

Three new species of the genus *Macroocula* Panfilov, 1954 (Hymenoptera: Bradynobaenidae: Apterogyninae) from Saudi Arabia

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Received: 24.08.2015 • Accepted/Published Online: 18.11.2015 • Final Version: 07.04.2016

Abstract: Three new species of the genus *Macroocula* Panfilov, 1954 from Saudi Arabia are described and illustrated: *M. atuberculata* Soliman & Gadallah sp. nov. (Al-Quwayiyah, Al-Aflag, Al-Zulfi, and Riyadh), *M. zulfiensis* Soliman & Gadallah sp. nov. (Al-Zulfi and Riyadh), and *M. khorimensis* Soliman & Gadallah sp. nov. (Muzahimiyah and Riyadh). A key to *Macroocula* species with a ventral protuberance on the hind trochanter is provided.

Key words: Bradynobaenidae, Apterogyninae, *Macroocula*, new species, Saudi Arabia

1. Introduction

The genus *Macroocula* was described by Panfilov (1954) with the type species *Apterogyna morawitzi* Radoskowski, 1888. Members of the genus are widely distributed in Africa and Asia, mostly in North Africa, Arabia, and the Middle East (Pagliano, 2002, 2008, 2011; Lelej and Osten, 2004; Gadallah et al., 2014, 2015), and it currently includes 43 species (Pagliano, 2002, 2008, 2011; Gadallah et al., 2014, 2015). In the present paper, three new species of the genus *Macroocula* from Saudi Arabia are described and illustrated. Moreover, an illustrated key to *Macroocula* species with a ventral protuberance on the hind trochanter is provided.

2. Materials and methods

Specimens were collected from Saudi Arabia (see Section 2.1 for further detailed indications). Sampling was done with light traps. Morphological terms are based on Pagliano (2002). Body sculpture terminology follows Harris (1979). Photographic images were made using a Canon G12 camera attached to an Optech triocular zoom stereomicroscope (LFTZ). Measurements were made with an ocular micrometer. Further image processing was done using the software Adobe Photoshop (v. 7.0 ME). The type specimens of the new species are deposited in three collections: King Saud University Museum of Arthropods, Plant Protection Department, College of Food and

Agriculture Sciences, King Saud University, Riyadh, Saudi Arabia (KSMA); Efflatoun Bey Collection, Entomology Department, Faculty of Science, Cairo University, Giza, Egypt (CUE); and collection of G Pagliano (GPC), to be deposited in Museo Regionale di Scienze Naturali, Turin, Italy (MRSN).

2.1. Collection sites, Saudi Arabia

Rawdhat Al-Harmalyiah (site 2): 24°17'50"N, 45°08'49"E; Rawdhat Al-Harmalyiah (site 3): 24°18'34"N, 45°09'59"E; Rawdhat Al-Harmalyiah (site 5): 24°20'13"N, 45°09'15"E; Rawdhat Farshet Sheaal (site 2): 22°24'34"N, 46°35'32"E; Rawdhat Farshet Sheaal (site 3): 22°24'57"N, 47°35'17"E; Rawdhat Farshet Sheaal (site 5): 22°25'29"N, 46°34'31"E; Rawdhat Al-Sabalh (site 0): 26°21'47"N, 44°58'48"E; Rawdhat Al-Sabalh (site 2): 26°21'31"N, 44°59'06"E; Rawdhat Al-Sabalh (site 5): 26°22'25"N, 44°58'14"E; Rawdhat Khorim (site A): 25°22'59"N, 47°16'42"E; Rawdhat Khorim (site B): 25°25'57"N, 47°13'52"E; Al-Khararh (site N): 24°24'21"N, 46°14'40"E.

2.2. Abbreviations

C = costal vein; F1, F2, F3, etc. = first, second, third, etc. antennal flagellomeres; IOD = intercellular distance; LED = longitudinal eye diameter; MOD = midocellar diameter; OOD = ocellular distance; Sc = subcostal vein; T1, T2, T3, etc. = first, second, third, etc. metasomal terga; S1, S2, S3, etc. = first, second, third, etc. metasomal sterna.

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3. Results

Macroocula Panfilov, 1954

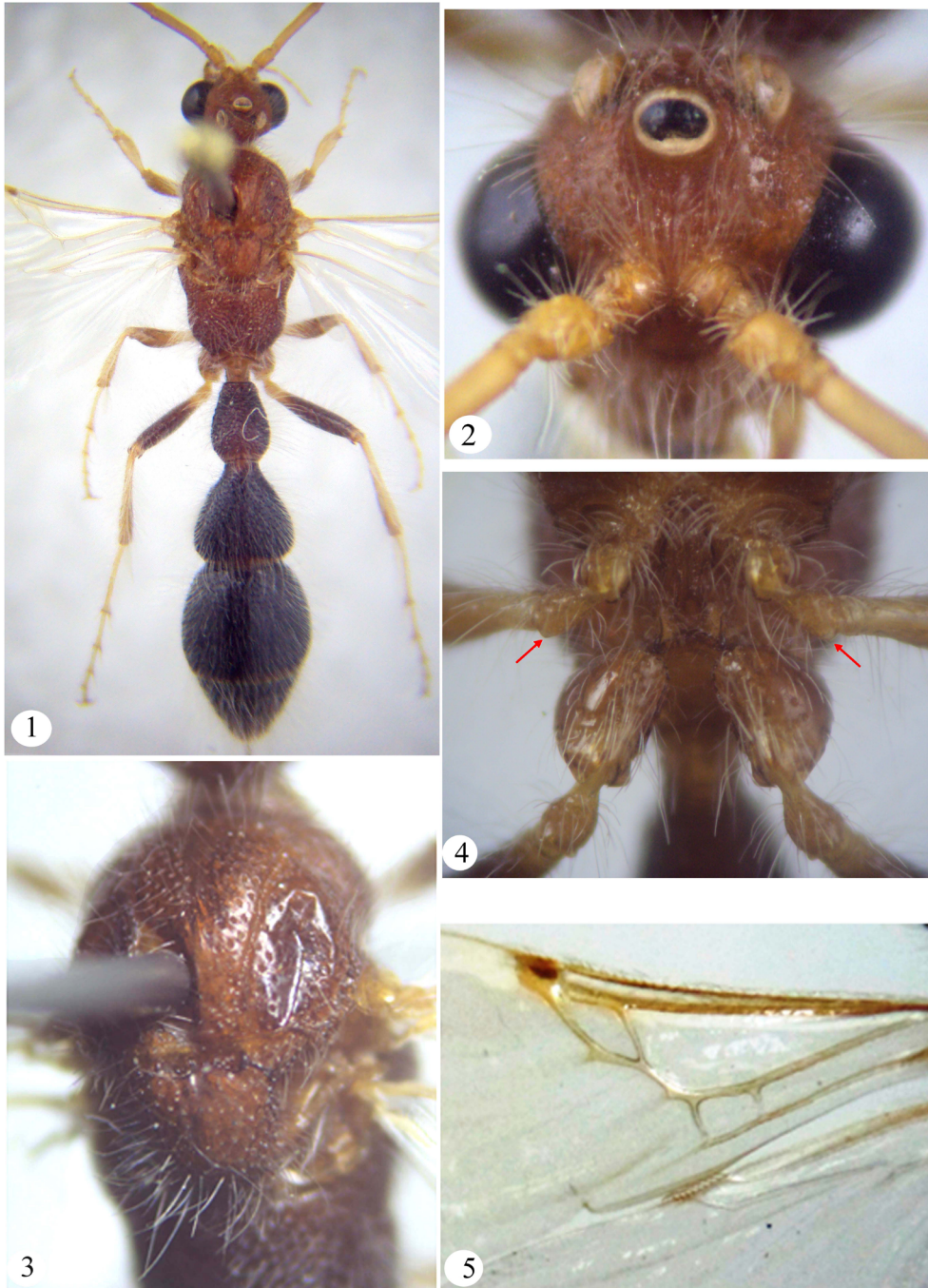
Macroocula Panfilov 1954: 149, type species *Apterogyna morawitzi* Radoszkowski, 1888, by original designation; Argaman 1994: 46; Pagliano 2002: 125.

Doryleika Argaman 1994: 46, type species *Doryleika mahunkai* Argaman, 1994, by original designation.

Junior subjective synonym of *Macroocula* Panfilov, 1954 according to Pagliano 2002: 125.

Macroocula atuberculata Soliman & Gadallah sp. nov. (Figures 1–12)

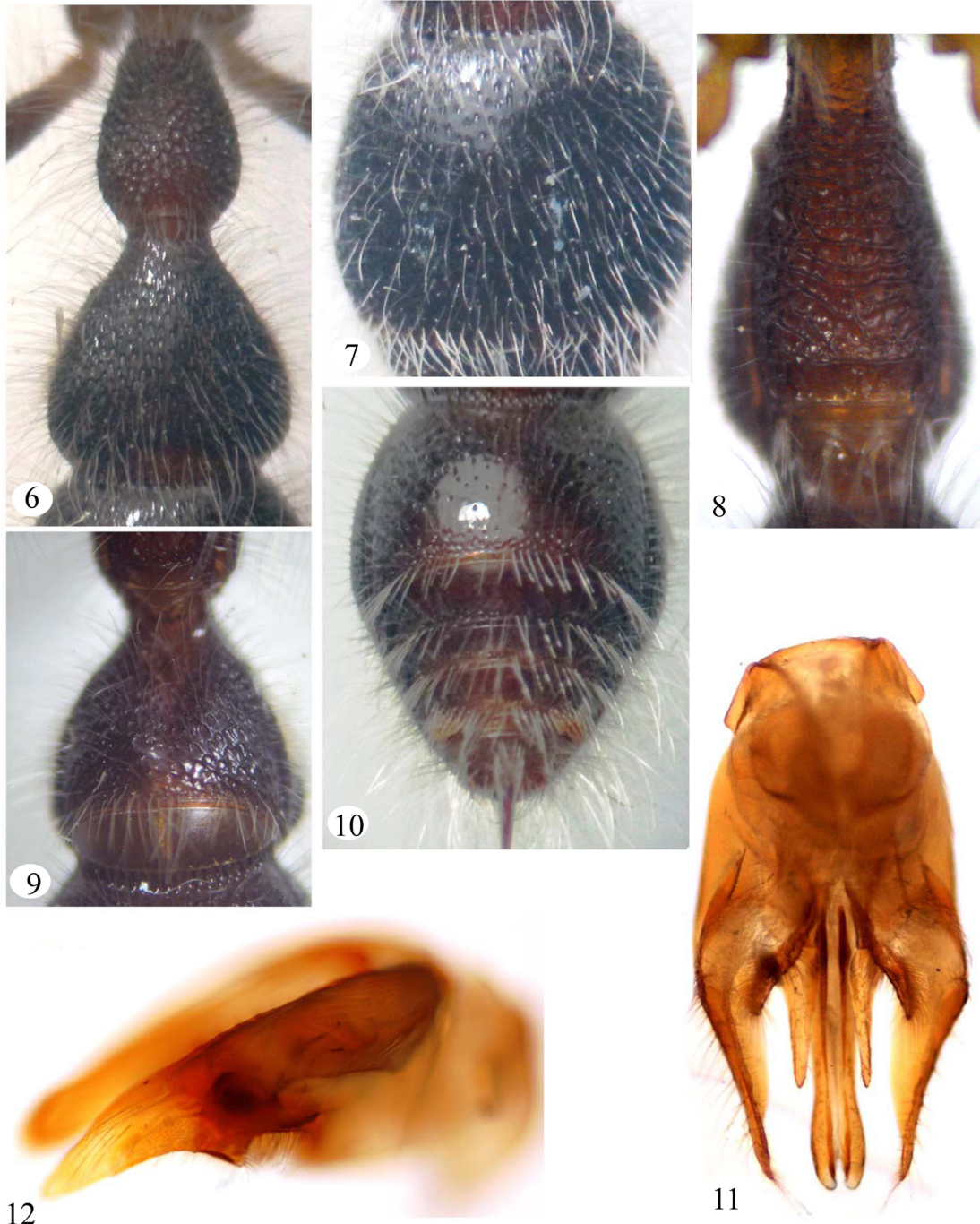
Material examined. Holotype ♂: Saudi Arabia, Rawdhat Al-Harmalyiah (Al-Quwayiyah) [24°17'50"N, 45°08'49"E], elev. 786 m, 17.IV.2015, light trap no. 2, leg.



Figures 1–5. *Macroocula atuberculata* sp. nov., holotype, (♂): 1. habitus, dorsal view; 2. head, frontal view; 3. mesoscutum and scutellum; 4. mid and hind coxae and trochanters; 5. fore- and hind wings, part.

Al Dhafer et al., [KSMA]. Paratypes 5 ♂♂: Saudi Arabia, Rawdhat Al-Harmalyiah (Al-Quwayiyah) [24°20'13"N, 45°09'15"E], elev. 774 m, 17.IV.2015, light trap no. 5, leg. Al Dhafer et al., [KSMA]; 5 ♂♂: Saudi Arabia, Rawdhat Al-Harmalyiah (Al-Quwayiyah) [24°18'34"N, 45°09'59"E], elev. 774 m, 17. IV. 2015, light trap no. 3, leg. Al Dhafer et al., [KSMA]; 1 ♂: Saudi Arabia, Rawdhat Al-

Harmalyiah (Al-Quwayiyah) [24°17'49"N, 45°08'48"E], elev. 786 m, 17.IV.2015, light trap no. 2, leg. Al Dhafer et al., [KSMA]; 2 ♂♂: Saudi Arabia, Rawdhat Al-Harmalyiah (Al-Quwayiyah) [24°20'13"N, 45°09'15"E], elev. 774 m, 17.VIII.2015, light trap no. 5, leg. Al Dhafer et al., [MRSN]. 9 ♂♂: Saudi Arabia, Rawdhat Farshet Sheal (Al-Aflag) [22°24'57"N, 47°35'17"E], elev. 602 m, 10.IV.2015,



Figures 6–12. *Macroocula atuberculata* sp. nov., holotype, (♂): 6. T1 and T2; 7. T3; 8. S1; 9. S2; 10. S3–S8; 11 and 12. male genitalia, ventral and lateral view, respectively.

light trap no. 3, leg. Al Dhafer et al., [KSMA]; 1 ♂: Saudi Arabia, Rawdhat Farshet Sheaal (Al-Aflag) [22°24'34"N, 46°35'32"E], elev. 601 m, 10.IV.2015, light trap no. 2, leg. Al Dhafer et al., [KSMA]; 1 ♂: Saudi Arabia, Rawdhat Farshet Sheaal (Al-Aflag) [22°25'29"N, 46°34'31"E], elev. 612 m, 10.IV.2015, light trap no. 5, leg. Al Dhafer et al., [KSMA]; 1 ♂: Saudi Arabia, Rawdhat Al-Sabalh (Al-Zulfi) [26°22'25"N, 44°58'14"E], elev. 670 m, 20.V.2015, light trap no. 5, leg. Abdel-Dayem et al., [KSMA]; 1 ♂: Saudi Arabia, Rawdhat Khorim (Riyadh) [25°22'59"N, 47°16'42"E], 29.IV.2012, light trap A, leg. Al Dhafer et al., [CUE].

Description: MALE (holotype). Body length 12 mm. **Color (Figures 1-5).** Head including antennal tubercle, mesosoma including hind coxa and metasomal stalk red; antenna, basal third of mandible, maxillary and labial palpi, tegula and legs ferruginous yellow, hind femur with strong blackish tint; apical 2/3 of mandible and metasomal terminal hook reddish brown; metasomal segments 2–5 dark brown to black, posterior borders reddish; first and last segments reddish brown; fore tibial spur yellow, mid and hind ones waxy white; eye black, ocelli glassy; wings hyaline, forewing veins yellow, C, Sc and stigma darker. **Pubescence.** Head including antennal scape, basal third of mandible, and mesosoma including legs with moderately long erect pale setae (Figures 2-4); metasoma densely clothed with long erect pale setae (Figures 10); S2–6 with apical fringe of long and sparse pale setae; felt line on T2 with dense pale setae; S6 laterally with stout reddish bristles.

Head. In dorsal view slightly wider than pronotum; face and vertex polished and punctulate (Figure 2), punctures dense on lower third of face and on the area between lateral ocellus and eye; vertex with distinct tubercle posterolaterally; MOD $1.2 \times F1$ diameter (Figure 2); OOD $0.55 \times IOD$; malar space about $0.9 \times F1$ diameter; distance between antennal tubercles 0.6 times as long as tubercle length; clypeus convex on disc, punctulate, with free margin gently convex; gena smooth, genal orbit finely punctate. Mandible slender and pointed apically, with two small teeth subapically. Scape of antenna 1.2 times longer than wide; F1 5.7 times as long as wide, slightly longer than F2 and 1.25 times as long as F3.

Mesosoma. Pronotum foveate-reticulate dorsolaterally, with anterior face vertical (not visible from dorsal view) and lateral face foveate-reticulate anteriorly and longitudinally ridged posteriorly; mesoscutum sparsely punctate, punctures 1–2 diameter apart (Figure 3), with smooth median longitudinal stripe extending along its whole length; notauli complete, moderately deep and widely divergent anteriorly; scutellum punctate-reticulate, smooth anteromedially; tegula polished and smooth; propodeum foveate-reticulate on dorsal face, posterior face gently declivous and irregularly transversely ridged. Mesopleuron foveate-reticulate dorsally and sparsely punctate to subreticulate ventrally; metapleuron feebly

longitudinally ridged below spiracle. Metasternum bidentate in front of hind coxae, space between denticles V-shaped. Forewing with brachial cell 1.3 times longer than wide and 1.1 times as long as anterior vein of cubital cell (Figure 5); hind wings with 7–8 hamuli. Mid trochanter ventrally with rudimentary protuberance (Figure 4).

Metasoma. T1 subcylindrical, remarkably elongate, 1.5 times as long as maximal width, foveate-reticulate (Figure 6); T2 pear-shaped, 1.1 times as long as maximal width, ellipsoid foveate, with fine ridges between foveae (Figure 6); T3 ellipsoid punctulate (Figure 7), punctures 3–5 diameters apart on disc, closer and slightly larger laterally; T4–T7 punctulate, punctures about 1 diameter apart. S1 transversely wrinkled, with strong transverse carina subapically (Figure 8); S2 shallowly punctate-reticulate (Figure 9); S3 punctulate, punctures 3–5 diameters apart, with transverse smooth area subapically and row of punctures along posterior margin (Figure 10); S4–S6 smooth basally, densely punctate along apical rim (Figures 10).

Genitalia. Slender along its whole length, its length about 2 times its width (Figure 11). Parameres tapered at apex (Figures 11 and 12), with a peculiar tuft of somewhat longer setae apically as well as some scattered shorter ones internally and externally. Volsella with cuspis finger-like, densely setose; digitus long, about 1.7 times as long as cuspis (Figure 11), with few bristles along its margin, about 2/3 aedeagus length. Aedeagus as long as parameres or slightly longer (Figure 11), slightly bulged apically, and somewhat concave along inner margin of each penis valve.

Female unknown.

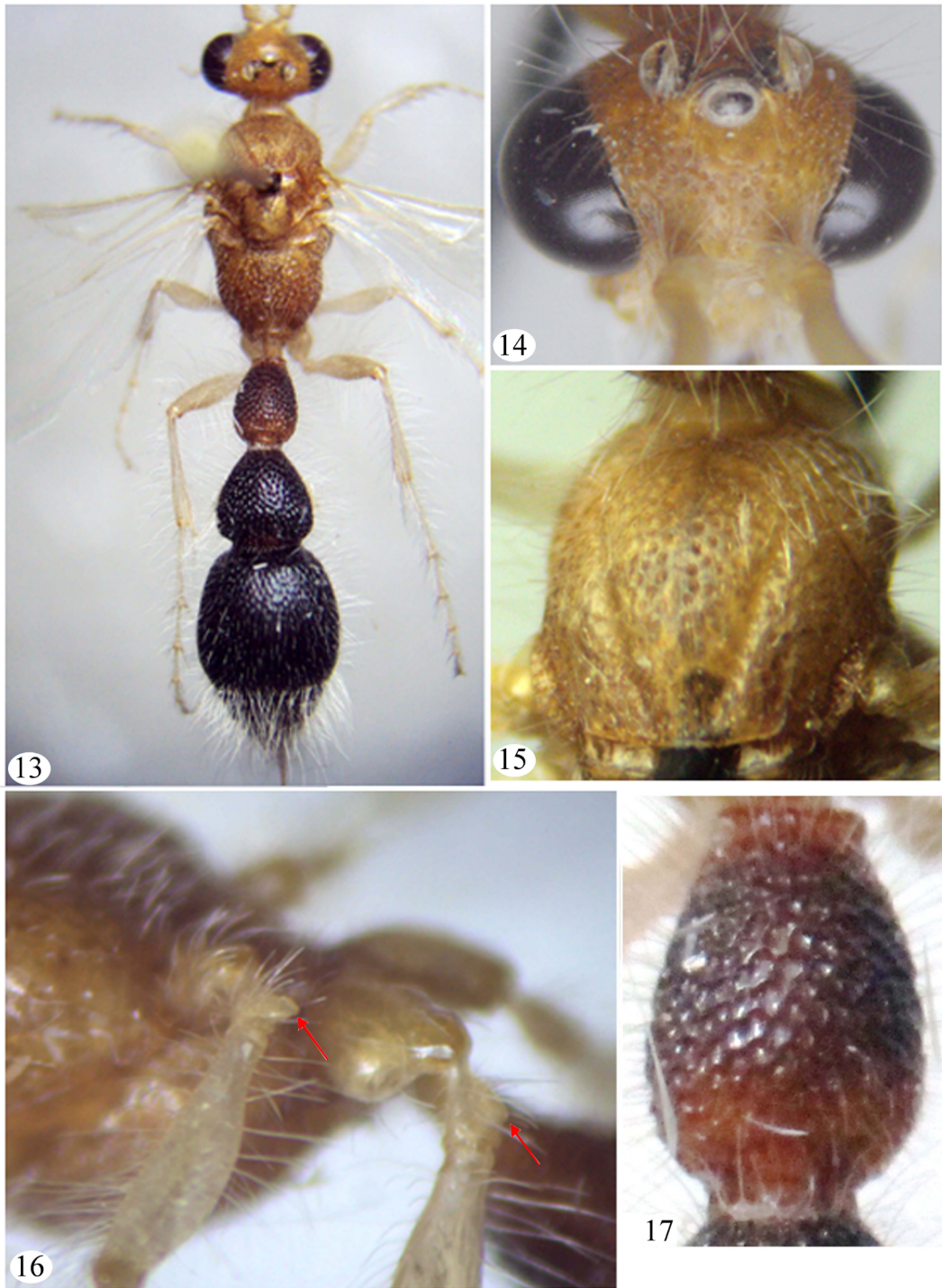
Distribution. Saudi Arabia.

Remarks. *M. atuberculata* could be easily differentiated from nearly all other *Macroocula* species by having mid trochanter with rudimentary protuberance or completely absent in some specimens (except in *M. huddlestoni* Pagliano, 2002 this protuberance is sometimes absent). The new species could be separated from *M. huddlestoni* by having aedeagus as long as parameres or slightly longer (aedeagus 0.5 times as long as parameres in *M. huddlestoni*). This is in addition to the new species with head and mesosoma red; hind femur and first metasomal segment dark colored; T1 distinctly elongate, 1.5 times as long as maximal width.

Etymology. The specific name refers to the rudimentary protuberance on hind trochanter or completely its absence.

***Macroocula zulfensis* Soliman & Gadallah sp. nov.** (Figures 13–20)

Material examined. Holotype ♂: Saudi Arabia, Rawdhat Al-Sabalh (Al-Zulfi) [26°21'31"N, 44°59'06"E], elev. 669 m, 20.V.2015, light trap no. 2, leg. Abdel-Dayem et al., [KSMA]. Paratypes 2 ♂♂: Saudi Arabia, Rawdhat Al-Sabalh (Al-Zulfi) [26°22'25"N, 44°58'14"E], elev. 670 m, 20.V.2015, light trap no. 5, leg. Abdel-Dayem et al., [KSMA]; 1 ♂: Saudi Arabia, Rawdhat Al-Sabalh (Al-Zulfi) [26°21'47"N, 44°58'48"E], elev. 666 m, 20.V.2015, light trap no. 0, leg. Abdel-Dayem et al., [MRSN]; 1 ♂: Saudi Arabia, Rawdhat Khorim (Riyadh)



Figures 13–17. *Macroocula zulfiensis* sp. nov., holotype, (♂): 13. habitus, dorsal view; 14. head, frontal view; 15. mesoscutum; 16. mid and hind coxae and trochanters; 17. T1.

[25°25'57"N, 47°13'52"E], elev. 572 m, 3.VIII.2012, light trap B, leg. Fadl, [KSMA]; 1 ♂: Saudi Arabia, Rawdhat Khorim (Riyadh) [25°25'57"N, 47°13'52"E], elev. 572 m, 29.IV.2012, light trap B, leg. Al Dhafer et al., [CUE].

Description: MALE (holotype). Body length 12 mm. **Color (Figures 13-15).** Head including antennal tubercle, mesosoma including tegula, mid and hind coxae, metasomal stalk, and metasomal last segment ferruginous yellow; antenna and basal third of mandible pale yellow;

apical 2/3 of mandible and metasomal terminal hook reddish brown; legs and palpi pale yellow to whitish; metasomal segments 1–6 brown, first segment remarkably lighter; fore tibial spur pale yellow, mid and hind ones waxy white; eye black, ocelli glassy; wings hyaline, forewing with veins and stigma white. **Pubescence.** Head including scape of antenna, basal third of mandible and mesosoma including legs with moderately long erect pale setae (Figure 14–16); metasoma densely clothed with long erect pale setae (Figure 18 and 19); S2–S6 with apical fringe of long and sparse pale setae; felt line on T2 with dense pale setae (Figure 19); S6 laterally with stout reddish bristles.

Head. In dorsal view slightly wider than pronotum; face and vertex smooth except lower half of face and the area between lateral ocellus and eye on vertex are punctate-subreticulate (Figure 14), vertex not swollen posterolaterally; antennal scrobe punctulate; MOD $1.3 \times F1$ diameter; OOD $0.6 \times IOD$ (Figure 14); malar space short, $0.7 \times F1$ diameter; distance between antennal tubercles 0.5 times as long as tubercle length; clypeus convex on disc, densely punctate, with free margin gently convex; gena smooth, genal orbit finely punctate. Mandible slender, pointed apically, edentate. Scape of antenna slightly shorter than wide; F1 6 times as long as wide, slightly longer than F2 and about 1.3 times as long as F3.

Mesosoma. Pronotum foveate-reticulate dorsolaterally, with lateral face foveate-reticulate, and ridged between foveae; mesoscutum densely punctate, punctures 0.5 diameter apart (Figure 15), with smooth median longitudinal stripe extending along its whole length; notauli complete, deep and widely divergent anteriorly; scutellum punctate-subreticulate, smooth anteromedially; tegula smooth; propodeum foveate-reticulate on dorsal face, posterior face somewhat gently declivous and smooth. Mesopleuron foveate-reticulate dorsally and sparsely punctate ventrally; metapleuron smooth. Metasternum strongly bidentate in front of hind coxae, space between denticles U-shaped. Forewing with brachial cell as long as wide and 0.8 times shorter than anterior vein of cubital cell; hind wings with 6–7 hamuli. Mid trochanter ventrally with well-developed, prominent protuberance, hind trochanter ventrally with distinct protuberance but much smaller than that on mid trochanter (Figure 16).

Metasoma. T1 subconical, 1.3 times as long as maximal width (Figure 17); T1 and T2 deeply punctate-reticulate (Figures 17 and 18); T2 pear-shaped, scarcely longer than wide (Figure 18); T3 ellipsoid punctate, punctures 1–2 diameters apart on disc (Figure 18), become closer and slightly larger laterally; T4–T7 punctulate, punctures 1 diameter apart. S1 transversally ridged, with punctures between ridges; S2 deeply punctate-subreticulate (Figure 19); S3 punctulate throughout, punctures 2–3 diameters apart (Figure 19), with double row of punctures along posterior margin; S4–S6 smooth basally, punctulate along apical rim.

Genitalia (Figure 20). Gradually widened towards apex, length 1.6 times its maximal width. Parameres narrow, rounded apically, with tuft of irregularly long setae at apex, densely setose along its inner side as well as in the area surrounding volsella, with fewer scattered ones at outer side. Volsella with lobe-like cuspis, broad basally and narrowed towards apex, densely setose along its whole surface; digitus long and slender along its whole length, bare except for some sensory pits, slightly longer than cuspis and about 2/3 length of aedeagus, which is in turn as long as parameres.

Female unknown.

Distribution. Saudi Arabia.

Remarks. The new species *M. zulfiensis* resembles the Arabian species *M. ohli* Pagliano, 2002 and *M. silvioi* Pagliano, 2002 in having a ventral protuberance on the hind trochanter, but it differs from them remarkably in the following: the protuberance on the hind trochanter is much smaller than that on the mid trochanter (protuberances on mid and hind trochanter are similar in size in *M. ohli* and *M. silvioi*); head and mesosoma ferruginous yellow, metasomal segments 2–6 brown (body uniformly pale yellow in *M. ohli* and bright yellow to almost white, with scattered black spots on mesoscutum and very slightly brownish tint on disc of T2 and T3, in *M. silvioi*). Moreover, the new species resembles the Egyptian *M. brothersi* Gadallah and Soliman, 2015 but strongly differs from it in the following: aedeagus as long as parameres, outer margin of parameres moderately concave (aedeagus about 0.5 times as long as parameres in *M. brothersi*, outer margin of parameres strongly concave, Figure 21); legs and forewing veins whitish (legs ferruginous yellow and forewing veins light brown to yellow in *M. brothersi*); first metasomal segment brownish (ferruginous yellow in *M. brothersi*); brachial cell as long as wide and 0.8 times as long as anterior vein of cubital cell (2.8 times as long as wide and 1.3 times as long as anterior vein of cubital cell in *M. brothersi*).

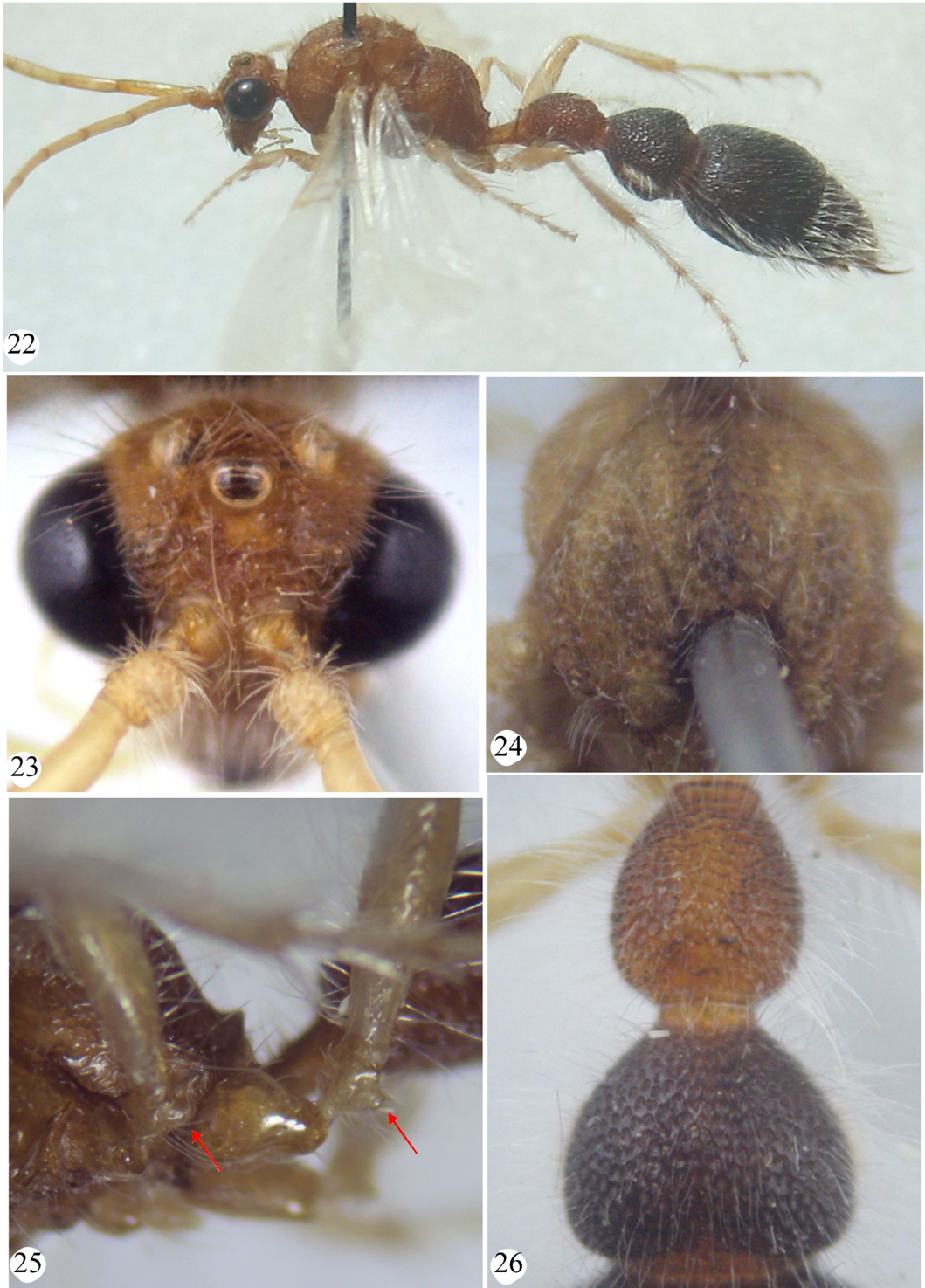
Etymology. The name of this species refers to the type locality, Al-Zulfi.

***Macroocula khorimensis* Soliman & Gadallah sp. nov. (Figures 22–31)**

Material examined. Holotype ♂: Saudi Arabia, Rawdhat Khorim (Riyadh) [25°25'57"N, 47°13'52"E], elev. 572 m, 10.VI.2012, light trap B, leg. Fadl, [KSMA]. Paratypes 1♂: Saudi Arabia, Al-Khararh (Muzahimiyah) [24°24'21"N, 46°14'40"E], 17.V.2011, light trap N, leg. Abdel-Dayem et al., [KSMA]; 1♂: Saudi Arabia, Al-Khararh (Muzahimiyah) [24°24'21"N, 46°14'40"E], 17.VIII.2011, light trap N, leg. Abdel-Dayem & Al-Dhafer, [KSMA]. 1♂: Saudi Arabia, Rawdhat Khorim (Riyadh) [25°25'57"N, 47°13'52"E], elev. 572 m, 28.VIII.2012, light trap B, leg. Al Dhafer et al., [CUE].



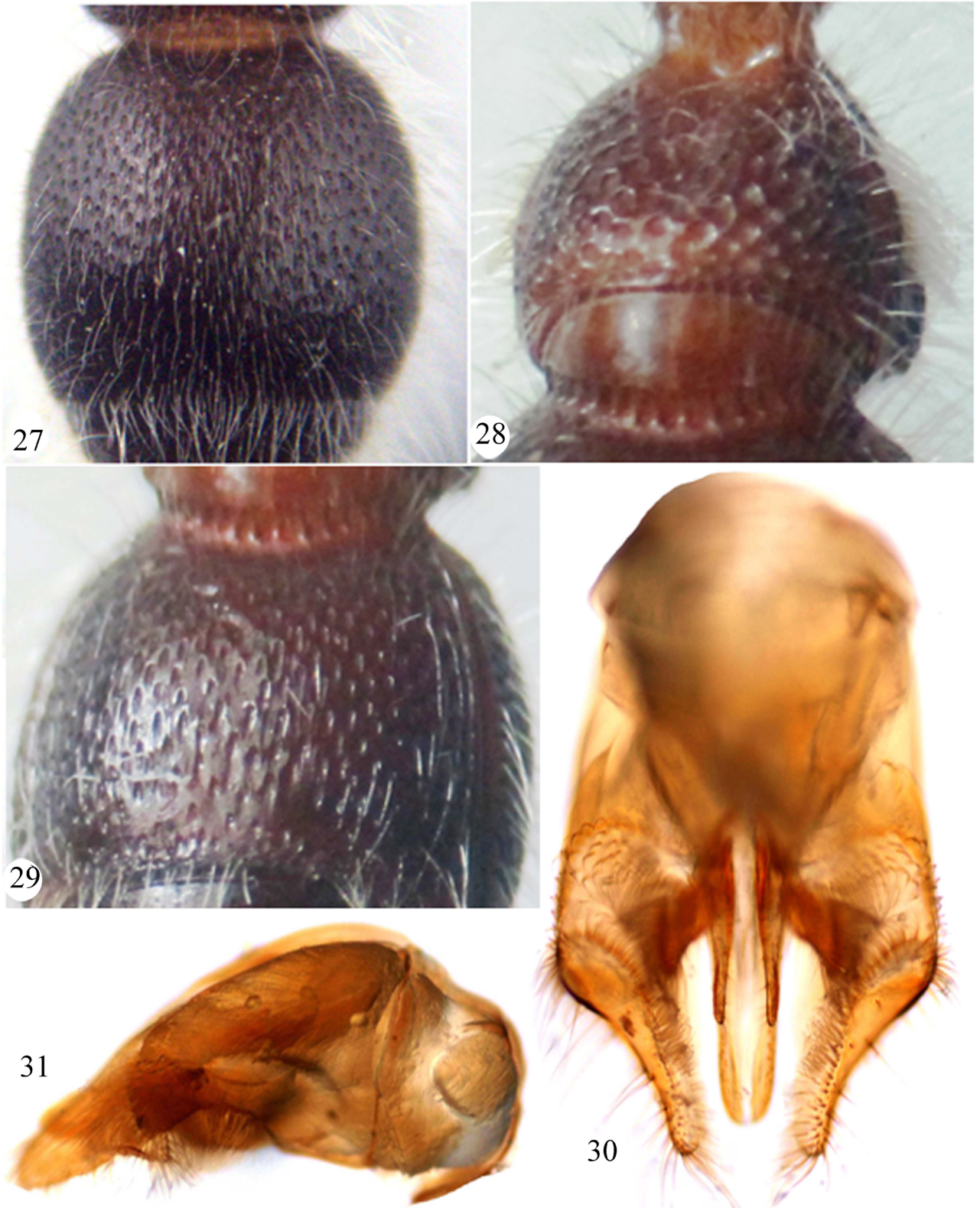
Figures 18–21. 18–20. *Macroocula zulfienis* sp. nov., holotype, (♂); 21. *Macroocula brothersi* Gadallah and Soliman. 18. T2 and T3; 19. S2–S8; 20 and 21. male genitalia, ventral view.



Figures 22–26. *Macroocula khorimensis* sp. nov., holotype, (♂): 22. habitus, dorsolateral view; 23. head, frontal view; 24. mesoscutum; 25. mid and hind coxae and trochanters; 26. T1 and T2.

Description: MALE (holotype). Body length 14 mm. **Color** (Figures 22, 23, and 26). Head including antennal tubercle and basal third of mandible, mesosoma including tegula, metasomal anterior stalk, and metasomal last

segment ferruginous yellow; antenna palpi and legs pale yellow, legs lighter; apical 2/3 of mandible and metasomal terminal hook reddish brown; remaining metasomal segments brown, first segment distinctly lighter; fore



Figures 27–31. *Macroocula khorimensis* sp. nov., holotype, (♂): 27. T3; 28. S2; 29. S3; 30 and 31. male genitalia, ventral and lateral view, respectively.

tibial spur pale yellow, mid and hind ones waxy white; eye black, ocelli glassy; wings hyaline, forewing with veins and stigma extremely pale yellow. **Pubescence.** Body including legs and scape of antenna clothed with long erect pale setae denser on clypeus and last 2–3 tergites than elsewhere (Figure 22 and 23); S2–S6 with apical fringe of long and sparse pale setae; felt line on T2 with pale setae; S6 laterally with stout reddish bristles.

Head. In dorsal view slightly wider than pronotum; face and vertex finely punctate-reticulate (Figure 23), face with smooth small area in front of mid ocellus, vertex sparsely punctate beyond lateral ocelli and swollen posterolaterally; antennal scrobe punctulate; MOD 1.25 × F1 diameter; OOD 0.4 × IOD (Figure 23); malar space short, about 0.6 × F1 diameter; distance between antennal tubercles 0.6 times as long as tubercle length; clypeus convex on disc, punctulate, with free margin gently convex; gena punctulate. Mandible slender, pointed apically and edentate. Scape of antenna slightly shorter than wide; F1 5 times as long as wide, slightly longer than F2 and about 1.2 times longer than F3.

Mesosoma. Pronotum foveate-reticulate dorsolaterally, with lateral face foveate-reticulate, and ridge⁴ between foveae; mesoscutum punctate-subreticulate to reticulate (Figure 24), punctures less than 0.5 diameter apart, with smooth median longitudinal stripe on anterior half; notauli complete, deep and widely divergent anteriorly; scutellum punctate-reticulate, with longitudinal median smooth stripe; tegula smooth; propodeum foveate-reticulate on dorsal and posterior faces. Mesopleuron foveate-reticulate dorsally and punctate-subreticulate ventrally; metapleuron smooth below spiracle. Metasternum bidentate in front of hind coxae, space between denticles V-shaped. Fore wing with brachial cell as long as wide and 0.9 times as long as anterior vein of cubital cell; hind wings with 7 hamuli. Mid trochanter ventrally with well-developed, prominent protuberance, hind trochanter ventrally with distinct protuberance but a little smaller than that on mid trochanter (Figure 25).

Metasoma. T1 subconical, 1.1 times as long as maximal width (Figure 26); T1 and T2 deeply punctate-reticulate (Figure 26); T2 pear-shaped, 1.1 times wider than long (Figure 26); T3 ellipsoid densely punctate, punctures 0.5–1.0 diameter apart on disc (Figure 27), become reticulate laterally; T4–T7 punctulate; S1 transversally ridged, with deep punctures between ridges; S2 shallowly punctate-reticulate (Figure 28); S3 densely punctate throughout, punctures 0.5–1.0 diameter apart (Figure 29), with double row of punctures along posterior margin; S4–S6 finely punctate-subreticulate.

Genitalia (Figures 30 and 31). Somewhat resembles that of *M. zulfiensis* but differs in the following: length about 1.8 times its maximal width; digitus distinctly longer than cuspis. Aedeagus distinctly shorter than parameres.

Remarks. *M. khorimensis* resembles *M. zulfiensis* in having a ventral protuberance on the hind trochanter, but differs from it in the following: aedeagus of genitalia remarkably shorter than parameres (Figure 30) (aedeagus as long as parameres in *M. zulfiensis*); face punctate-reticulate (face smooth on upper half and sparsely punctate on lower part in *M. zulfiensis*); T1 1.1 times as long as wide and T2 slightly wider than long (T1 1.3 times longer than wide, T2 slightly longer than wide in *M. zulfiensis*); punctures tend to be reticulate to subreticulate on different parts of the body (in *M. zulfiensis* punctures are distinctly dispersed).

Etymology. The name of this species refers to the type locality, Rawdhat Khorim.

Key to the *Macroocula* species with a ventral protuberance on the hind trochanter

1. Body pale yellow; hind trochanter with protuberance equal in size to that on mid trochanter 2
 - At least second and third metasomal segments brown or black; hind trochanter with protuberance smaller than that on mid trochanter 3
2. Body uniformly pale yellow, T2 and T3 with the same color as mesosoma; mesoscutum punctate-reticulate; metapleuron ridged; T4 and T5 densely punctate apically *M. ohli* Pagliano
 - Body almost whitish, T2 and T3 with dark markings on disc and darker than mesosoma; mesoscutum subreticulate-punctate, punctures about 0.5 diameter apart; metapleuron smooth; T4 and T5 less densely punctate, about 1 diameter apart apically *M. silvioi* Pagliano
3. First metasomal segment ferruginous yellow; legs ferruginous yellow; forewing veins light brown to yellow; brachial cell 2.8 times as long as wide and 1.3 times as long as anterior vein of cubital cell; parameres of genitalia long and strongly concave at outer margin, clothed with long and dense setae basally, provided with strongly prominent process subbasolaterally (Figure 21); aedeagus greatly shorter than parameres (about 0.5 times as long as parameres (Figure 21) *M. brothersi* Gadallah & Soliman
 - First metasomal segment brown; legs and forewing veins pale yellow to whitish; brachial cell as long as wide and 0.8 times as long as anterior vein of cubital cell; parameres of genitalia short and moderately concave at outer margin, clothed with short and scattered setae basally, provided with less prominent process subbasolaterally (Figures 20, 30, and 31); aedeagus at most slightly shorter than parameres (Figures 20 and 30) 4
4. Face punctate-reticulate (Figure 23); T1 1.1 times as long as wide; T2 slightly wider than long (Figure 26); propodeal posterior face foveate; punctures

subreticulate to reticulate on different parts of the body; aedeagus shorter than parameres (Figure 30)

..... *M. khorimensis* sp. nov.

- Face smooth on upper half, punctulate on lower half (Figure 14); T1 1.3 times as long as wide; T2 longer than wide (Figure 18); propodeal posterior face smooth; punctures noticeably dispersed on different parts of the body; aedeagus as long as parameres (Figure 20)

..... *M. zulfiensis* sp. nov.

Nomenclatural acts: This work and the nomenclatural acts it contains have been registered in ZooBank. The ZooBank Life Science Identifier (LSID) for this

publication is: <http://zoobank.org/urn:lsid:zoobank.org:pub:959ABA53-52E0-48BC-B618-C857386B606C>

Acknowledgments

This study was supported by NSTIP Strategic Technologies Programs, project number 12-ENV2825-02, in the Kingdom of Saudi Arabia. The authors thank Hassan F, Mahmoud S Abdel-Dayem, Ashraf M EL-Torky, and Ali A Elgharbawy (King Saud University Museum of Arthropods, Plant Protection Department, College of Food and Agriculture sciences, King Saud University) for help in collecting the specimens.

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