Order Hymenoptera, family Crabronidae

Genera *Trypoxylon, Pseudomicroides* and *Belomicroides*

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INTRODUCTION

This contribution concerns three genera of Crabronidae. Most other Crabronidae genera are treated by Schmid-Egger (2011). See this contribution for general aspects about Crabronidae, sources of material, methods, etc. *Trypoxylon* Latreille, 1796, has a worldwide distribution with about 630 described species. *Pseudomicroides* Antropov, 2001, has an old world distribution and contains 15 species (including the species described here). *Belomicroides* Kohl, 1899, contains 16 species with an African and Arabian distribution only.

Since two revisions of the *Trypoxylon scutatum* species-group and of the genus *Pseudomicroides* have been published (Tsuneki, 1978; Antropov, 2001) were published, supplementary data about those genera in the eastern Mediterranean region and southwest Asia, with particular reference to the United Arab Emirates, were obtained. The present publication is devoted to the description of new species of digger wasps from this region: *Trypoxylon splendidum* nov. spec. (Crabronidae, Trypoxylini), widely distributed in the eastern Mediterranean region, *Pseudomicroides arabicus* nov. spec. and *Pseudomicroides applanatus* nov. spec. (Crabrnidae, Oxybelini) from the United Arab Emirates.

MATERIALS AND METHODS

The studied specimens are deposited in the collections of the following institutions:

BMNH	The Natural History Museum, formerly British Museum (Natural History), London, UK;
CSE	Dr. Christian Schmid-Egger personal collection;
MSNT	Museo Regionale di Science Naturali, Torino, Italy;
OÖLM	Oberösterreiches Landesmuseum, Linz, Austria;
RMNH	Rijksmuseum van Natuurlijke Historie, Leiden, the Netherlands;
TAU	Zoological Museum, Tel Aviv University, Israel;
UAEIC	United Arab Emirates Invertebrate Collection, UAE;
ZMHU	Zoologisches Museum der Humboldt Universität, currently Museum für Naturkunde der Humboldt-Universität zu Berlin, Berlin, Germany;
ZMMU	Zoological Museum, Moscow Lomonosov State University, Moscow, Russia.

The specimens collected within the framework of the 'UAE Insect Project' are divided between CSE, UAEIC, ZMHU and ZMMU.

The studied type specimens of *Trypoxylon aegyptium* Kohl, 1906, and *Trypoxylon arabicum* Gussakovskij, 1936, are deposited in the collections of the Naturhistorisches Museum, Wien, Austria and the Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia respectively.

Abbreviations used in the descriptions: Clw:Clh – ratio of clypeal width to its height; CMLw:CMLh – ratio of clypeal medial lobe width to its height; d – relative distance between punctures; dFSh:vFSh – ratio of height of frontal shield upper area (above the point of bifurcation of outward branch carina) to height of its lower area; FSh:FSw – ratio of frontal shield height to its maximum width; G1L:W – ratio of 1st tergite maximum length (measured from posterior end of vertical joining plate) to its maximum width (dorsal view); Hw:Hh –

ratio of head width to its height (frontal view); IOD – ratio of distance between inner eye orbits at level of medial ocellus to maximum distance at level of eye emarginations (in the case of *Trypoxylon*) and at level of lower margins of antennal sockets; OOd:Od:Pod – ratio of distance between inner eye orbit and outer margin of lateral ocellus to diameter of lateral ocellus and distance between lateral ocelli; VA – angle between straight lines connecting lower apex of frontal shield and points of bifurcation of outward branch carinae; ∅ – relative diameter of punctures.

For the terms used in the description of *Trypoxylon* frontal shield, see Tsuneki (1978)

Habitus photographs do not contribute much to the recognition of the species, but for the sake of the general reader some of them are presented as annexes.

SYSTEMATIC ACCOUNT

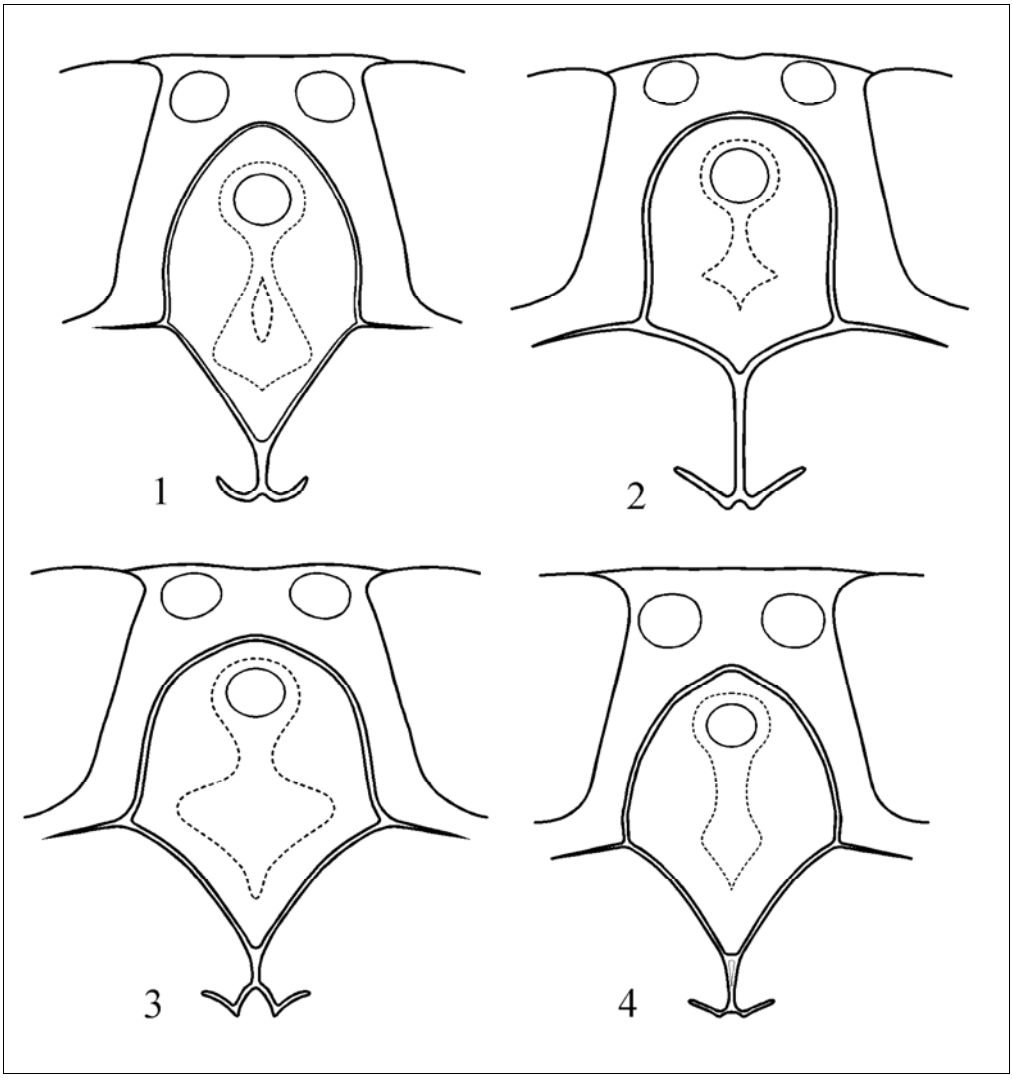
Genus ***Trypoxylon*** Latreille, 1796

Trypoxylon splendidum Antropov **nov. spec**. Plates 1–6, Figures 4, 6, 10

Trypoxylon aegyptium Kohl, 1906: de Beaumont, Bytinski-Salz & Pulawski, 1973:20 (Israel) [partim]; *Trypoxylon arabicum* Gussakovskij, 1936: Guichard, 1980: 228 (Oman) [partim].

Specimens examined: Holotype ♀: SAUDI ARABIA, "W. Saudi Arabia. Muhayl,. 8.I.1983. A. Pittaiday" [error for A. Pittaway] (*T. arabicum* – Guichard det. x.1986) [BMNH]. Paratypes: 18♂, 14♀. UNITED ARAB EMIRATES: 1♀, Hatta (Htl), 28.iv.1989, leg. I.L. Hamer (*T. scutatum* – Guichard det. 1989) [BMNH]; 1 female, Uytinah, 28.viii.1985. leg. I.L. Hamer (*T. scutatum* – Guichard det.) [ZMMU]; 1♂, Dubai, Nakhalai, 21–25.iv.1984. Malaise trap, leg. E. Sugden [ZMHU]. OMAN, 1♀, Al Qabil, 15.iv.1985, leg. I.L. Hamer (*T. arabicum* – Guichard det. 1986) [ZMMU]; 1♂, Wadi Quryat, Agr. St., 5.iii.1976, K. Guichard" (*T. arabicum* – Guichard det. 1980) [ZMMU]. QATAR: 1♀, Al Shahanyeh, 15.viii.1980, leg. C.G. Roche (*T. arabicum* – Guichard det. 1980) [BMNH]; 1♂, Al Shahanyeh, 13.vi.1980, leg. C.G. Roche (*T. arabicum* – Guichard det. 1980) [BMNH]. GREECE: 1♀, Rhodes, nr. Lindhos, 36°06'N 28°04'E, 22.viii.1975, leg. Ph. Pronk (75 048) [RMNH]; 1♂, 1♀, Rodi. Cremasti. 2.ix.1933. leg. A. Mochi [MSNT]. TURKEY: 1♀, Pr. Hakkari. W Uludere, 900–1400 m, 9.viii.1982, leg. W. Schacht [OÖLM]. LEBANON: 1♂, Bekaa, Mrah Bakarach, 14.viii.1952 [MSNT]. SYRIA: 1♂, Aiir Hafra. 25.viii.1954 [MSNT]. ISRAEL: 4♂, 3♀, Hazeva, 15.vii.1982, leg. A. Hefetz (1♀, *T. aegyptium* – Guichard det. 1991) [BMNH, ZMMU]; 1♀, Arava Valley, Hazeva, 30°46.88'N 35°14.56'E, 5.v.1995, sh2, leg. M. Irwin [ZMHU]; 1♂, Arava Valley, Har Badad, Wadi Neqarot, 30°36.09'N 35°03.04'E, 8.iv.1995, sh28, leg. M. Irwin, [ZMHU]; 1♂, Nahal Uvda, Shaharut Junc, 2.v.1986, leg. A. Freidberg [TAU]; 1♀, Wadi Qilt, 24.iv.1940, leg. H. Bytinski-Salz (*T. aegyptium* – Pulawski det. 1971) [TAU]; 1♀, Tel Aviv, 27.viii.1946. leg. H. Bytinski-Salz (*T. aegyptium* – Pulawski det. 1971) [TAU]; 1♂, Tiberias, 1.vii.1945. leg. H. Bytinski-Salz (*T. aegyptium* – Pulawski det. 1971) [TAU]; 1♂, Jerusalem, Beth Hakerem, Wadi Kuaz, 3.vi.1950. leg. O. Theodor (*T. scutatum* – J. de Beaumont det. 1951) [TAU]. PALESTINE: 1♂, 1♀, 30 km S of Eilat, 4.ix.1976, leg. A. Freidberg [TAU]; Jericho, 15.xi.1942. leg. H. Bytinski-Salz (*T. aegyptium* – Pulawski det. 1971) [TAU]. EGYPT: 1♂, Sinai, W. Sial, 10.vii.1969, leg. A. Freidberg [TAU]; 1♂, Sinai, S. Katharina, 1500 m, 18.v.1970, leg. H. Bytinski-Salz (*T. aegyptium* – Pulawski det. 1971) [TAU].

Description. Female holotype, body length 12.5 mm, forewing length 5.3 mm. Head broader than high (Hw:Hh=1.2:1); inner eye orbits convergent below, with deep emarginations (IOD=15:46:10). Frontal shield outlined with distinct carinae, only rarely somewhat smoothed dorsally; upper lateral carinae uniformly curved outwards, lower carinae always more or less curved inwards (FSh:FSw=10:14, dFSh:vFSh=15:10, VA=85°); inner surface of frontal shield convex laterally, concave along medial line, but without medial furrow and preapical pit; outward branch carinae distinct; enclosed space on the end of medio-apical



Figures 1–4. Frontal shield of female. 1: *Trypoxylon aegyptium* Kohl; 2: *Trypoxylon scutatum* Chevrier; 3: *Trypoxylon arabicum* Gussakovskij; 4: *Trypoxylon splendidum* nov. spec.

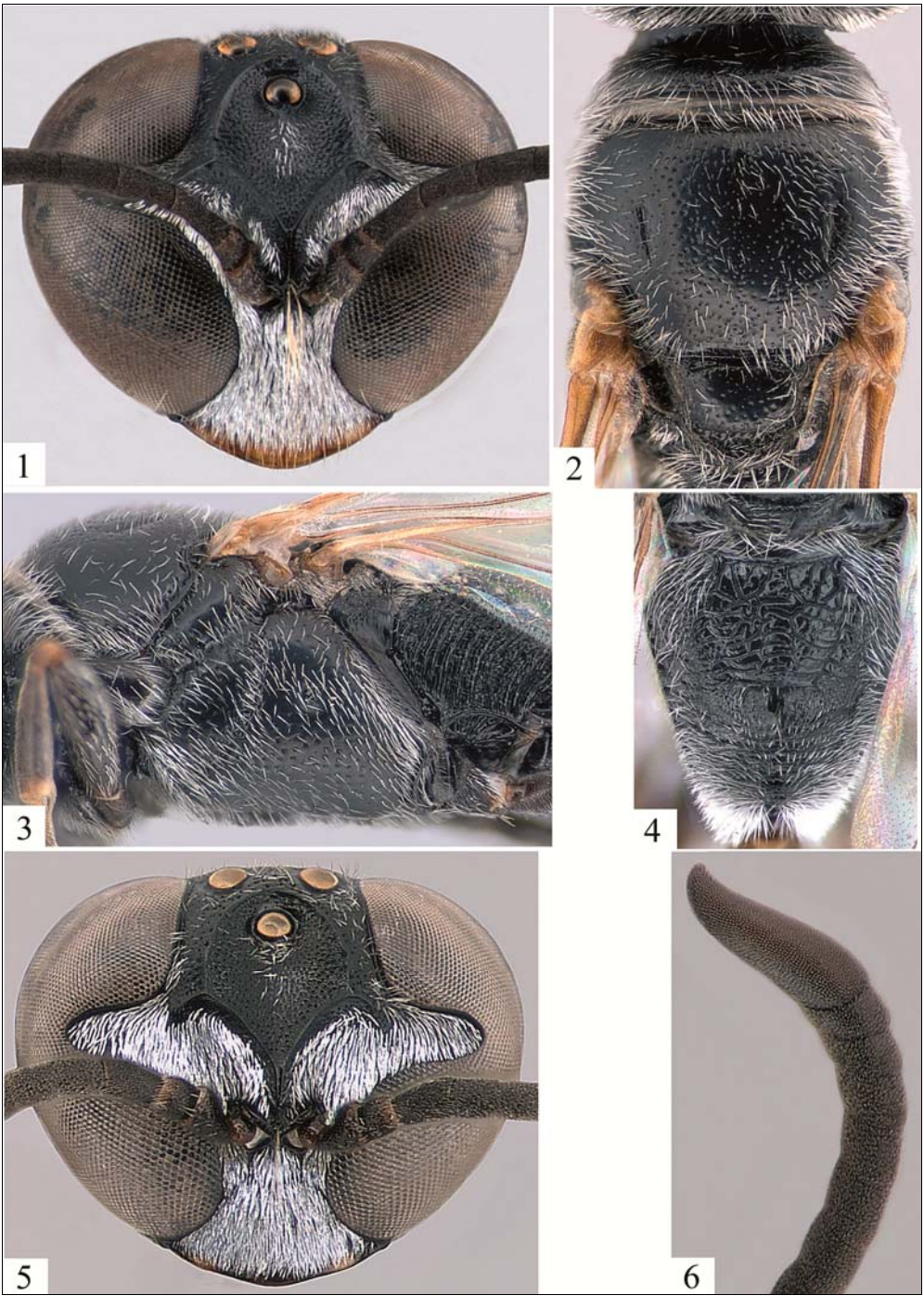
carina very small, less than half of diameter of medial ocellus. Clypeus mainly slightly convex, flattened along naked apical border, evenly roundly triangular anteriorly; apical border wider than diameter of lateral ocellus (Clw:Clh=1.7:1). Vertex between lateral ocelli slightly convex, flattened behind ocellar triangle (OOd:Od:POd= 1:5.2:4.6). Temples narrow, evenly convex. Occipital carina thin and distinct, almost completely circular, weakly interrupted ventrally; ventral interruption and distance between occipital and hypostomal carinae approximately equal to diameter of lateral ocelus. Mandible unmodified, without separate teeth and lobes. Antennae unmodified; 1–9 flagellar articles gradually shortening, though even preapical article approximately 1.2 times longer than thick; apical flagellomere

more than twice as long as thick. Pronotum with deep transverse furrow between anterior part and convex laterally and flattened anteriorly, pronotal collar ending with distinct translucent posterior border; pronotal lobes rounded, ecarinate. Scutum uniformly convex; admedial lines short, only 2–3 times longer than translucent posterior border of pronotal collar; parapsidal lines absent; adlateral lines narrow, groove-like. Scutellum flattened, ecarinate laterally. Postscutellum short. transverse. Mesopleuron uniformly convex; only postspiracular carina and episternal suture present. Legs unmodified. Propodeum with thin but distinct lateral keels and distinct dorsal enclosure margined by deep transversely carinate concavity, most deep posteriorly; hind side uniformly weakly rounded, with elongate narrow medial pit; lateral sides flat. First gastral segment long (G1L:W=4.8:1), evenly broadened posteriorly; tergite 1 envelopes laterally sternite 1 almost to vertical joining plate; apical tergite acute, without pygydial structures; gastral sternites unmodified.

Sculpture. Surface of clypeus, lower frons, and eye emarginations hardly visible because of dense pubescence, though clypeus behind smooth and shiny apical border densely and delicately micropunctate and mat; upper frons laterad from frontal shield evenly punctate, though punctures diminishing near eye orbits; vertex between lateral ocelli similarly densely punctate (d≤∅) and mat; head behind ocellar triangle and temples almost invisibly micropunctate, with shiny surface; frontal shield densely and evenly punctate, interspaces half–mat, slightly shiny along medial line.

Pronotal collar punctate as frontal shield, though interspaces shiny; scutum evenly and very delicately punctate, with polished interspaces (d=2–4∅ or more); scutellum with sparser and irregular punctures, mainly posteriorly, with shiny surface; postscutellum densely and irregularly wrinkled; mesopleuron with punctures as on scutum or somewhat larger ventrally, interspaces shiny without visible microsculpture; metapleuron anteriorly smooth and shiny, only dorsally with thin longitudinal wrinkles. Propodeal dorsal enclosure shiny, delicately carinate basally, with wide transversely cellulate medial furrow and irregularly transversely carinate rest of surface; lateral parts between enclosure and lateral keels half-mat, with transverse carinae forming irregular cells; hind side almost invisible because of dense pubescence, except behind dorsal enclosure transversely carinate; lateral sides shiny, densely and regularly obliquely striate, with sparse irregular punctures posteriorly. Gastral segments micropunctate, half-mat, only apical tergite with smooth medial line.

Pubescense. Clypeus mainly, frons below frontal shield, and eye emarginations covered with very dense appressed and strongly shiny hairs not longer than diameter of medial ocellus; frontal shield with a few similar hairs along medial line below medial ocellus; medio-apical carina below with 3–4 long coarse bristles, 2 of which begin from small enclosed space; vertex weakly pubescent with short semi-erect hairs; occiput with long setae directed upwards; temples with longer setae directed downwards but not covering sculpture of surface; lower temples with more erect setae equal or even longer than thickness of fore femur. Fore margin of pronotum with sparse and straight setae directed radially backwards and twice longer than diameter of medial ocellus; pronotal collar dorsally and hind pronotal border with erect setae, approximately 1.5 times shorter than those on fore margin; pronotal lobes with similar, but appressed and directed backwards setae; scutum with weaker pubescence, developed mainly at anterior angles, lateral margins and posteriorly, where semi-erect setae approximately equal to diameter of lateral ocellus; pubescence of medial part of scutum short, erect, weakly visible, approximately twice shorter than diameter of medial ocellus; scutellum pubescent as scutum, mainly along lateral and posterior margins; postscutellum with setae similar to those on pronotal collar, but denser and covering its sculpture; mesopleuron with



Plates 1–6. *Trypoxylon splendidum* nov. spec. 1: Head of female in frontal view; 2: Thorax in dorsal view; 3: Thorax in lateral view; 4: Propodeum in dorsal view; 5: Head of male in frontal view; 6: Apical part of flagellum of male in dorsal view.

setae similar to those on pronotal collar, almost erect and directed obliquely downwards and backwards; metapleuron and propodeal lateral sides and dorsal enclosure bare; dorsal propodeal part between dorsal enclosure and lateral keels and whole hind side covered with relatively dense setae slightly longer or equal to hind basitarsomere; setae of hind side directed radially from medial pit; gastral segments covered mainly with very short semi-erect or appressed (on 4th–5th tergites) hairs; a few elongate silvery setae present on 1st tergite basally; 3rd–5th sternites with long sparse erect brownish setae preapically; 6th sternite with similar setae on whole surface. Legs with short semi-erect hairs approximately twice shorter than diameter of lateral ocellus, mainly developed on ventral side of fore and mid tibiae and hind side of coxae and trochanters. Anterior edge of hind wing with separated row of hamuli containing 5 hooks in proximal and 3 hooks in distal group.

Colour. Body mainly black. Apical clypeal border brown; mandible mainly brown, slightly darkened basally and apically; palpi reddish-brown; posterior border of pronotal collar translucent, discoloured, whitish; tegulae mainly translucent, reddish-brown at posterior corners; wing scales reddish, with brown medial marking; legs mainly black, except brown apical markings of femora, tibiae, and tarsomeres; veins mainly from brown to dark brown except reddish-brown at the wing base and almost black stigma.

Male paratype, body length 12.5 mm, forewing length 5.0 mm. Mainly similar to female externally, differing in the features connecting with sex (Hw:Hh=1.2:1; IOD=17:42:10; FSw:FSh=10:13; dFSh:vFSh=15:10; VA=85°). Distance between inner eye orbit and lateral ocellus longer (OOd:Od:POd=31:24:10); clypeus shorter (Clw:Clh = 2:1), waved anteriorly, with medial and lateral lobes moderately projecting forwards; preapical flagellomere shorter than thick; apical flagellomere distinctly longer than three (sometimes even four) preceding together; gastral 1 segment comparatively shorter (G1L:W=4.1:1); gastral sternite 8 with weak lateral widenings, posteriorly with a pair of obliquely truncate and weakly curved to medial line lateral projections, separated by large emargination approximately 1.5 times broader than deep; lateral and posterior margins bearing bunches of long bristles.

Variation. Body length 10.0–13.0 mm in females and 9.5–12.5 mm in males. Scutal punctures variy from small but distinct to practically invisible, particularly in smallest females and males. Apical flagellomere in males distinctly may be equal to 3.5–4.5 preceding ones together.

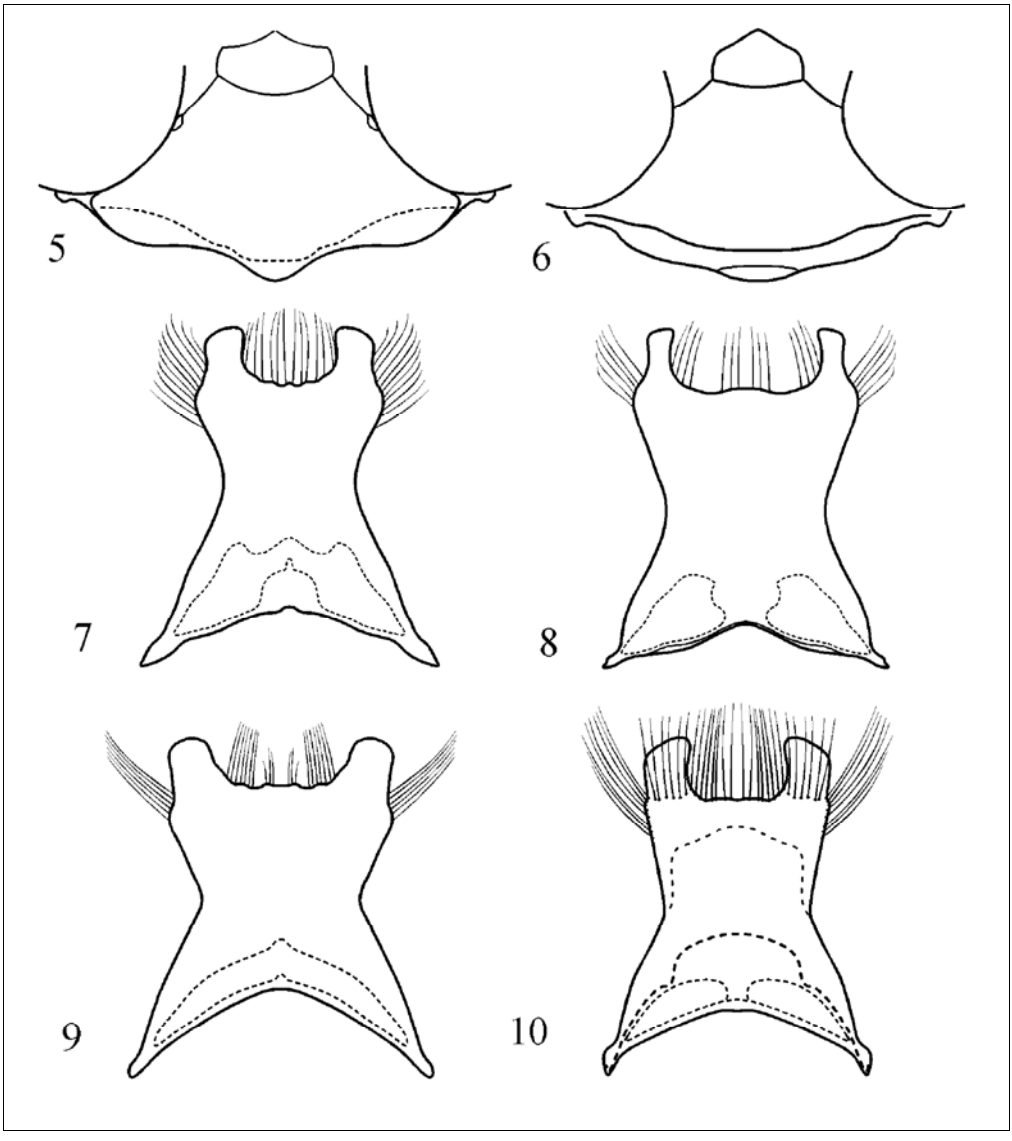
Remarks: The following peculiarities of the described new species differentiate it from other members of the species-group *Trypoxylon scutatum*: Relatively short frontal shield with acute ventral angle and lower carinae curved inside, and very delicate punctures of scutum and mesopleurae with shiny interspaces lacking microsculpture.

Distribution: Widely distributed in the eastern Mediterranean sea–coast, reaching the Persian Gulf in the East.

Etymology: After *splendidus*, Latin for ‘shiny’, referring to the surface of the thorax.

Key to the *Trypoxylon scutatum* species-group of the eastern Mediterranean region and southwest Asia

1 Frontal shield strongly elongate (FSh:FSw=1.6:1), with elliptical medial pit, straight lower carinae, acute ventral angle (VA=77°), and small enclosed space (Fig. 1). Scutum and mesopleuron moderately punctate by small punctures, with interspaces microstriate, mat or half-mat. Male gastral sternite 8 with obliquely truncate apicolateral projections separated by almost semicircular apical emargination (Fig. 7) .... ***Trypoxylon aegyptium*** Kohl, 1906



Figures 5–10. 5–6. Clypeus of male. 5: *Trypoxylon arabicum* Gussakovskij; 6: *Trypoxylon splendidum* nov. spec. 7–10. Gastral sternite 8 of male. 7: *Trypoxylon aegyptium* Kohl; 8: *Trypoxylon scutatum* Chevrier; 9: *Trypoxylon arabicum* Gussakovskij; 10: *Trypoxylon splendidum* nov. spec.

– Frontal shield moderately elongate (FSh:FSw=1.2–1.4:1), without medial pit, with lower carinae curved inwards, and ventral angle from nearly straight to obtuse (VA>85°). Scutum and mesopleuron with interspaces between punctures smooth and shiny **2**

2 Frontal shield of various proportions (FSh:FSw=1.1–1.3:1), with strongly obtuse ventral angle (VA=110–130°), and small enclosed space (Fig. 2). Scutum and mesopleuron with middle–size punctures. Gastral segment 1 comparatively short, particularly in male. Male

gastral sternite 8 with narrow and obliquely truncate apicolateral projections separated by apical emargination more than twice wider than deep (Fig. 8) .... ***Trypoxylon scutatum*** Chevrier, 1867

– Frontal shield with almost straight or straight ventral angle (VA=85–92°). Scutum and mesopleuron very coarsely or very delicately punctate. Gastral segment 1 comparatively longer. Male gastral sternite 8 with broader lateral projections **3**

3 Frontal shield comparatively short (FSh:FSw=1.2:1), with almost straight or straight ventral angle (VA=89–92°), and deep and wide enclosed space (Fig. 3). Scutum and mesopleuron very coarsely punctate by deep and large punctures. Male clypeus with triangularly projecting medial lobe (Fig. 5). Male gastral sternite 8 with short and rounded apicolateral projections separated by apical emargination twice wider than deep (Fig. 9). .. .. ***Trypoxylon arabicum*** Gussakovskij, 1936

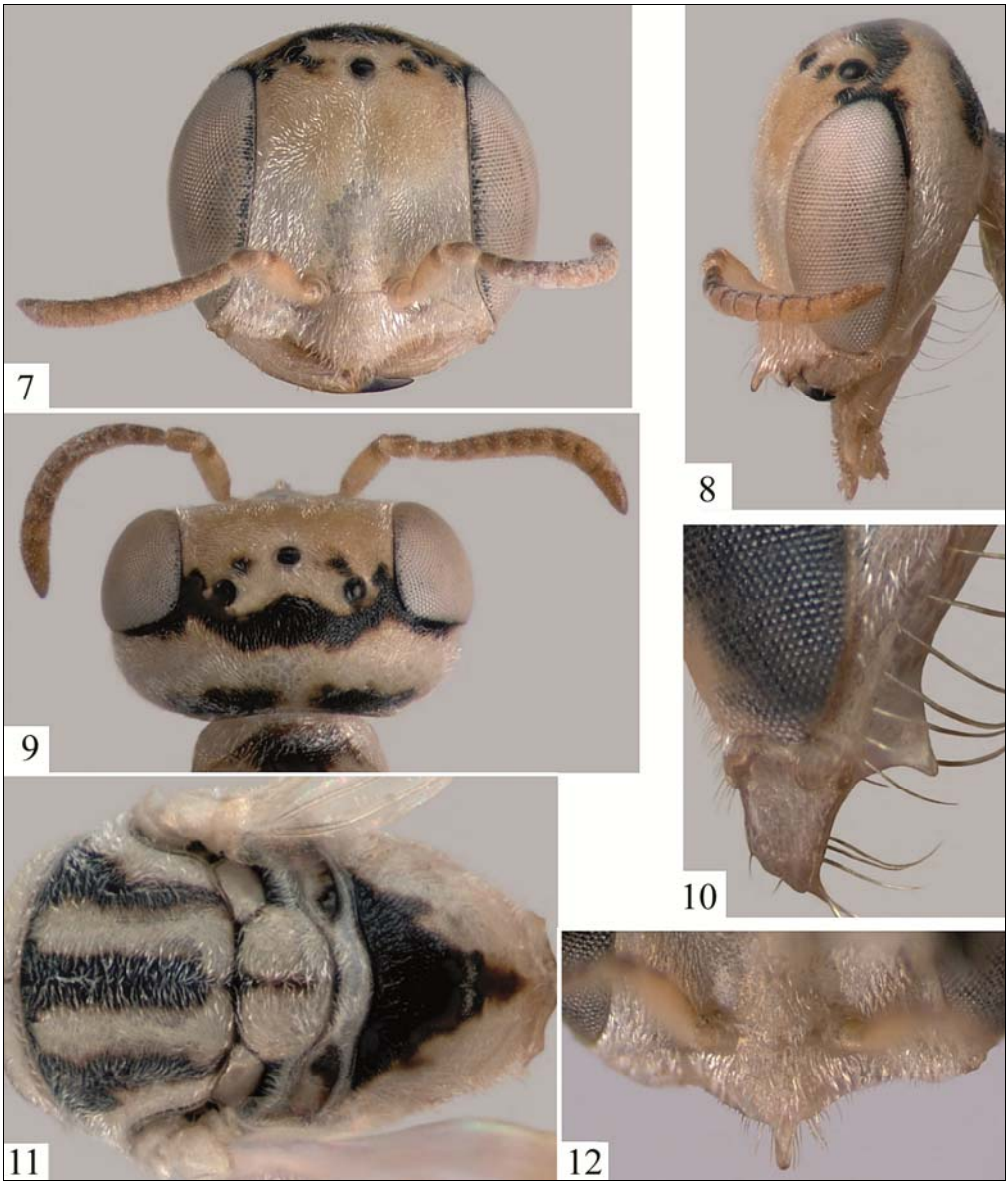
– Frontal shield comparatively longer (FSh:FSw=1.4:1), with more acute ventral angle (VA=85°), and small enclosed space (Plates 1 & 5; Fig. 4). Scutum and mesopleuron very delicately punctate by small punctures (Plates 2–3). Male clypeus with short ovally projecting medial lobe (Fig. 6). Male gastral sternite 8 with longer and obliquely truncate apicolateral projections separated by apical emargination 1.5 times wider than deep (Fig. 10). ..... ***Trypoxylon splendidum*** Antropov nov. sp.

Genus ***Pseudomicroides*** Antropov, 2001

Pseudomicroides arabicus Antropov **nov. spec.** Plates 7–16

Specimens examined: Holotype ♀: United Arab Emirates, "UAE: Al Ain (B'low) [Al ʻAyn], 24–VI–1988. I.L. Hamer", "K.M. Guichard Coll., BMNH (E) 2002-69" [BMNH]. Paratypes: 1♂, Remah [Riyāmah], 2.iv.1987, leg. I.L. Hamer (*Belomicroides* sp. aff. *zimini* (Guss.). Det. D.B. Baker 1987) K.M. Guichard Coll., BMNH (E) 2002-69 [BMNH]. 1♀, ar-Rafah, 25°43'N 55°51'E, 28.vi.2008, in water traps, leg. A. van Harten. 1♀, North of Ajman, 25°26'N 55°29'E, 23.vii.2008, in water traps, leg. A. van Harten; 2♂, North of Ajman, 30.iv.2008, in water traps, leg. A. van Harten.

Description: Female holotype, body length 4.1 mm. Head frontally rounded, almost equal in width and height (Hw:Hh = 1.1:1) (Plate 7); inner eye orbits moderately divergent above; IOD=1:1.27; frons moderately concave ventro-laterally, flat-convex medially, moderately convex and with shallow medial furrow dorsally; apical border of clypeus narrow; medial lobe of clypeus uniformly convex along middle, at lower part with almost straight sharp conical projection directed ventrad and flattened anteriorly (Plates 8 & 12); vertex uniformly convex, with lateral plates oval, flat, smooth, and distinctly outlined; OOD:OD:POD=5:4:18; temples moderately convex posteriorly, with long sharp triangular prominence ventrally (Plate 10); mandibles weakly thickened apically, without teeth and notches at outer and inner margins; almost all flagellomeres transverse to quadrate, only apical flagellomere almost twice longer than its basal thickness. Pronotal collar uniformly roundly convex, with distinct medial furrow, without transverse ridges; pronotal lobes rounded, without ridges. Scutum uniformly flat-convex; admedial lines narrow, merging into narrow medial ridge, reaching 1/3 of scutal length; parapsidal lines not expressed; adlateral lines in the shape of short and narrow flat stripes; scutellum flat, without lateral ridges; postscutellum short, roundly convex, with smoothed lateral ridges; mesopleuron moderately convex, with only narrow episternal suture present; metapleuron flat, without expressed dorsal flange; fore femur rounded and without ridge along outer margin; hind femur unmodified apico-dorsally. Propodeum uniformly convex; dorsal area not outlined; propodeal hind side with shallow oval and narrowed ventrally medial pit, not bordered with carinae. Gastral tergite 1 with narrow



Plates 7–12. *Pseudomicroides arabicus* nov. spec., female. 7: Head in frontal view; 8: Head in lateral view; 9: Head in dorsal view; 10: Temporal prominence in lateral view; 11: Thorax and propodeum in dorsal view; 12: Clypeus in frontal view.

medio-basal furrow; middle tergites unmodified; tergite 6 flat, outlined with sharp carinae; sternite 6 squeezed laterally, rounded in profile.

Sculpture. Body very densely micropunctate (d≤∅). Frons and vertex mainly mat; temples with shiny interspaces between punctures. Thorax with smaller but also dense punctures;

pronotum and scutum mat; scutellum and postscutellum with smooth interspaces between punctures; mesopleuron, metapleuron, and propodeum laterally and posteriorly vaguely punctate, half-mat; propodeal dorsum with short regular radio-longitudinal carenulae basally and with smooth surface. Abdomen vaguely sculptured, mainly transversely smoothly microstriate; tergite 5 distinctly and densely punctate, tergite 6 with largest but sparse punctures (d=0.5–3∅).

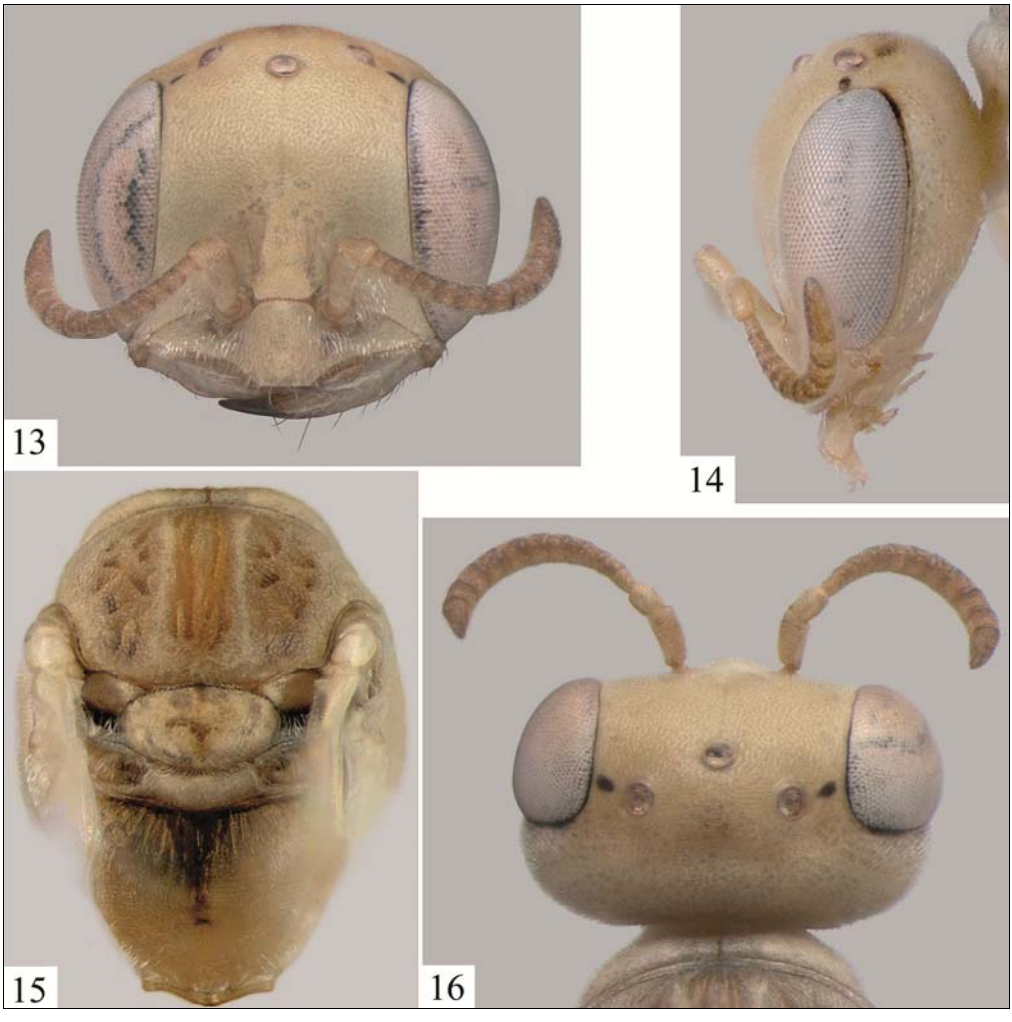
Pubescence. Weak, silvery, mainly half-raised, pressed on lower frons, clypeus, and ventral side of mesopleuron, not concealing surface sculpture. Temporal psammophore consists of sparse thin bristles curved inwards and approximately 1.5 times longer than basal breadth of mandible; longest bristles of mandibular psammophore at least twice longer than basal breadth of mandible; psammophore at fore trochanters and femora not expressed. Digging rake of fore tarsomere consists of four thick raised bristles 1.5 times longer than tarsomere's breadth.

Colour. Body mainly yellow, with weak dark markings. Upper frons yellow, lower frons almost white; clypeus with discoloured apical margin; projection of medial lobe translucent, reddish apically; vertex with curved transverse black strip between and behind lateral ocelli, small black spots at front of lateral ocelli, moderate black border along dorso-posterior edge of eye, and a pair of large black spots above occipital carina (Plate 9); lateral plates black. Mandibles dark brown apically. Scape posteriorly and flagellum dorsally brownish. Pronotum with transverse black spot; pronotal collar yellowish-white, medial furrow dark, semi-translucent. Scutum with medial and two lateral black strips reaching its posterior margin; scutellum with narrow black strip (Plate 11); mesopleuron with dark brown spot in the middle; meso-metapleural suture black. All tarsi yellow, reddish apically. Fore legs completely yellow; middle and hind coxae anteriorly and hind trochanters ventrally with dark brown spots; mid femora with dark brown basal spot; hind femora with dark brown strips ventrally and dorso-posteriorly; mid and hind tibiae with dark brown longitudinal inner spots. Tegulae translucent, with whitish basal spot; wing scales and veins yellowish-white. Propodeum dorsally with large black triangular spot, becoming brownish-black medial strip posteriorly (Plate 11). Gaster reddish-yellow; first tergite with large basal reddish spot, tergites 2–3 with reddish-brown basal strips, tergite 6 reddish apically. First gastral sternite whitish, rest of sternites brownish-red, sternites 1–2 with brown lateral spots, sternites 2–4 with transverse whitish apical strips.

Male paratype, body length 3.6 mm. Mainly similar to female, excluding sex–related features. Head rounded from frontal view, somewhat wider than high (Hw:Hh = 1.14:1) (Plate 13); inner eye orbits weakly divergent below; IOD=1:1.1; upper frons with weak medial furrow; lateral grooves of vertex small, oval, flat-convex, distinctly outlined; OOD:OD:POD=6:5:21 (Plate 16); temples uniformly convex, shorter than eyes (Plate 14) medial lobe of clypeus uniformly convex, truncate apically and with distinct lateral angles; distance between angles shorter than between angle and nearest antennal socket. Antennomeres 6–10 weakly longitudinal, apical segment twice longer than its maximum thickness. Gastral apical tergite truncate apically, distinct margined laterally by sharp carinae.

Sculpture. Body very densely punctate with smooth interspaces between punctures: at upper frons and vertex – d≤∅; at scutum and scutellum – d≈∅; mesopleuron with distinct dorsally and smoothed ventrally punctures – d≈∅; gastral tergite 6 with large apical punctures – d≈∅, apical tergite with large solitary punctures.

Pubescence. Distinctly weaker than in female, mainly appressed, except preapical bristles of gastral sternites; forebasitarsal digging rake consists of 4–5 raised outer bristles 1.5 times



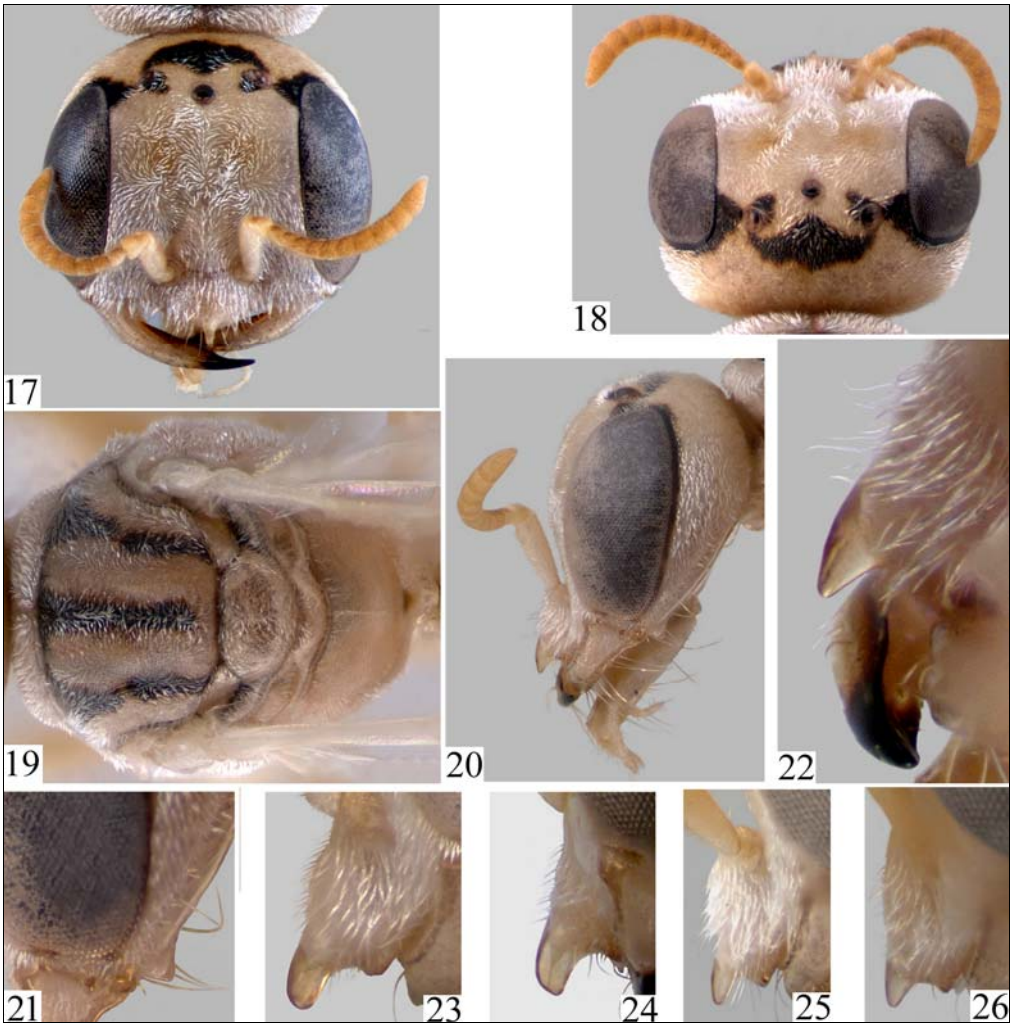
Plates 13–16. *Pseudomicroides arabicus* nov. spec., male. 13: Head in frontal view; 14: Head in lateral view; 15: Thorax and propodeum in dorsal view; 16: Head in dorsal view.

longer than tarsal breadth; temporal psammophore consists of sparse thin bristles curved inwards and sometimes longer than basal breadth of mandible; longest bristles of mandibular psammophore almost twice longer than basal breadth of mandible.

Colour. Body mainly yellow, with distinctly less developed dark markings than in female. Scape yellow, flagellomeres brownish dorsally; vertex completely yellow, with only lateral plates black and narrow brown strip along dorso-posterior eye margin. Pronotum, scutum (except sometimes expressed darkened posteromedial and lateral areas), scutellum, and lateral sides of thorax and propodeum completely yellow; postscutellum yellowish-white. Legs completely yellow, without dark spots; propodeal dorsum with vague triangular brown spot (Plate 15). Gastral segments reddish-yellow, somewhat darker apically; sternite 2 with small lateral brown spots.

Variation. Body length varies from 3.8 to 4.0 mm in females and from 3.1 to 3.7 mm in males.
Remarks. Among all known females of *Pseudomicroides* which have a short prominence of the medial lobe of clypeus, *P. arabicus* nov. spec. is similar to *P. pulawskii* Antropov, 2001, and *P. applanatus* nov. spec. *Pseudomicroides arabicus* nov. spec. differs from both species by the straight and thin clypeal prominence, which is somewhat flattened along anterior side, by the comparatively larger ventral prominence of temples, and by the large triangular black spot and short basal wrinkles on propodeal dorsum. The female of *P. arabicus* nov. spec. also differs from that of *P. pulawskii* by The scutal black strips not being interrupted or accompanied by dark spots. The male of *P. arabicus* nov. spec. is similar to *P. sinaiticus* Antropov, 2001, in having an almost completely light body and differs from it by the evenly punctuate medial lobe of clypeus with distinct lateral angles, by the legs and gaster without brown markings, and by dark brown propodeal dorsum.
Distribution: United Arab Emirates.
Etymology: Species name is a toponym.

Pseudomicroides applanatus Antropov **nov. spec.** Plates 17–28
Specimens examined: Holotype ♀: "United Arab Emirates. North of Ajman, 25,43N 55,48E, leg. V. Harten, WT, 30.IV.2008, uae4" [ZMHU]. Paratypes: 4♂, North of Ajman, 25°26'N 55°29'E, 5–16.vii.2008, in water traps. A. van Harten; 5♂, 4♀, North of Ajman, 23.vii.2008, in water traps, leg. A. van Harten; 2♂, 1♀, North of Ajman, 17.x.2008, in water traps, leg. A. van Harten;
Description: Female holotype, body length 4.6 mm. Head from frontal view (Plate 17) almost rounded (Hw:Hh = 1.13:1); inner eye orbits slightly convergent above (IOD = 1:1.17); upper frons flat-convex, with vague medial pit; lower frons with a pair of vertical concavities behind scapes; vertex moderately convex, somewhat concave behind distinctly outlined and slightly convex lateral plates (OOd:Od:POd=6:5:22); temples moderately convex, shorter than eyes (Plate 20), with distinct though not strong triangular prominence rounded apically (Plate 21); clypeus transverse, with narrow apical margin, shortly truncate apically; clypeal lateral lobes flat; medial lobe strongly roundly convex, with relatively short rostral preapical projection, curved and distinctly pressed laterally (Plate 22); mandibles broad, distinctly narrowed apically, with weak ventral swelling; antennae unmodified, with all flagellomeres slightly longer than thick, except apical flagellomere at least 1.5 longer than its basal thickness. Pronotal collar convex, with narrow medial furrow; scutum uniformly flat-convex, scarcely higher than pronotal collar; admedial lines strongly drawn together into weak medial carenula scarcely reaching scutal middle; parapsidal lines not expressed; adlateral lines short, ridge–like. Scutellum flat-convex, weakly carinate laterally, without postero-lateral lobes. Postscutellum transverse, short, convex, with strongly smoothed lateral carinae. Mesopleuron uniformly convex. Metapleuron flat. Propodeum unmodified. Gaster unmodified, with tergites 2–3 weakly concave basally.
Sculpture: Frons and vertex densely micropunctate (d≈∅), with smooth interspaces; projection of medial lobe of clypeus shiny, without sculpture; temples dorsally micropunctate, ventrally with puncture merging into vertical wrinkles. Pronotal collar more delicately micropunctate than vertex, with smooth interspaces; scutum more coarsely punctuate than vertex (d≥∅), with smooth interspaces; scutellum micropunctate as vertex; mesopleuron micropunctate as frons. Propodeal dorsum with short longitudinal basal carenulae and the rest of surface vaguely microcellulate and shiny; propodeal hind side very delicately punctate, with slightly narrowed oval medial pit not outlined with lateral carenulae; propodeal hind sides longitudinally microcarinate, smooth between carenulae. Gastral surface shiny; tergites



Plates 17–26. *Pseudomicroides applanatus* nov. spec., female. 17: Head in frontal view; 18: Head in dorsal view; 19: Thorax and propodeum in dorsal view; 20: Head in lateral view; 21: Temporal prominence in lateral view; 22–26: Prominence of clypeus in lateral view (22 = holotype; 23-26 = paratypes).

micropunctate, with interspaces slightly more than diameter of punctures on tergites 1–4; tergite 5 with coarser punctures; tergite 6 outlined laterally with sharp carinae and with largest punctures ($d \leq \varnothing$); sternites vaguely sculptured, without punctures, only sternite 5 shagreened. Pubescence. Moderately developed, silvery, mainly half-raised and not concealing surface sculpture, but pressed on lower frons, clypeus, and ventral side of mesopleuron and concealing surface sculpture. Temporal psammophore consists of sparse thin bristles curved inwards and approximately twice longer than basal breadth of mandible; longest bristles of mandibular psammophore at least twice longer than basal breadth of mandible (Plate 20). Digging rake of fore tarsomere consists of five outer thick raised bristles

2–2.5 times longer than tarsomere's breadth and a pair of outer apical bristles on tarsomeres 2–4 longer than corresponding tarsomere. Scutum with moderate half-raised hairs most expressed along medial line and at antero-lateral angles. Propodeal dorsum almost bare, lateral sides with appressed hairs directed backwards. Gastral tergites with weak half-raised hairs mainly laterally and posteriorly; tergites 5–6 laterally with raised bristles longer than breadth of hind basitarsomere; sternites with short appressed hairs, sternites 2–5 with apical rows of raised bristles longer than breadth of hind basitarsomere.

Colour. Mainly bright, yellowish-white. Upper frons yellow, lower frons almost white; clypeus with discoloured apical margin; projection of medial lobe translucent, red; vertex with irregular transverse black spot between and behind lateral ocelli, small black spots in front of lateral ocelli, triangular black spot between lateral ocellus and nearest eye orbit, and narrow black border along dorso-posterior edge of eye (Plates 17–18); mandibles yellowish-white, dark brown apically; scape completely and flagellum ventrally yellowish-white, flagellum dorsally yellowish-red. Pronotum with dark brown spot in front of collar and vertical brown stripes laterally; scutum with three longitudinal black strips, of which medial strip almost reaching and lateral ones reaching scutal posterior edge; lateral strips somewhat curved and narrowed at adlateral lines (Plate 19); mesopleuron with narrow brown stripes behind pronotal lobes; scutellum and postscutellum mainly yellowish-white; tegulae white basally, with discoloured translucent outer part; wing scales white; wing veins bright, discoloured; legs completely yellowish-white. Propodeum yellowish, with brown hind medial pit. Gastral tergite 1 with basal brown spot; tergite 6 reddish-yellow with red lateral carinae; sternite 2 with a pair of small lateral brown spots; sternite 6 yellowish-red.

Variation. The female paratypes have body lengths from 3.6 to 4.2 mm. Medial projection of clypeus is varying from relatively long and rounded or roundly truncate apically to comparatively short and acute apically (Plates 23–26) but always distinctly appressed laterally.

Male paratype, body length 3.5 mm. Head from frontal view (Plate 27) weakly transverse (Hw:Hh = 1.1:1); inner eye orbits almost parallel (IOD = 1:1) or hardly convergent above; upper frons weakly convex, with weak medial pit; lower frons roundly convex medially, weakly concave laterally, flattened along eye orbits. Clypeus transverse (Clw:Clh=3.2:1); medial lobe of clypeus roundly convex, without projections and carinae (CMLw:CMLh= 1:1.4); apical border of medial lobe distinct, its width equal to distance between acute lateral teeth and antennal socket; ratio of antennal socket diameter, intersocket distance, and distance between antennal socket and inner eye orbit is 1:1.8:1.6; lateral lobes of clypeus almost flat. Vertex moderately convex behind ocellar triangle, weakly concave postero-laterally from lateral ocelli (OOd:Od:POd=1:1:3), with thin lateral grooves curved backwards. Temples moderately widened, not longer than eyes (lateral view). Mandible relatively thin, acute apically, with weakly expressed translucent prebasal widening. Antenna unmodified; flagellomeres from 2nd to preapical transverse, though almost quadrate apically; apical flagellomere approximately twice longer than its maximum thickness. Pronotal collar convex, without transverse carinae, medial concavity, and expressed posterior border; pronotal lobes roundly convex, ecarinate; scutum uniformly convex, moderately higher than pronotal collar; admedial lines weakly visible, not reaching 1/3 of scutal length; parapsidal lines not expressed; adlateral lines weak, short groove-like; postscutal suture narrow, ridgeless; scutellum flat-convex, carinate laterally; postscutellum with stronger lateral ridges, slightly concave posteriorly; mesopleuron moderately convex. Legs unmodified. Propodeum short, with dorsum evidently shorter than hind side. Gastral tergites unmodified; apical tergite narrow, truncate apically, with pygydial plate outlined by lateral carinae; gastral sternites unmodified.

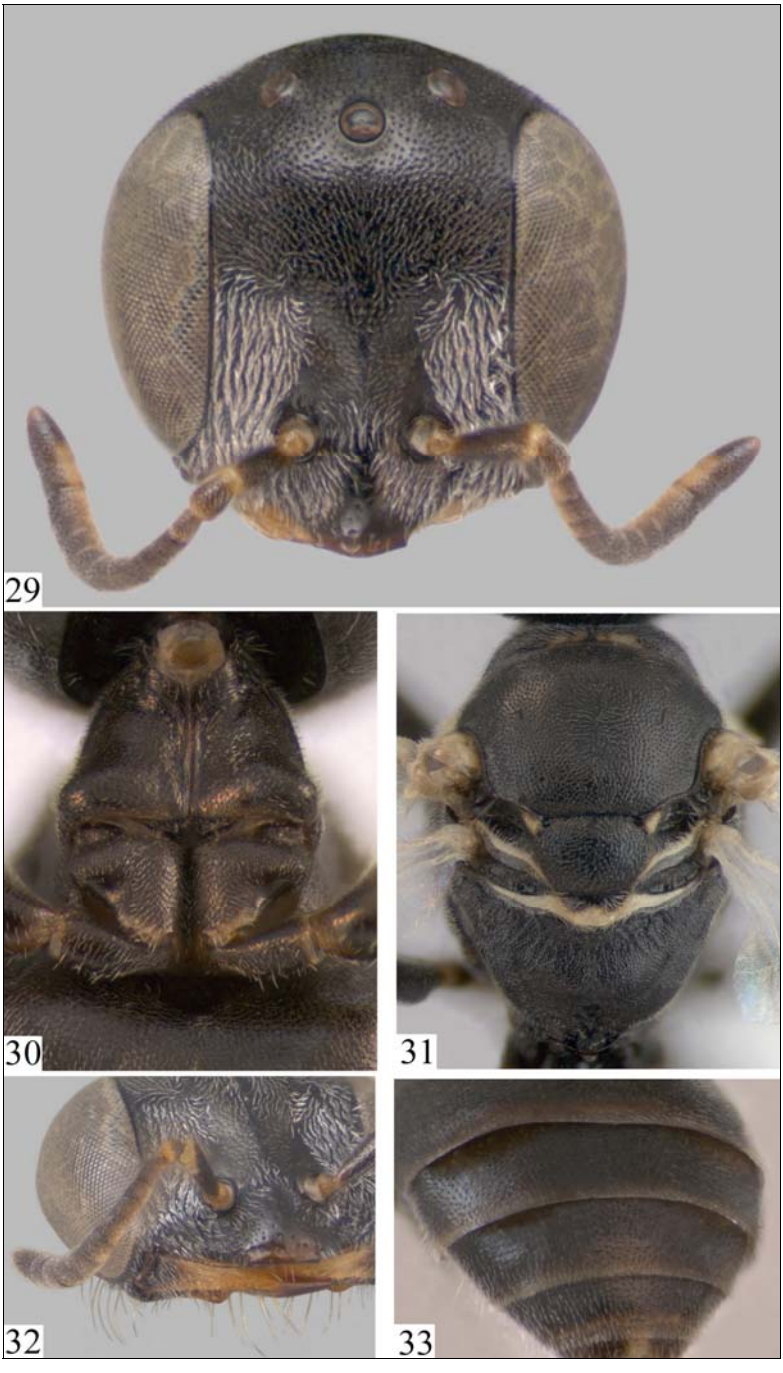
Plates 27–28. *Pseudomicroides applanatus* nov. spec., male. *27:* Head in frontal view; *28:* Thorax and propodeum in dorsal view.

Sculpture. Head and thorax uniformly and densely micropunctate with shiny interspaces on frons, thorax, propodeum, and base of gaster. Medial lobe of clypeus smooth, shiny, and impunctate apically and micropunctate basally; lower frons densely micropunctate (d≈∅); upper frons with larger dense punctures (d≥∅); vertex similarly punctate, though comparatively denser, particularly laterally; temples with dense punctures forming irregular vertical wrinkles below.

Pronotal collar densely punctate as lower frons; scutum evenly punctate as upper frons (d≥∅), comparatively denser at lateral angles and posteriorly, where punctures merging into oblique wrinkles; scutellum slightly sparser punctate, particularly medially (d=2–3∅); mesopleuron densely, but more delicately than scutum punctate (d≈∅). Propodeum basally shiny, with short radial carenulae; dorsal side irregularly microcellulate, irregularly microstriate and polished along posterior margin; hind side microcellulate, with narrow elliptic medial pit; lateral sides not separated by carinae, irregularly microcellulate and micropunctate. Gastral tergites 1–6 evenly micropunctate, between punctures transversely microstriate; tergite 7 with very coarse punctures (d=1–2∅) at least twice larger than those of tergite 1; sternites with hardly visible micropunctures and several larger preapical punctures, interspaces transversely microstriate.

Pubescence. Mainly very short, consisting of appressed or semi-erect microsetae not concealing sculpture. Lateral lobes of clypeus with appressed and flattened silvery setae; temple with hardly expressed psammophore, containing a few setae not longer than scape thickness, only 1–2 ventral setae 1.5 times longer than scape thickness; mandible ventrally with several setae approximately 1.5 times longer than its basal width . Foretarsal digging rake consists of 4–5 erect outer setae on basitarsus twice longer than its thickness, and of apical setae on 2–4 tarsomeres; mid and hind tarsi on outer surface with translucent setae, basitarsomere with setae 1.5 times longer than its thickness; mid tibia on outer surface with several thickened setae shorter than tibial thickness; hind tibia on outer surface with 3 rows of thickened setae with maximum length 2 times more than tibial maximum thickness. Gastral tergites with rather dense appressed microhairs, laterally with a few preapical setae twice longer than hind basitarsus thickness; sternites with similar microhairs and transverse rows of erect preapical setae twice longer than hind basitarsus thickness.

Colour. Head, thorax, and propodeum mainly black; gaster mainly dark brown. Clypeus mainly reddish, with outer angles of lateral lobes whitish-yellow; medial lobe reddish, somewhat darker basally; lower frons light brown above antennal sockets, along inner eye orbits with narrow whitish-yellow vertical stripes hardly reaching eye middle (Plate 27); vertex black or slightly brownish laterally; temples black, slightly reddish-brown near base of mandibles; mandibles mainly whitish, dark brown apically; flagellum yellowish-red ventrally and reddish dorsally; scape completely reddish; frons mainly black. Pronotum black, with anterior part red; pronotal lobes from light brown to whitish-yellow posteriorly; scutellum and postscutellum mainly black or with reddish lateral ridges (Plate 28). All coxae dark brown; fore trochanter reddish; mid and hind trochanters mainly brown; fore femur mainly reddish, brown basally; mid femur reddish-brown at basal half, with apical half of outer surface and completely reddish on inner surface; hind femur mainly brown, reddish apically; fore tibia yellowish-red on outer surface, whitish basally, reddish on inner surface; mid tibia mainly reddish, whitish-yellow on outer surface, whitish basally; hind tibia on inner surface with brown spot, reddish on outer surface and apically, whitish basally; tarsi light, yellowish-red. Tegula translucent, with white spot basally; wing scales white; wing veins strongly discoloured, whitish. Gastral tergites brown, with discoloured apical bands; apical segment brownish-red; sternites light brown.



Plates 29–33. *Belomicroides maurusius* Pate, male. 29: Head in frontal view; 30: Prothorax in ventral view (outer forecoxal depressions are shown); 31: Thorax and propodeum in dorsal view; 32: Head in ventro-lateral view (prebasal lobe of mandible is shown); 33: Abdominal tergites 2–6 (basolateral sensory areas on tergites 3–4 are shown).

Variation. The paratypes have body length from 3.0 to 4.0 mm. The largest paratype also differs by having completely brown pronotal lobes and scutellum and postscutellum without reddish lateral stripes. In one male paratype gastral tergite 3 bears a pair of narrow latero-basal concavities, which are probably covered by the posterior margin of the preceding tergite in other specimens.
Remarks: The female of *P. applanatus* nov. spec. is very similar in body colouration to the female of *P. pulawskii* Antropov, 2001, from Mauritania, differing from it by the longer and translucent prominence of the medial lobe of clypeus, which is always curved downwards and flattened laterally, as well as by the comparatively denser silvery pubescence of the thorax. The female of *P. applanatus* nov. spec. is also similar to the female of *P. arabicus* nov. spec., but differs from it by the curved downwards and laterally flattened prominence of the medial lobe of clypeus and propodeal dorsum without black spot. Among all known males of the genus *Pseudomicroides* the new species is also similar to the male of *P. pulawskii*, from which it differs by the completely reddish medial lobe of clypeus without white markings, by the absence of white markings on lower frons, temples and hind femora and weaker white markings of all tibiae, by the shorter narrow yellowish stripes along inner eye orbits hardly reaching the middle of the eye height, by the shiny interspaces between punctures of upper frons, and also by the denser punctures of the posterior part of scutum, where they merge into wrinkles.
Distribution: United Arab Emirates.
Etymology: After *applanatus*, Latin for 'flattened', referring to the clypeal prominence.

Genus ***Belomicroides*** Kohl, 1899

Belomicroides maurusius Pate, 1931 Plates 29–33
Belomicroides maurusius Pate, 1931: 9 (Algeria); Antropov, 2002: 700 (Egypt).
Specimens examined: 1♂, Um al-Quwain, 25°32'N 55°32'E, leg. C. Schmid-Egger.
Remarks: This is the third collected male of the species representing the most eastern place of distribution of the genus *Belomicroides*. The female of *B. maurusius* is still unknown.

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I am grateful to all curators of the above mentioned institutions, particularly to Dr. Christian Schmid-Egger (Berlin, Germany), for the opportunity to study the specimens of their collections. The habitus photographs were made at the Humboldt Museum, Berlin/Germany by Dr. Christian Schmid-Egger with assistance of Dr. Michael Ohl and Mr. Volker Lohrmann.

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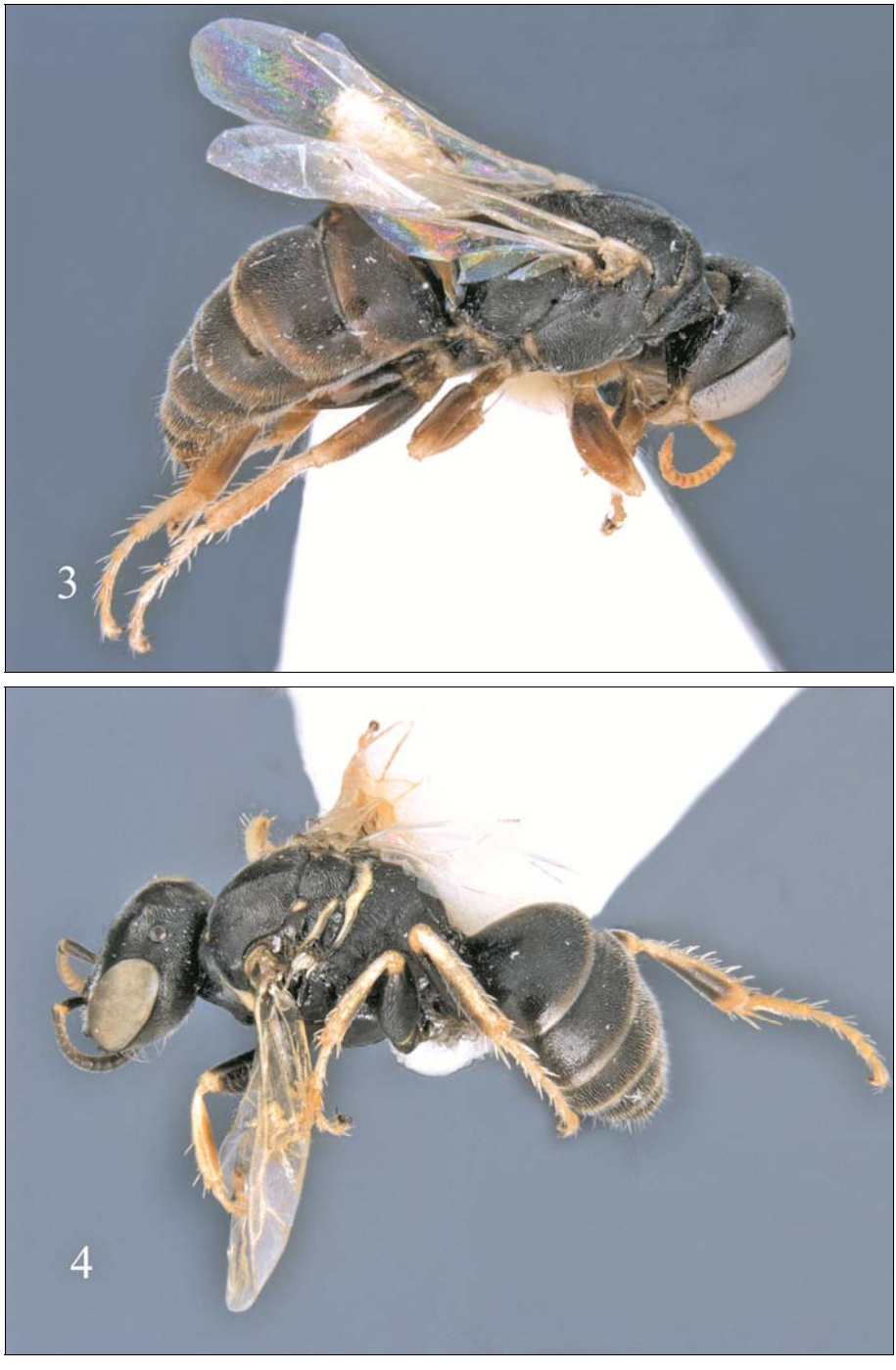
Annexes 1–4. Habitus photographs (by C. Schmid-Egger).

Annexes 1–2. *Pseudomicroides arabicus* nov. spec. 1: Male in lateral view; 2: Female in dordsal view.



Annexes 3–4. 3: *Pseudomicroides applanatus* nov. spec.; 4: *Belomicroides maurusius* Pate. Both in lateral view.