

**SHORT
COMMUNICATIONS**

A New Species of Digger Wasps of the Genus *Belomicrodes* (Hymenoptera, Crabronidae, Oxybelini) from North Africa

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Abstract—The new species of digger wasps, *Belomicrodes rufus*, is described from North Africa. The new species differs from the all members of the *Belomicrodes schmiedeknechtii* species-group in the pale coloration and dense pubescence of the body.

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The North African fauna of the digger-wasp genus *Belomicrodes* Kohl, 1899 included until now five representatives of the *B. schmiedeknechtii* species group (Antropov, 2002), which are characterized by the following features: pronotal collar without distinct median depression, postscutellum convex and without distinct lateral ridges, hypersternaulus absent, propodeum with lateral carinae only in its dorsal part, metasomal sternite VI of female strongly compressed, mesosoma densely punctate, and fore trochanter and femur without psammophores. The all known species of the group are also characterized by the dark coloration of the body, with poorly outlined, pale (white or yellow) spots on the median lobe of the clypeus, pronotal collar, and pronotal lobes. The new species *B. rufus* described below belongs to this group, but differs in the pale pattern of the body, especially of the metasoma, which is most strongly developed in comparison with those of the other congeners, and also in the dense pubescence of the head and mesosoma.

The study is based on the material supplied by curators of the collections of Naturhistorisches Forschungsinstitut Museum für Naturkunde, Zentralinstitut der Humboldt-Universität zu Berlin, Deutschland [MNHU] and Natural History Museum, London, UK [BMNH].

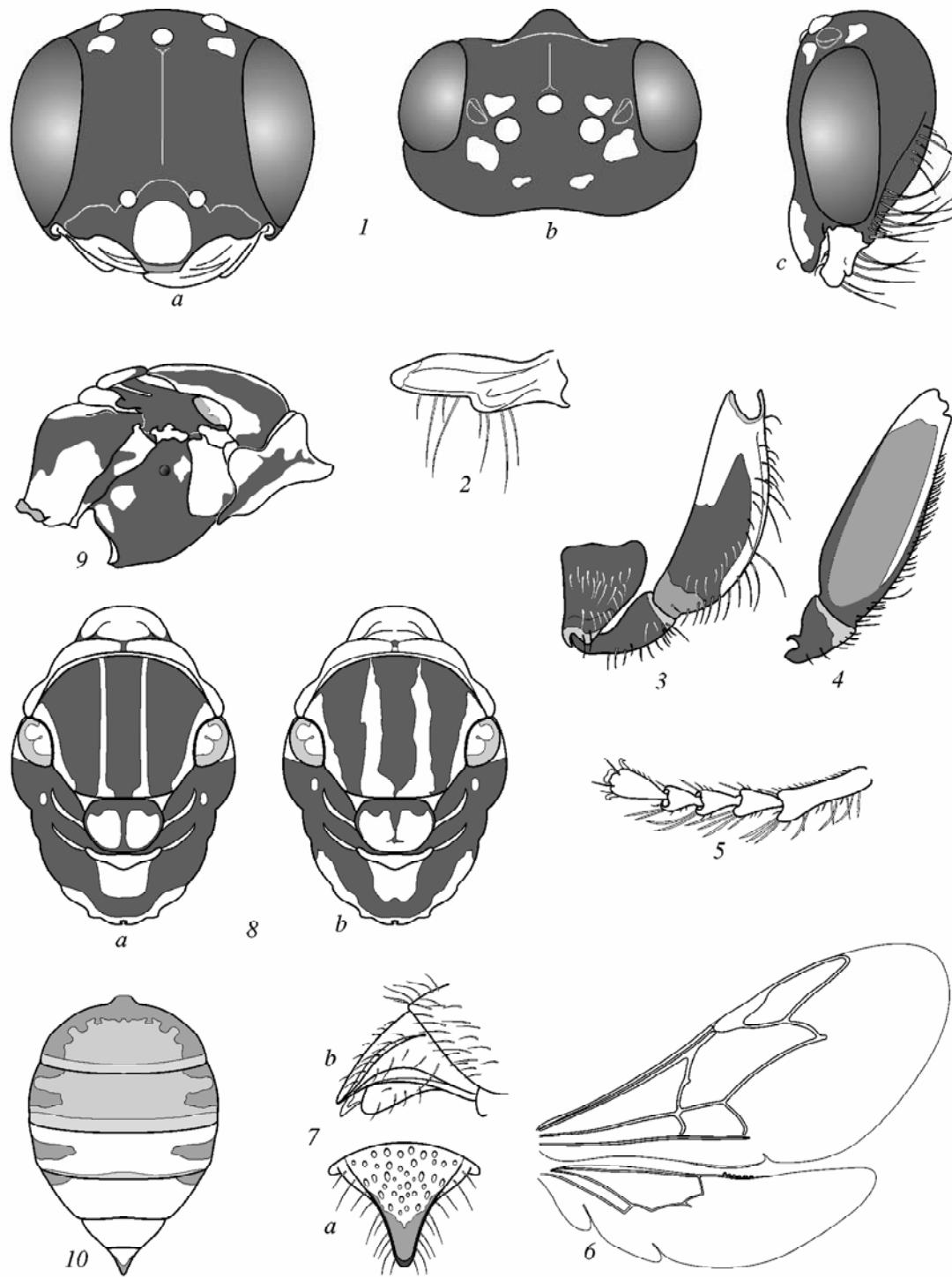
The following abbreviations are used in the description: *IOD*, ratio of distances between inner eye orbits at level of median ocellus and at level of antennal sockets; *OOD : OF : POD*, ratio of distance between inner eye orbit and lateral ocellus to diameter of lateral ocellus and to distance between lateral ocelli; *d*, dis-

tance between punctures; and \emptyset , diameter of punctures. All measurements were made under $\times 50$ magnification.

Belomicrodes rufus Antropov, sp. n.

Material. Holotype: ♀, “Marokko/S: Val. Draa [Drâa], 80k s Zagora, Mhamid, 29.5.1995. MA-mha, leg. Schmid-Egger” [MNHU]. Paratype: 1 ♀: “Egitto: W. Diqla [Nahal Diqla], 29.5.38, Coll. A. Mochi” [BMNH].

Description. Female. Head rounded in front view, slightly wider than long; inner orbits of eyes nearly parallel, slightly diverging only in lower part (figure, 1a); *IOD* = 45 : 53; lower part of frons nearly flat, without shining areas behind appressed scapes; upper part of frons weakly convex; orbital foveae large, slightly convex, without sharp borders, weakly shining (figure, 1b); *OOD : OD : POD* = 9 : 7 : 17; temple regularly rounded in posterior part (figure, 1c); median lobe of clypeus regularly convex, with separated apical band, weakly angular in middle and bounded by distinct obtuse lateral angles, distance between which nearly half that from angle to antennal socket; mandible at apex ovaly pointed, without teeth, with distinctly separated rounded lobe at ventral margin (figure, 2); basal flagellar segments slightly longer than wide, apical ones as long as wide, length of apical segment about 1.5 times its maximum width at base. Pronotal collar regularly rounded, without transverse ridges; pronotal lobes rounded, without vertical ridges (figure, 8a, 8b); scutum moderately regularly convex, depressed along lateral sides, with margins curved



Belomicroides rufus sp. n., female: (1) head [(a) front, (b) dorsal, (c) lateral view]; (2) mandible, front view; (3) fore coxa, trochanter, and femur, view on inner side; (4) hind femur, view on outer side; (5) fore tarsus, view on outer side; (6) wings; (7) apical segment of metasoma [(a) dorsal, (b) lateral view]; (8) mesosoma, dorsal view [(a) holotype, (b) paratype]; (9) mesosoma, lateral view; (10) metasoma, dorsal view.

upwards; admedian lines not approximate, with superficial flat groove between them, slightly reaching 1/3 of length of scutum; parapsidal lines absent; adlateral lines in form of short shining carinae; scutellum regu-

larly flatly convex; postscutellum roundly convex, without transverse or oblique ridges; mesopleuron flatly convex at sides; episternal suture fine; hypersternaulus absent or weakly outlined in form of wide

pit near episternal suture; omaulus, acetabular carina, sternaulus, verticaulus, and precoxal tooth absent; metapleuron flat, triangular, without widened dorsal ridge; fore femur angular along outer margin, but without separated carina (figure, 3); hind femur unmodified at apex (figure, 4); segments of fore tarsus distinctly flattened, asymmetrical, with more developed outer apical angles (figure, 5). Propodeum without bounded dorsal area and with lateral carinae developed only in upper part near spiracles (figure, 9); posterior side of propodeum with short shining slit-like median pit. Metasomal tergite I regularly convex, with short median depression at base; tergites II–III without basal depressions; tergite VI flat, distinctly compressed at apex, with distinct lateral ridges (figure, 7a); metasomal sternites convex; apical margin of sternite V with oval emargination; sternite VI distinctly flattened at sides (figure, 7b).

Sculpture of body mainly formed by more or less dense and regular punctation against background of shining cuticle. Median lobe of clypeus in middle smooth and shining, impunctate; frons with regular and dense punctuation ($d \leq \emptyset$); vertex with similar punctuation at sides, finer punctuation in posterior part, and with smooth impunctate area between lateral ocelli; punctuation on temple also dense, but finer than that on frons. Upper side of pronotum and collar with similarly densely punctuation, sides of pronotum with rather large smooth areas; punctures on scutum mainly larger than, but as dense as those on frons ($d \leq \emptyset$), disappearing fine and sparse in anterior angles; scutellum densely and regularly punctate ($d = \emptyset$) over entire surface, semi-matt; postscutellum with fine and dense punctures ($d = \emptyset$) in middle of anterior margin, with vague sculpture on rest of surface, semi-matt; mesopleuron regularly and densely punctate ($d = \emptyset$), with punctures smaller in upper and lower parts and larger in middle; metapleuron finely rugose in lower part, with fine dense punctures in upper part. Propodeum with regular fine radial carinae in anterior part and semi-matt, with dense minute alveolation on rest surface. Metasomal tergites I–V shining, with inconspicuous sparse minute punctures at bases of recumbent hairs, punctuation most strongly developed at sides of tergites and near apex of tergite V; tergite VI with largest elongate ($d = 0.5–1.5\emptyset$); metasomal sternites shining, with larger and sparser punctures ($d = 1–3\emptyset$) near apical margins, largest punctures situated at bases of raised preapical setae; sternite VI with fine and dense ($d = \emptyset$) punctures at sides near apex.

Pubescence of body very long, silvery, mainly recumbent or semi-recumbent. Median lobe of clypeus and lower part of frons in middle glabrous; lateral lobes of clypeus and lower part of frons with dense flattened recumbent hairs concealing sculpture of cuticle, length of hairs not less than diameter of anterior ocellus; upper part of frons and ocellar triangle with fine raised hairs slightly curved forwards and not shorter than diameter of lateral ocellus; vertex and occiput with fine recumbent hairs directed forwards, length of hairs 1.5 times diameter of lateral ocellus; similar hairs on temple directed downwards; setae of psammophores on temple and mandible regularly arranged, their length 1.2–1.5 times basal width of mandible. Pronotal collar, pronotal lobes, scutum, and scutellum with fine semi-recumbent hairs, length of which not less than diameter of anterior ocellus; postscutellum with similar hairs directed toward median line; mesopleuron and upper part of metapleuron with fine dense recumbent hairs, length of which not less than diameter of lateral ocellus; lower surfaces of femora and outer surfaces of tibiae with fine raised hairs, length of which not less than width of 1st tarsal segment; psammophores on fore trochanter and fore femur not developed; lower margin of fore trochanter with shorter hairs (their length not exceeding diameter of anterior ocellus), and outer margin of fore femur with longer hairs (their length twice diameter of anterior ocellus), forming no distinct rows (figure, 3); digging rake at outer margin of 1st segment of fore tarsus consisting of 5 or 6 long and 2 or 3 shorter raised setae, length of which not exceeding width of segment (figure, 5). Metasomal tergites I–III with very short and sparse recumbent hairs on upper sides, and with long recumbent hairs at sides (length of hairs slightly less than diameter of anterior ocellus); tergites IV and V with semi-recumbent curved hairs, length of which not less than diameter of anterior ocellus; tergite VI glabrous on upper surface, with raised hairs at sides, length of hairs 1.5 times diameter of lateral ocellus; metasomal sternites weakly pubescent: sternites I and II with short sparse recumbent hairs becoming longer toward apical margin and at sides; sternites III–V with recumbent hairs only at sides and with rows of long raised preapical setae; sternite VI with sparse raised hairs at sides, length of hairs not exceeding diameter of anterior ocellus.

Head and mesosoma mainly black, with more or less developed yellow spots; metasoma rufescent yellow. Clypeus with large oval yellowish rufous spot on

median lobe, apical band reddish rufous (figure, 1a); scape with fine yellow stripe on lower side, brownish on rest surface; flagellum brownish on upper side, yellowish white on lower side, except for brownish apex of ultimate segment; frons mainly black [in paratype, upper part of frons with yellow spots anterolaterally to lateral ocelli (figure, 1a)]; vertex with two yellow spots posterolaterally to lateral ocelli [in paratype, also with two smaller yellow spots behind ocelli (figure, 1b)]; occiput and temple black; anterior part of pronotum mainly yellow on upper side, black at sides and bearing there yellow vertical stripes along anterior margin (figure, 8, 9). Pronotal collar mainly yellow, with fine brownish median stripe; pronotal lobes yellow; scutum mainly black, with two yellow median stripes widened in posterior part (figure, 8a) [in paratype, stripes distinctly wider and nearly merging in posterior part (figure, 8b)] and also with yellow stripes along lateral margins; scutellum with two large yellow spots more or less separated along median line [in paratype, spots merging in posterior part]; postscutellum entirely yellow; mesopleuron mainly black, with large yellow spots before episternal suture [in paratype, also with small yellow spot in upper part behind episternal suture (figure, 9)] and also with smaller yellow spots along borders with middle coxa and metapleuron; metapleuron with yellow spot in upper part. All tarsi rufous; tibiae also rufous, fore tibia whitish at base on outer side; fore femur yellowish white on outer side along apical 2/3, more or less rufous on inner surface, black on rest of surface (figure, 3); middle and hind femora mainly rufous at bases, with small black spot in anterior part, with narrow yellow stripe along outer margin in apical part; apices of all coxae more or less yellow. Wings (figure, 6) pale, hyaline; tegula with white spot at base, hyaline on outer side (figure, 8); costal lamellae rufescent at bases, white on outer side; veins of wings yellowish-white. Propodeum with large yellow spot on upper side, yellow in posterior part below median pit, almost entirely yellow at sides below lateral carinae. Metasoma paler: tergites I–III with transparent whitish apical areas (figure, 10); tergite I rufous on anterior and lateral surfaces, with large yellow spot in middle of upper surface; tergite II mainly yellow on upper

surface, with rufous spots at sides; tergites III–V mainly yellowish white, with narrow rufous lateral spots; tergite VI mainly yellowish white, rufescent before apex, with dark rufous lateral carinae (figure, 7a); metasomal sternites darker, sternite I mainly black with small yellow spots at sides and in middle, sternite II rufous with two black lateral spots, sternites III–V reddish-brown with indistinct rufous lateral spots, sternite VI mainly brownish with rufescent apex.

Body length 5.8–6.0 mm.

Male unknown.

Notes. The paratype differs from the holotype in the more strongly developed pale pattern on the head and mesosoma and also in the sparser pubescence of the mesopleuron.

Differential diagnosis. In the *B. schmiedeknechtii* species-group, only one female was described, it belongs to *B. schmiedeknechtii* Kohl, 1899. The female of *B. rufus* sp. n differs from this female not only in the considerably more strongly developed pale pattern on the head, mesosoma, and, especially, metasoma, but also in the large, slightly convex, and weakly shining orbital foveae without sharp borders, roundly convex postscutellum without transverse or oblique ridges, short slit-like median pit on the posterior side of the propodeum, distinctly more strongly compressed metasomal tergite VI, dense and regular punctures of the scutellum, which do not merge into longitudinal grooves, and also in the regularly and densely punctate mesopleuron without striae and much larger elongate punctures of metasomal tergite VI.

Etymology. The species name originates from the Latin adjective “rufus” (rufous) and indicates characteristic coloration of the body.

REFERENCES

1. Antropov, A.V., “Digger Wasps of the Genus *Belomicrooides* (Hymenoptera, Crabronidae, Oxybelini): 2. Revision of the World Fauna,” Zool. Zh. **81** (6), 693–710 (2002) [Entomol. Rev. **82** (7), 883–900 (2002)].