of the *horvathi* stock, of which two species have hitherto been described: *H. horvathi* Montandon (Oran) and *H. lindbergi* Hoberlandt (Morocco, type locality: Reraia Valley near Asni). *H. hermione* resembles *H. horvathi*, but is readily distinguished by the dark dotting on the upper surface. Male genitalia of *H. horvathi* in Figs. 1f–h, 3a–c. Right style robust. Left style: hypophysis

Fig. 2. — *Heterocordylus carbonellus* Seidenstücker: a) right style; b) processes of sensory lobe of right style; c) left style; d) apex of sensory lobe of left style. — *H. nausikaa* sp.n.: e) right style; f) apex of hypophysis of right style (of another specimen); g–h) teeth of sensory lobe of right style in two views; i) left style; j) apex of sensory lobe of left style. — *Hyoidea hermione* sp.n.: k–m) right style in different views; n–p) left style in different views; q) lower process of sensory lobe of left style; r–s) vesical appendages of two specimens.

shortish and broad; sensory lobe: upper process bidentate, lower process short, directed laterad. In *H. lindbergi* (only females are known to me) the body is robuster. The posterior part of the pronotum is more convex and more strongly rugose. The scutellum is reddish and the elytra are considerably longer and extend to the posterior margin of the 8th tergite or to the 9th tergite. The male genitalia in Fig. 1c–e.

Besides *H. hermione*, another species of the genus, *H. kerzhneri* Hoberlandt, also occurs in Israel (locality: Jerusalem District, Jad Hashmona near Qiryat Anavim, 15–17.V.1986, Linnavuori, 1♂ from *Ephedra campylopoda*), having spread from the north (range: Turkey, Caucasia, Central Asia). The male genitalia are illustrated in Fig. 3d–k. The species does have three vesical appendages (only two mentioned in the original description by Hoberlandt, 1963).

***Atomophora bast* sp.n.**
Figs. 3l, 4.

Length 3 mm. Yellowish gray with slight greenish tinge. Eyes gray. Frons with traces of dark lateral arcs. Antennae yellow, 1st joint with faint incomplete dark apical ring. Pronotum with faint pale midline continuing on to scutellum; basal part of pronotum ornamented with small faint dark dots. Clavus, corium and cuneus with dense fuscous dotting, each dot provided with a pale hair, inner apical angle of corium with conspicuous black spot; membrane white, veins pale orange. Legs yellow-brown, under surfaces of femora with brown spots. Tibiae with very small brown setigerous spots, setae pale.

Body small, parallel-sided. Hair covering on upper surface pale, longish. Head 0.63–0.67 × as broad as

Fig. 3. — *Hyoidea horvathi* Montandon: a–b) left style; c) vesical appendages. — *H. kerzhneri* Hoberlandt (specimen from Jad Hashmona): d–f) right style; g–i) left style; j) vesical appendages; k) median vesical appendage in broad aspect. — *Atomophora bast* sp.n.: l) claw. — *Chlamydatus penthesileia* sp.n.: m) head and pronotum; n) head in lateral view; o) claw; p) right style; q) theca.

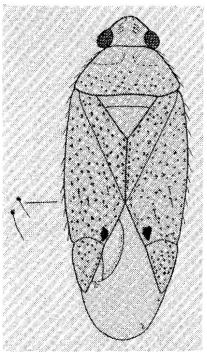

Fig. 4. *Atomophora bast* sp.n.

basal width of pronotum. Eyes small, ocular index 2.21–2.47. Antennae long, proportions between joints 12:48:34:21, 2nd joint 1.20–1.34 × as long as diatone. Rostrum extending beyond hind coxae. Pronotum about 2.4 × as broad as long in middle. Elytra longer than abdomen. Tibial spines delicate, pale. Claws (Fig. 3l) slender, basal tooth obtuse, pseudarolia elongate, extending beyond middle of claw.

Biology: In sandy habitats in the Negev. On *Bassia muricata.*

Etymology: Bast, the cat-goddess in ancient Egypt.

Material. Holotype ♀ and 3♀♀ paratypes: Israel, Southern District, Yotvata, 24.IV.1986, Linnavuori, in coll. Linnavuori.

The genus *Atomophora* Reuter was treated in Linnavuori (1971, 1986). The new species belongs to the *alba* group, which is distinguished by the pale coloring, dense regular fuscous dotting on the elytra and the structure of the claws. *A. bast* closely resembles *A. astragali* Linnavuori from Saudi Arabia, but is readily distinguished by the presence of the conspicuous black spot on the inner apical angle of the corium. Such a spot is also present in *A. lineata* Reuter (Transcaspia, Turkestan) and *A. bipunctata* Reuter (Transcaspia). In *A. lineata* the claval suture is dark, the

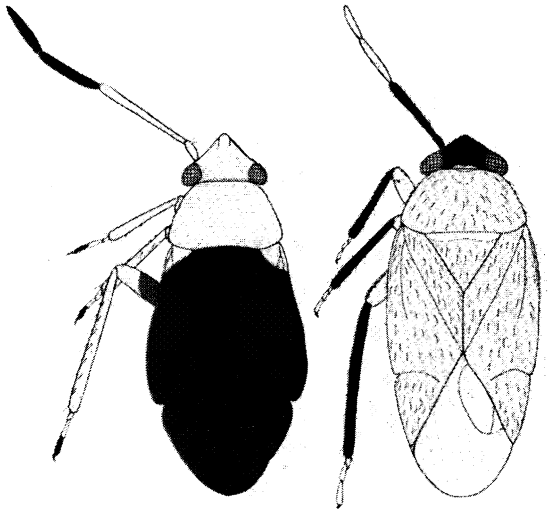

Fig. 5. *Asthenarius melpomene* sp.n. (left) and *Campylomma kalliope* sp.n. (right).

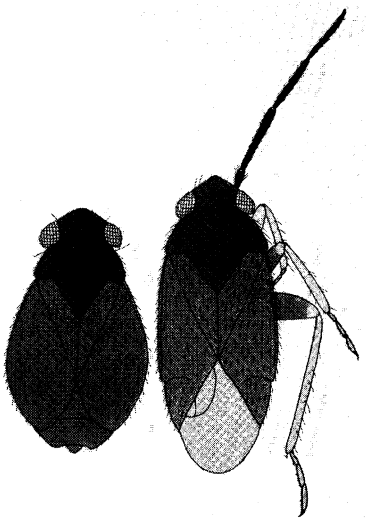

Fig. 6. *Chlamydatus penthesileia* sp.n. macropterous form right, brachypterous form left.

2nd antennal segment dotted with fuscous basally and the pronotum ornamented by three conspicuous whitish longitudinal bands. *A. bipunctata* is pale yellow, the dark dotting on the elytra is sparse and very indistinct and the cuneus is immaculate.

Asthenarius melpomene sp.n.

Fig. 5.

Length 3.5 mm. Shiny. Head and pronotum bright yellow. Eyes reddish. 1st and 2nd antennal joints yellow, 3rd and 4th segments black. Scutellum and elytra dark coffee-brown, base of corium and of clavus yellowish; membrane and veins dark brown. Under surface of head and of pronotum bright yellow, rest of thorax dark brown. Venter black. Legs yellow, fore and middle femora embrowned basally, hind femora dark brown, apical third yellow, tibiae immaculate, tibial spines black, 3rd tarsal joints black.

Body elongate, broadening caudad, broadest at apex of clavus. Upper surface with longish black hairs and adpressed scale-like pale pubescence. Head 0.7 × as broad as basal width of pronotum; ocular index 2.0. Antennae long, proportions between joints 15:61: 40:29, hair covering of antennae short and smooth, 1st joint also with black subapical bristle, 2nd joint 1.13 × as long as diatone, 0.77 × as long as basal width of pronotum, gradually broadening apicad. Rostrum extending to middle coxae. Pronotum 1.93 × as broad as long in middle, lateral margins nearly straight, gradually diverging caudad. Elytra a little longer than abdomen. Proportions between hind tarsomeres 9:12:11. Claws with long pseudarolia as in *A. dichrous*.

Biology: On *Quercus*.

Etymology: Greek mythology: Melpomene, Muse of Tragedy.

Material. Holotype ♀: Iraq, Ninawa, Jebel Sinjar, 8.V.1981, Linnavuori, in coll. Linnavuori.

Similar to *A. dichrous* Kerzhner (West Mediterranean) but readily distinguished by the large size, elongate body, much longer antennae, basally dark hind femora, immaculate tibiae, and dark 3rd tarsomeres. *A. dichrous*: Length 2.2–2.7 mm. 2nd antennal segment as long as diatone. Hind femora totally pale. Tibiae with small dark setigerous dots. Tarsi, uniformly pale.

Chlamydatus (Eurymerocoris) penthesileia sp.n.

Figs. 3m–g, 6, 7a–d.

Length 2.5 mm (macropterous form), 1.75–2.0 (brachypterous form). Macropterous form shiny, brachypterous form subopaque. Blackish brown. Eyes red. Antennae black. Elytra dark brown, membrane

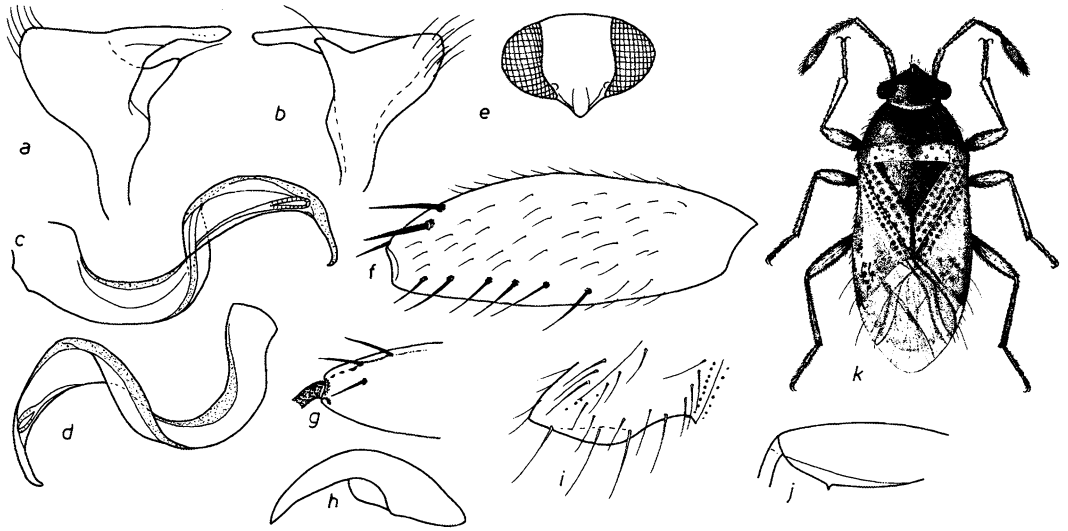

Fig. 7. — *Chlamydatus penthesileia* sp.n.: a–b) left style; c–d) vesica. — *Campylomma kalliope* sp.n.: e) head in frontal view; f) hind femur; g) apex of hind femur in dorsolateral view; h) claw. — *Lasiosomus terpsikhore* sp.n.: i) hair covering on apex of corium; j) fore femur. — *L. lasiosomoides* (Bergevin) (after O'Rourke 1974): k) dorsal view.

dark grey. Femora dark brown with apices and other parts of legs yellow-brown; fore and middle tibiae immaculate, hind tibiae with small dark setigerous spots.

Macropterous form ♂: Body parallel-sided. Upper surface finely rugose, hair covering long, dense, pale brownish. Head 0.77–0.79 × as broad as pronotum, tylus in lateral view clearly visible, vertex convex, base bluntly marginate; eyes large, ocular index 1.80–1.91. Antennae gracile, hair covering dense, semierect, proportions between joints 13:35:27:28, 2nd segment slightly widening apicad, 0.75–0.82 × as long as diatone. Rostrum extending to base of venter. Pronotum about 2.3 × as broad as long in middle. Elytra parallel-sided, extending beyond tip of abdomen. Tibial spines black. Proportions between hind tarsomeres 8:14:12. Claw in Fig. 30.

Brachypterous form (♂♀): Body small, pear-shaped, broadest in middle of abdomen. Head 0.90–0.94 × as broad as pronotum, ocular index 2.05–2.19. Proportions between antennal joints 12:31: 26:21, 2nd joint rather incrassate, 0.70–0.72 × as long as diatone. Pronotum 2.2 × as broad as long in middle. Elytra shorter than abdomen, 2.21–2.31 × as long as broad, elongately ovate in outline, apical margin rounded, membrane absent. Apex of abdomen visible. Other characters as in the macropterous form.

Male genitalia in Figs. 3p–q, 7a–d.

Biology: Under *Astragalus cruentiflorus, Noaea hermonis* and *Acantholimon libani* in the alpine zone at the top of Mt. Hermon.

Etymology: Greek mythology, Penthesileia, Queen of the Amazons, killed by Achilles in the Trojan war.

Material. Holotype macropterous ♂: Israel, Mt. Hermon, 25.V.1986; several paratypes of macropterous and brachypterous form, locality as in the holotype, collected 25.V.1986 and 14.VI.1986, Linnavuori, in coll. Linnavuori.

C. (Eurymerocornis) evanescens Boheman is a related species. The main differences: 1) Nearly always brachypterous, 2) color black, tibiae basally ± embrowned, hind tibiae immaculate, 3) hair covering pale gray, 4) body in the brachypterous form elongately ovate, head 0.93–1.0 × as broad as pronotum, eyes larger, ocular index 1.82–2.0, pronotum longer and narrower, elytra 1.87–1.93 × as long as broad, and 5) apex of vesica more curved and relatively shorter. Biology too, is different: *C. evanescens* lives on *Sedum album* in dry stony habitats.

Campylomma kalliope sp.n.

Figs. 5, 7e–h.

Length 3.25 mm. Pale ochraceous. Head black, middle of basal margin pale. Eyes reddish brown. 1st

and 2nd antennal joints black, apical segments pale ochraceous, extreme base of 3rd joint embrowned. Basal margin of scutellum whitish yellow. Membrane of elytra yellowish hyaline. Femora pale ochraceous; apical part of dorsal margin of hind femur (Fig. 7j–g) with narrow, longitudinal dark stripe. Tibiae black, tarsi pale.

Body elongately ovate. Hair covering on upper surface long, dense, blackish. Head 0.68 × as broad as basal width of pronotum; ocular index 1.77. Proportions between antennal joints 11:39:25:16, 2nd joint 0.80 × as long as diatone, 0.54 × as long as basal width of pronotum. Rostrum extending slightly beyond middle coxae. Pronotum 2.25 × as broad as long in middle. Proportions between hind tarsal joints 6:11:12.

The distinctive coloring readily differentiates the new species from the known Palearctic and Ethiopian species. The taxonomy of the genus *Campylomma* Reuter was treated in Linnavuori 1975, 1986, Odhiambo 1959 and Wagner 1975.

Biology: Swept from *Atriplex halimus* and other halophytic bushes on the shore of the Dead Sea.

Etymology: Greek mythology: Kalliope, Muse of Philosophy.

Material. Holotype ♀: Israel, En Tamar, 15.IV.1973, Linnavuori, in coll. Linnavuori.

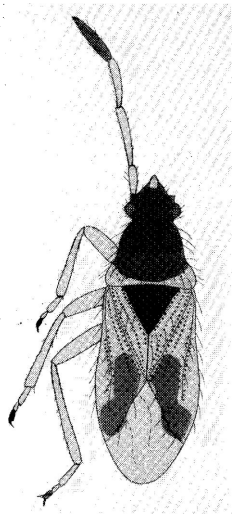

Fig. 8. *Lasiosomus terpsikhore* sp.n.

New species of the Lygaeidae

Lasiosomus terpsikhore sp.n.

Figs. 7i–j, 8.

Length 2.75 mm. Shiny. Head, anterior lobe of pronotum and scutellum black. Tylus yellow-brown, eyes reddish brown. Antennae yellow-brown, 4th joint dark brown. Posterior lobe of pronotum blackish brown, humeral angles and posterior margin yellow-brown. Elytra yellow-brown, apical part of corium with poorly delimited dark brown figure, puncturing on pale areas brown; membrane brownish hyaline. Under surface black, posterior margins of thoracic segments slightly paler. Legs yellow-brown, 3rd tarsal joints embrowned.

Body small and narrowish. Hair covering on upper surface pale, very long, erect. Head 0.63–0.64 × as broad as basal width of pronotum, coarsely and densely punctate, vertex around ocelli impunctate; ocular index 2.38–2.50. Antennae with short pale hairs, proportions between joints 15:27:25:27, 2nd joint 0.75–0.77 × as long as diatone. Rostrum extending to middle coxae. Pronotum 1.70–1.75 × as broad as long in middle, lateral margins strongly insinuated, puncturing on disk coarse and dense, on basal lobe somewhat sparser, calli with a few punctures, basal margin impunctate. Puncturing on scutellum somewhat finer and sparser than on pronotum. Elytra (Fig. 7i) as long as abdomen, with very long erect hairs; clavus with 3 rows of coarse and dense punctures; corium with two rows of dense punctures along claval suture and along R, the outer row along the latter consisting of dense and the inner row of sparse puncturing, apicolateral area of corium otherwise with a few fine punctures. Thoracic pleura distinctly and densely punctate and provided with semidecumbent hairs. Venter finely rugose, hair covering long and dense. Legs with short semidecumbent hairs. Fore femur (Fig. 7j) with distinct subapical tooth.

Biology: Among detritus in a grassy mesic depression in a little *Pinus halepensis* plantation.

Etymology: Greek mythology, Terpsikhore, Muse of dancing.

Material. Holotype ♀ and 1♀ paratype: Israel, Southern District, Be'er-Sheva, 30.V.1986; 1♂ paratype, data as in the previous, but collected 17.VI.1986, in coll. Linnavuori.

The genus Lasiomus Fieber was revised by O'Rourke (1974).

Key to the Palearctic species

1 (2) Fore femora edentate ..... *enervis* (Herrich-Schaeffer) (West Mediterranean with a wide range in Central Europe, Caucasia and Turkestan)

2 (1) Fore femora provided with subapical tooth on anteroventral margin 3

3 (4) Length 3.5 mm. Hair covering on upper surface longish, semidecumbent. Head very indistinctly punctate. Lateral margins of pronotum (Fig. 7k) nearly straight, callal area black, rest of pronotum yellow-brown, basal lobe with traces of 3 longitudinal bands. Apicolateral area of corium coarsely and densely punctate..... *lasiosomoides* (Bergevin) (widespread in tropical Africa, also known from Algeria, Yemen and Israel)

4 (3) Length 2.75 mm. Hair covering on upper surface very long, erect. Head distinctly punctate. Lateral margins of pronotum strongly insinuated, disk black to blackish brown, basal angles and posterior margin yellow-brown. Apicolateral area of corium sparsely punctate..... *terpsikhore* sp.n.

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