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Types of the Bathyaulax Szépligeti species in the Hungarian Natural History Museum (Hymenoptera, Braconidae: Braconinae)

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Abstract – Types of seven *Bathyaulax* species described by SZÉPLIGETI from tropical Africa are valid (*B. bicolor* SZÉPLIGETI, 1906, *B. concolor* SZÉPLIGETI, 1906, *B. cyanogaster* SZÉPLIGETI, 1901, *B. perspicax* SZÉPLIGETI, 1905, *B. rufus* SZÉPLIGETI, 1906, *B. transitus* SZÉPLIGETI, 1913) and one name (*B. areolatus* SZÉPLIGETI, 1913) is junior synonym of *B. kersteni* (GERSTAECKER, 1871). *B. transitus* is resurrected from the synonymy of *Megagonia rufa* SZÉPLIGETI, 1906. These seven species and *B. martinii* (GRIBODO, 1879) are redescribed, and a key is given for them. A list of the 52 species of *Bathyaulax* is given with subgeneric affiliation of the species. With 124 figures.

Key words – *Bathyaulax*, *Bicentra*, *Goniobracon*, type designation, redescription, distribution, taxonomic position, key.

INTRODUCTION

In the years 1901, 1905, 1906 and 1913 SZÉPLIGETI described seven new *Bathyaulax* species; their types (holotype, lectotye, paralectotype) are preserved in the Hungarian Natural History Museum, Budapest. Originally the species were described in the genera *Bathyaulax* (2 species), *Goniobracon* (2 species), *Iphiaulax* (2 species) and *Megagonia* (1 species). Six of the seven species are valid (*B. bicolor*, *B. concolor*, *B. cyanogaster*, *B. perspicax*, *B. rufus*, *B. transitus*) and one name (*B. areolatus*) is a junior synonym of *B. kersteni* (GERSTAECKER). An examination of the type series of *B. transitus* (SZÉPLIGETI) resulted in its revalidation and its taxonomic position is displayed. The six valid and the one synonymous name, valid under the name

B. kersteni (GERSTAECKER), are redescribed based on their types (or type-series). Redescription is given also for *B. martinii* (GRIBODO). The eight *Bathyaulax* species discussed here are ranged in the subgenera *Bathyaulax* SZÉPLIGETI, 1906 (*B. bicolor*, *B. concolor*, *B. cyanogaster*) and *Goniobracon* SZÉPLIGETI, 1906 (*B. kersteni*, *B. martinii*, *B. perspicax*, *B. rufus*, *B. transitus*). The subgeneric distinction is justified by morphological features. The 52 known *Bathyaulax* species are arranged in three subgenera, the third subgenus is *Bicentra* VAN ACHTERBERG et SIGWALT, 1987.

The following abbreviations are applied in the redescriptions (after VAN ACHTERBERG 1993: 4–5):

Forewing veins: *cu–a* = nervulus, *m–cu* = transverse medio-cubital or recurrent vein, *r* = first section of the radial vein, *r–m* = second transverse radio-medial vein, *CU1a* = apical section of the subdiscal vein, *CU1b* = basal section of the subdiscal vein, *SR1* = third section of the radial vein, *1–M* = basal vein, *1–SR–M* = first section of the median vein, *2–M* = second section of the median vein, *2–SR* = first transverse section of the radial vein, *3–CU1* = basal section of the subdiscoidal vein, *3–SR* = second section of the radial vein.

Hindwing vein: *2–SC–R* = second section of the costella vein.

Eye: OOL = shortest distance between ocellus and compound eye, POL = shortest distance between hind two ocelli.

Surface sculpture terminologies are used after EADY (1968) and HARRIS (1979).

Specimen depositories – BMNH = Natural History Museum, London; HNHM = Hungarian Natural History Museum, Budapest; MSNG = Museo Civico di Storia Naturale "Giacomo Doria", Genova; NHRS = Swedish Museum of Natural History, Stockholm; RMCA = Royal Museum for Central Africa, Tervuren; ZMHB = Museum für Naturkunde der Humboldt-Universität, Berlin.

REDESCRIPTIONS OF THE EIGHT *BATHYAULAX* SPECIES

Remarks – The present redescriptions of the *Bathyaulax* species may be considered as complementary to the redescriptions presented by KAARTINEN & QUICKE (2007), emphasized are the features, which are essential specific marks but not discussed thoroughly by the co-authors. These features are as follows: form and size of scape, length to width ratio of head in dorsal view, height and width of eye in lateral view, length to width ratio of hind femur in lateral view, form and size of fourth tarsomere of hind tarsus, degree of downcurving, size and form of basal lobe of claw, length to width ratio of tergites 1–2(–3); on forewing, length to width ratio of pterostigma, proportional length of the veins of second submarginal, discal and subdiscal cells.

KAARTINEN & QUICKE (2007) presented general descriptions of the 51 *Bathyaulax* species of which 27 were new. The majority of the new species were described based on single specimens, i.e. on the holo- and lectotypes. The redescriptions of SZÉPLIGETI's species, discussed here in the present paper, were described by the co-authors on the basis of specimens of variable numbers including the type material, i.e. their redescriptions are not explicitly based firstly on the holotype and secondly on the paratype(s) and further (non-typical) specimens. By this method of redescriptions, the high variability of the *Bathyaulax* species is converted rather into latescence. In my redescriptions I gave priority to the holo- and lectotypes, the deviating features of the paralectotypes and the named (not typical) specimens are expounded separately.

In the redescriptions the specific features (and deviations) of both sexes were considered. Two species, *B. concolor* and *B. rufus*, were described based on the males only.

Bathyaulax SZÉPLIGETI, 1906

Bathyaulax SZÉPLIGETI, 1906: 550 (in key) and 559 (description), type species: *Iphiaulax cyanogaster* SZÉPLIGETI, 1901 (designated by VIERECK 1914: 20). – FAHRINGER 1928: 21 (in key) and FAHRINGER 1931: 363–375 (redescription, key to species); SHENEFELT 1978: 1453 (literature up to 1972); QUICKE 1981: 494 (taxonomy), 496 (species assigned in this genus), 493 and 497 (synonymies); 1987: 91 (in key), 103 (taxonomy, synonyms); KAARTINEN & QUICKE 2007: 125–212 (revision).

Goniobracon SZÉPLIGETI, 1906: 551 (in key) and 581 (description), type species: *Iphiaulax perspicax* SZÉPLIGETI, 1905 (designated by VIERECK 1914: 63). – FAHRINGER 1926: 155 (in key) and 180–183 (as subgenus of *Iphiaulax*, key to and redescription of four African species); 1928: 22 (in key) and 1935: 460–484 (redescriptions, key to the species); SHENEFELT 1978: 1684 (as valid genus); QUICKE 1981: 493, 497 (as synonym of *Bathyaulax*); 1987: 103 (as synonym of *Bathyaulax*).

Euryacria ENDERLEIN, 1920: 126, type species: *E. flavipera* ENDERLEIN, 1920: 126 (original designation). – FAHRINGER 1931: 364, 375 (as "Gruppe" of *Bathyaulax* in key); QUICKE 1981: 497 (as synonym of *Bathyaulax*); 1987: 103 (synonym).

Bicentra VAN ACHTERBERG et SIGWALT 1987: 444, type species: *Bicentra concavitarsis* VAN ACHTERBERG et SIGWALT, 1987: 445 (original designation). – KAARTINEN & QUICKE 2007: 126 (synonymization).

Generic features – Tarsomeres (3–)4 of hind tarsus produced, tarsomere 5 long and narrowing basally (Figs 26, 27, 64, 108; Figs 183–184 in QUICKE 1987: 68). Forewing: *1–SR+M* weakly bent or straight (Figs 30, 48, 62, 81); *r* shorter than or as long as *r–m* (Figs 8, 18, 29, 39, 61,80, 118); *3–CU1* expanded below (Figs 9, 65, 68, 114); *CU1a* issuing deeply from first subdiscoidal cell (Figs 30, 81), *cu–a* slightly postfurcal (Figs 30, 81, 92, 113). Hindwing: *2–SC–R* transverse (or vertical) (Fig. 31, see arrow). Propodeum polished (Fig. 106). Claw with weak basal lobe (Figs 28, 60, 82, 98). Tergites 1–2 movably joining, scutum of first tergite highly domed. Scape apically emarginate, rarely ledge-form (Figs 1, 20, 44, 54, 75, 85, 94, 102).

Subgeneric arrangement – SZÉPLIGETI (1906) created two taxa as genera, *Bathyaulax* and *Goniobracon*. QUICKE (1981) placed the generic name *Goniobracon* in synonymy with *Bathyaulax*. This synonymy was implicitly accepted in the revision of *Bathyaulax* species by KAARTINEN & QUICKE (2007), i.e. the name *Goniobracon* was not mentioned at all. The third subgenus is *Bicentra* set up by VAN ACHTERBERG & SIGWALT (1987) as genus, was synonymised with *Bathyaulax* by KAARTINEN & QUICKE (2007). In my new taxonomic consideration, the *Bathyaulax* species are divided into three subgenera: *Bathyaulax, Bicentra* and *Goniobracon*. The distinguishing features among the three subgenera are restricted to the antero-median field of second tergite and the number of the fore tibial spurs.

Subgenus *Bathyaulax* SZÉPLIGETI, 1906: fore tibia with one spur (Fig. 34), antero-median field of second tergite polished (Figs 10, 19, 32, 40).

Subgenus *Bicentra* VAN ACHTERBERG et SIGWALT, 1987: fore tibia with two spurs, antero-median field of second tergite polished (Figs 7 and 14 in VAN ACHTERBERG & SIGWALT 1987: 455).

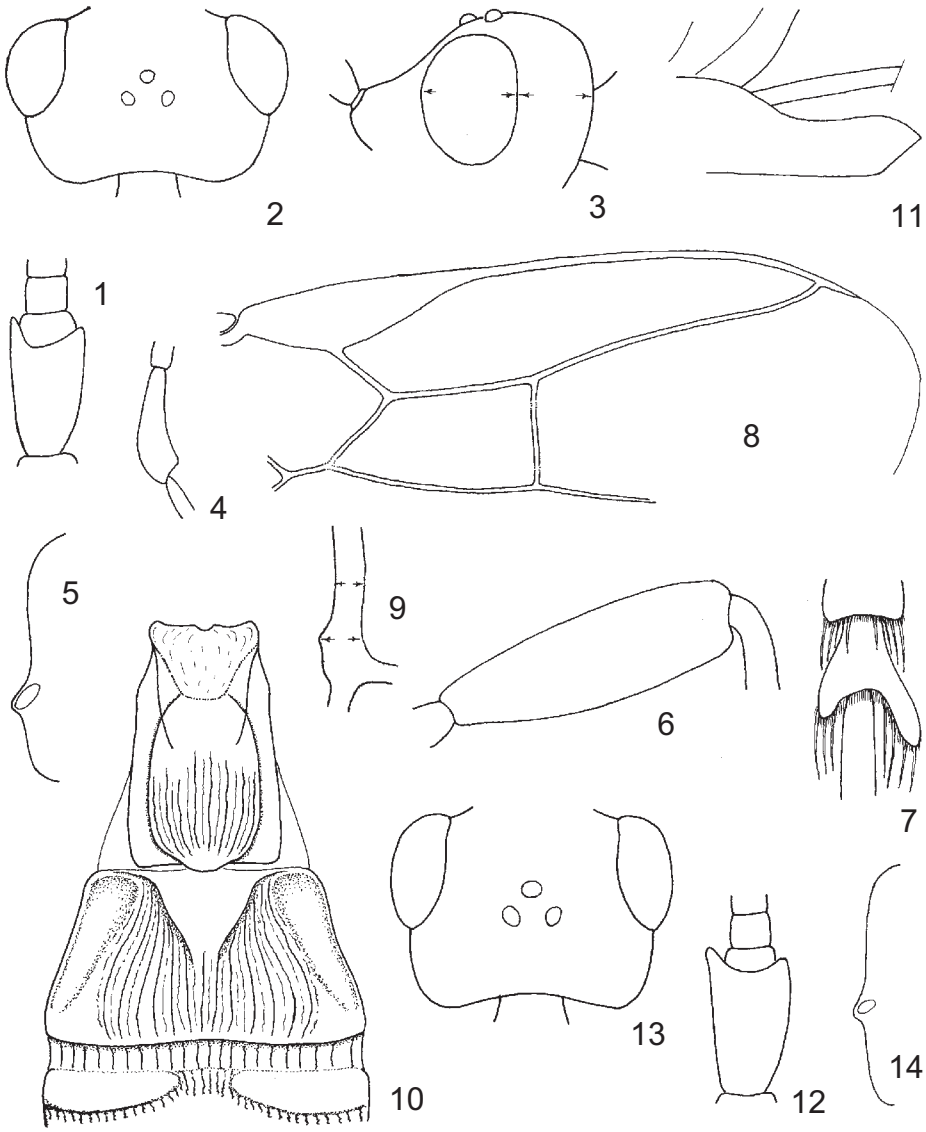
Subgenus *Goniobracon* SZÉPLIGETI, 1906: fore tibia with one spur (Fig. 34), antero-median field of second tergite striate, at most basally just smooth (Figs 49, 66, 83, 90, 115).

Hosts – Up to now two host species were recorded for *Bathyaulax atrox* KAARTINEN et QUICKE (QUICKE *et al.* 2005, KAARTINEN & QUICKE 2007: 145–146): *Enaretta castelnaudi* THOMSON, 1864 and *Chromalizus fragrans* (DALMAN, 1817) (both Coleoptera, Cerambycidae). The hosts' food plants: *Acacia* sp. and *Trichilia dregana* trees, respectively, both occurring in the Afrotropical region.

Bathyaulax (*Bathyaulax*) *bicolor* SZÉPLIGETI, 1906 (Figs 1–11)

Bathyaulax bicolor SZÉPLIGETI, 1906: 559 (in key, description), type locality: "Deutsch-Ost-Afrika: Mto-ya-kifaru" (Tanzania), female lectotype in HNHM; examined. – FAHRINGER 1931: 372 (in key), 384 (redescription); SHENEFELT 1978: 1453 (literature up to 1931); QUICKE 1981: 497 (generic position confirmed), 1991: 170 (type depository); KAARTINEN & QUICKE 2007: 129 (in key), 146 (redescription).

Lectotype (*female*), *here designated* – (First label, printed) "Mto-ya/Kifaru"; (second label, printed) "Africa or./Katona" (= KÁLMÁN KITTENBERGER); (third label, printed) "Tanzania"; fourth label is the lectotype card, fifth label is with the inventory number "912" and sixth label is with the actual name *Bathyaulax* (*B.*) *bicolor* SZÉPL. (det. J. PAPP 2008) (labels 3–6 were attached by me). – The lectotype is in good condition: (1) pinned through mesosoma, (2) both flagelli apically deficient, (3) right pair of wings somewhat damaged and glued separately on a card.



Figs 1–11. *Bathyaulax* (*Bathyaulax*) *bicolor* SZÉPLIGETI, 1906 (female lectotype): 1 = scape, 2 = head in dorsal view, 3 = head in lateral view, 4 = maxillary palpomere 3, 5 = left lateral margin of propodeum, 6 = hind femur, 7 = tarsomere 4 of left hind tarsus in ventral view, 8 = distal part of right forewing, 9 = *3–CU1* with its swelling part, 10 = tergites 1–2(–3), 11 = posterior end of metasoma. – **Figs 12–14.** *Bathyaulax* (*Bathyaulax*) *concolor* SZÉPLIGETI, 1906 (male lectotype): 12 = scape, 13 = head in dorsal view, 14 = left lateral margin of propodeum

Redescription of the lectotype – Body 14 mm long. Antenna somewhat longer than body (both flagelli apically deficient), left antenna with 68 antennomeres. Scape almost twice as long as broad apically, and here weakly semicircularly excised as in Fig. 1. Head in dorsal view less transverse (Fig. 2), 1.65 times as broad as long, eye 1.4 times as long as temple, temple rather receded. Ocelli almost round, near to each other, OOL more than twice as long as POL. Eye in lateral view nearly round, 1.2 times as high as wide, temple evenly wide beyond eye (Fig. 3, see arrows). Third maxillary palpomere somewhat flattened (Fig. 4). Head polished, face densely rugose.

Mesosoma in lateral view elongate, 1.7 times as long as high, polished. Notaulix less distinct, smooth. Pair of spiracles beyond middle and on lateral margin of propodeum (Fig. 5). Fore tibia with one spur. Hind femur 3.2 times as long as broad medially (Fig. 6). Hind basitarsus slightly shorter than tarsomeres 2–3 combined. Fourth tarsomere in ventral view clearly asymmetrical as in Fig. 7.

Forewing as long as body. Pterostigma (Fig. 8), 3.8 times as long as wide and issuing *r* proximally from its middle, *r* as long as width of pterostigma. Second submarginal cell short and widening (i.e. *3–SR* and *2–M* diverging) distally, *3–SR* almost 1.8 times as long as *2–SR*, *SR1* faintly bent and almost twice as long as *3–SR*. Vein *3–CU1* with swelling 1.5 times thicker than rest of vein (Fig. 9, see arrows).

First tergite (Fig. 10) nearly 1.6 times as long as broad behind, weakly broadening posteriorly, pair of basal keels ending medially, pair of spiracles before middle of tergite, scutum finely striate. Second tergite twice as broad poteriorly as long medially, striate, laterally dentate. Third tergite transverse, more than twice as broad as long, its antero-lateral pair of fields narrow, near to each other, furrows crenulate (Fig. 10). Hypopygium pointed (Fig. 11), ovipositor sheath as long as body.

Antenna black. Head and mesosoma rusty with much blackish suffusion. Legs blackish with rusty faint. Metasoma testaceous. Wings blackish fumous. Pterostigma: proximal half yellow, distal half black. Veins black.

Male and host unknown.

Distibution – Kenya, Republic of South Africa, Tanzania (KAARTINEN & QUICKE 2007: 146).

Taxonomic position – Bathyaulax (*Bathyaulax*) *bicolor* is nearest to *B.* (*B.*) *concolor* SZÉPLIGETI, their distinction see in the couplets 4(5)–5(4). In the key by KAARTINEN & QUICKE (2007: 129–130) it runs to *B. williami* KAARTINEN & QUICKE, *B. hirticeps* (CAMERON) and *B. larjuskini* KAARTINEN & QUICKE.

Bathyaulax (*Bathyaulax*) *concolor* SZÉPLIGETI, 1906
(Figs 12–19)

Bathyaulax concolor SZÉPLIGETI, 1906: 559 (in key) and 560 (description) ♂, type locality: "Deutsch-Ost-Afrika: Mto-yo-kifaru" (Tanzania), male lectotype in HNHM;

examined. – FAHRINGER 1931: 375 (in key) and 384 (redescription); SHENEFELT 1978: 1453 (literature up to 1935, distribution); QUICKE 1981: 497 (generic position confirmed), 1991: 170 (type depository.

Lectotype (*male*), *here designated* – (First label, printed) "Mto-ya-/Kifaru", (reverse of first label) "1905/I."; (second label, printed) "Africa or./Katona" (= KÁLMÁN KITTENBERGER); (third label, printed) "Tanzania"; fourth label is the lectotype card, fifth label is with the inventory number "913" and sixth label is with the actual name *Bathyaulax* (*B.*) *concolor* SZÉPL. (det. J. PAPP 2011) (labels 3–6 attached by me). – The lectotype is in good condition: (1) pinned through mesosoma (mesoscutum/mesosternum), (2) missing: palpi, right flagellum, tarsus of left fore leg ("half damaged"), (3) left flagellum apically deficient.

Redescription of the lectotype – Body 14 mm long. Antenna about as long as body. Scape twice as long as broad apically, in outer lateral view with weak semicircular excision apically (Fig. 12). Head in dorsal view subcubic (Fig. 13), almost 1.5 times as broad as long, eye 1.5 times as long as temple, temple less rounded. Ocelli almost round, near to each other, OOL twice as long as POL. Eye in lateral view 1.4 times as high as wide and somewhat wider than temple, temple just narrowing ventrally (Fig. 15, see arrows). Head polished, face rugose.

Mesosoma in lateral view 1.6 times as long as high, polished. Notaulix less distinct, smooth. Pair of spiracles almost at middle and lateral margin of propodeum (Fig. 14). Fore tibia with one spur. Hind femur 3.3 times as long as broad medially (Fig. 16). Hind basitarsus as long as tarsomeres 2 and half of tarsomere 3 combined. Fourth tarsomere of hind tarsus asymmetric in ventral view as in Fig. 17.

Forewing as long as body. Pterostigma (Fig. 18) 3.3 times as long as wide and issuing *r* just proximally from its middle, *r* 0.7 times as long as width of pterostigma. Second submarginal cell short and weakly widening (i.e. *3–SR* and *2–M* less diverging) distally, *3–SR* 1.75 times as long as *2–SR*, *SR1* straight and 1.6 times as long as *3–SR*.

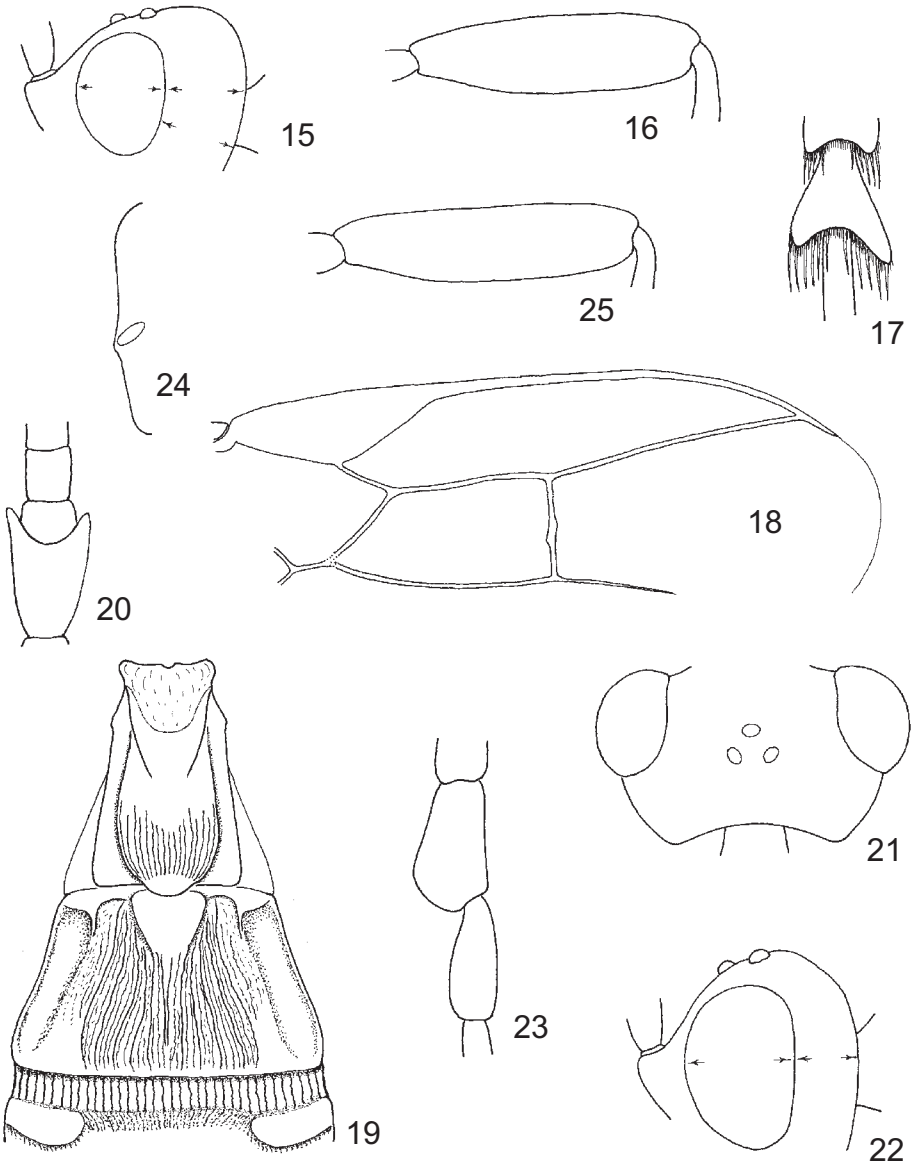
First tergite (Fig. 19) 1.4 times as long as broad behind, weakly broadening posteriorly, pair of basal keels ending medially, pair of spiracles before middle of tergite, scutum posteriorly striate. Second tergite less transverse, 1.75 times as broad behind as long medially, its antero-median field distinct and polished, otherwise tergite longitudinally striate, laterally dentate. Third and further tergites more transverse, latero-anterior pair of fields of third tergite small (Fig. 19).

Antenna black. Body and legs testaceous, tibiae and tarsi faintly dark fumous. Wings brown fumous, pterostigma yellow, apically dark brown; forewing below pterostigma with a whitish "fenestra".

Female and host unknown.

Distribution – Tanzania.

Taxonomic position – *Bathyaulax concolor* is nearest to *B. bicolor* SZÉPLIGETI, the two species are distinguished by the features in the couplets 4 (5)–5 (4). In the key by KAARTINEN & QUICKE (2007: 132) it runs to *B. rufa* (SZÉPLIGETI) and *B. fortisulcatus* (STRAND).



Figs 15–19. *Bathyaulax* (*Bathyaulax*) *concolor* SZÉPLIGETI, 1906 (male lectotype): 15 = head in lateral view, 16 = hind femur, 17 = tarsomere 4 of left hind tarsus in ventral view, 18 = distal part of right forewing, 19 = tergites 1–2(–3). – **Figs 20–25.** *Bathyaulax* (*Bathyaulax*) *cyanogaster* (SZÉPLIGETI, 1901) (female lectotype): 20 = scape, pedicel and flagellomere 1, 21 = head in dorsal view, 22 = head in lateral view, 23 = maxillary palpomeres 3–4, 24 = left lateral margin of propodeum, 25 = hind femur

Bathyaulax (*Bathyaulax*) *cyanogaster* (SZÉPLIGETI) (Figs 20–40)

Iphiaulax cyanogaster SZÉPLIGETI, 1901: 363 ♀, type locality: "Congo: ... Kulu" (Republic of Congo), female lectotype and one female paralectotype in HNHM; examined.

Bathyaulax cyanogaster (SZÉPLIGETI): SZÉPLIGETI 1906: 559 (in key, comb. n.); FAHRINGER 1931: 366 (♀), 374 (♂) (in keys) and 1935: 385 (redescription); SHENEFELT 1978: 1454 (literature up to 1935, distribution); QUICKE 1991: 176 (type depository); KAARTINEN & QUICKE 2007: 129 (in key) and 152 (redescription, distribution).

Goniobracon (*Bathyaulax*) *cyanogaster* (SZÉPLIGETI): SZÉPLIGETI 1914*a*: 167 (comb. n., distribution).

Iphiaulax rufithorax BINGHAM, 1909: 179 ♀ (="♂"), type locality: "Ruwenzori, 7000 ft." (Uganda), "Type" in BMNH; not examined. ROMAN 1910: 144 (synonymization); KAARTINEN & QUICKE 2007: 152 (as synonym of *B. cyanogaster*).

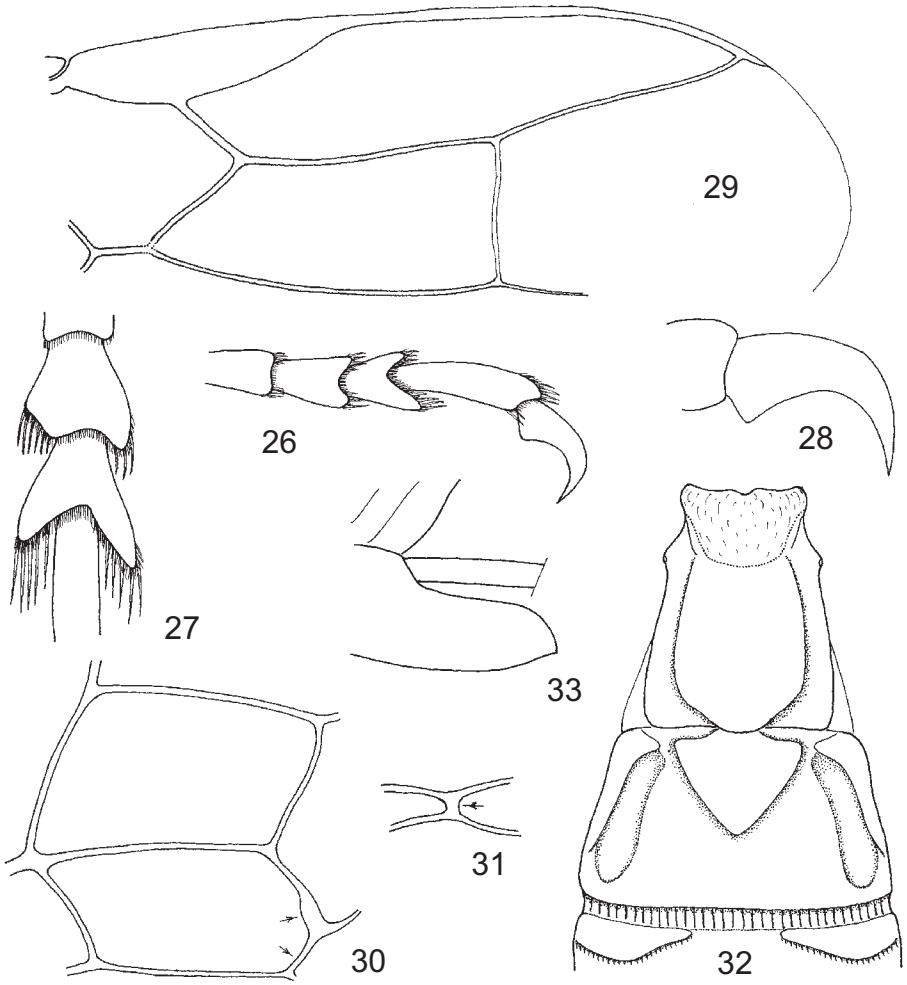
Lectotype (*female*) *of B. cyanogaster* – (First label, printed) "Congo fr./Kullu"; (second label, handwriting) "Republic of Congo"; third label is the lectotype card; fourth label is with the inventory number "910"; fifth label is with the actual name *Bathyaulax cyanogaster* SZÉPLIGETI ♀ (det. SZÉPLIGETI 1906) (labels 3–5 attached by me). – The lectotype is in good condition: (1) pinned through mesosoma (prescutellar furrow/mesosternum anteriorly), (2) missing: left flagellum and right foreleg (except coxa).

Paralectotype (*female*) *of B. cyanogaster* – (First label, handwriting) "Congo fr./Vivi" (reverse of first label) "685/3" (collecting code); (second label, handwriting) "Republic of Congo" (reverse of second label) "I. cyanogaster" (SZÉPLIGETI's handwriting) "det. SZÉPLIGETI" (printed); third label is the paralectotype card; fourth label is with the inventory number "911"; fifth label is with the actual name *Bathyaulax cyanogaster* SZÉPL. ♀ (det. SZÉPLIGETI 1906). – The paralectotype is in good condition: (1) pinned by mesosoma (prescutellar furrow/mesosternum anteriorly); (2) right flagellum apically deficient and left flagellum missing; (3) right forewing torn at pterostigma; (4) right hindwing basally weakly damaged.

Non-type material examined – (3 ♀♀ + 4 ♂♂) 1 ♀ (det. KAARTINEN 2004, in RMCA): Congo Belge, P.N.A. (Parc National Albert), Secteur Nord, Butahu, affl. Semliki, 1360 m, 20 March 1957, leg. P. VANSCHUYTBROECK (VS 949). – 1 ♀ (head missing, det. QUICKE 1982, in RMCA): Congo Belge, Luluabourg (Kasal), 31 January 1963, leg. JAN DEHEEGER. – 1 ♂ (distal half of left fore wing glued on a separate card, det. QUICKE 1982, in RMCA): Congo Belge, Mayidi, 1943, leg. rév. P. VAN EYEN. – 1 ♀ (wings nicely expanded, det. J. PAPP, in HNHM): Kamerun, Victoria, leg. PREUSS. – 1 ♂ (wings nicely expanded, det. SZÉPLIGETI, in HNHM): Togo, Misahöhe, 1–5 May 1894, leg. E. BAUMANN. – 1 ♂ (det. J. PAPP, in HNHM): Guinea, Coyah, leg. FERENCZ. – 1 ♂ (det. J. PAPP, in HNHM): Guinea, Kankan, 15 August 1963, leg. FERENCZ.

Redescription of the lectotype – Body 18 mm long. Antenna somewhat longer than body. Scape in outer-lateral view 1.5 times as long as broad apically and semicircularly excised. First flagellomere 1.35 times as long as broad, further flagellomeres gradually more

transverse (Fig. 20). Head in dorsal view transverse (Fig. 21), 1.8 times as broad as long, eye 1.6 times as long as temple, temple moderately receded. Ocelli small and near to each other, OOL almost three times as long as POL. Eye in lateral view 1.5 times as high as wide and 1.8 times as wide as temple, temple beyond eye evenly wide (Fig. 22, see arrows). Third maxillary palpomere distinctly flattened (Fig. 23). Head polished, face fairly and densely hairpunctured.



Figs 26–33. *Bathyaulax* (*Bathyaulax*) *cyanogaster* (SZÉPLIGETI, 1901) (female lectotype): 26 = tarsomeres 3–5 of hind tarsus in lateral view, 27 = tarsomeres 3–4 of left hind tarsus in ventral view, 28 = claw, 29 = distal part of right forewing, 30 = first discal and first subdiscal cells of right forewing, 31 = *2–SC–R* of hindwing, 32 = tergites 1–2(–3), 33 = hind end of metasoma

Mesosoma in lateral view 1.7 times as long as high, polished. Notaulix almost indistinct. Pair of spiracles elliptic, somewhat beyond middle and along lateral margin of propodeum (Fig. 24). Fore tibia with one spur (Fig. 34). Hind femur 3.6 times as long as broad, parallel-sided (Fig. 25). Hind basitarsus somewhat shorter than tarsomeres 2–3 combined, tarsomeres 3–5 of hind tarsus in lateral view as in Fig. 26. Fourth tarsomere of hind tarsus in ventral view asymmetric as in Fig. 27. Claw downcurved and basally with small but distinct lobe (Fig. 28).

Forewing just longer than body. Pterostigma (Fig. 29) 3.7 times as long as wide and issuing *r* proximally from its middle, *r* one-fourth longer than width of pterostigma. Second submarginal cell long and widening (i.e. *3–SR* and *2–M* diverging) distally, *3–SR* weakly S-form, 2.6 times as long as *2–SR* and twice as long as *r–m*; *SR1* almost straight and as long as *3–SR*. First discal cell (Fig. 30): *1–M* faintly bent and 1.3 times as long as *m–cu*, *1–SR–M* almost straight and 1.25 times as long as *1–M* (Fig. 30). First subdiscal cell closed distally, i.e. *CU1b* present (Fig. 30, see lower arrow), *3–CU1* expanded below, 2.5 times thicker here than rest of vein (Fig. 30, see upper arrow). – Hindwing: *2–SC–R* perpendicular (Fig. 31, see arrow).

First tergite (Fig. 32) 1.3 times as long as broad behind, moderately broadening posteriorly, pair of basal keels hardly distinct, scutum polished. Second tergite less transverse, 1.8 times as broad behind as long medially, polished, antero-median and pair of antero-lateral fields distinct and also polished. Suture between tergites 2–3 crenulate. Third tergite three times as broad as long, pair of antero-lateral fields wide, polished. Further tergites also transverse. Hypopygium pointed (Fig. 33), ovipositor sheath somewhat longer than hind tibia + tarsus combined.

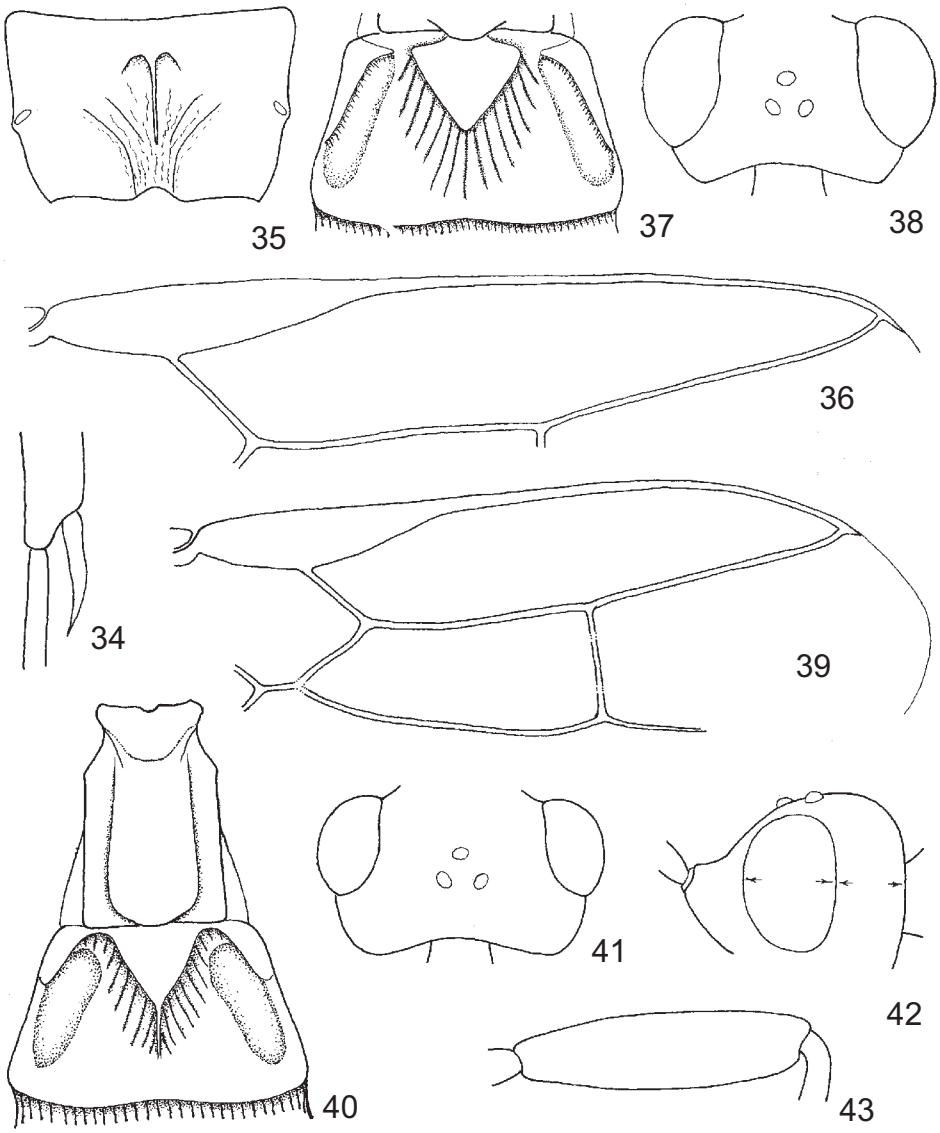
Antenna, head and metasoma black. Testaceous: palpi, mesosoma, fore leg, coxae + trochanters + femur of middle leg; black: tibia + tarsus of middle and entire hind legs. Posterior third of ovipositor sheath pale yellow. Wings blackish fumous, pterostigma and veins black.

Redescription of the paralectotype – Similar to the female lectotype. Body 15 mm long. Head 1.85 times as broad as long, temple slightly more receded. Propodeum medially sculptured (Fig. 35).

Deviating features of the female (3 ♀♀) – Body 17–19 mm long. Hind femur 3.6–3.9 times as long as broad. Forewing: pterostigma 3.6–4.6 times as long as wide (3.6: 1 ♀, 3.7: 1 ♀, 4.6: 1 ♀), *SR1* as long as to 1.25 times longer than *3–SR* (Figs 29, 36). Second tergite transverse, 1.6 times as broad behind as long, striated as in Fig. 37 (1 ♀). Ovipositor sheath as long as hind tibia + basitarsus.

Deviating features of the male (4 ♂♂) – Body 13–15 mm long (13: 1 ♂, 14: 1 ♂, 15: 2 ♂). Head in dorsal view 1.7–1.75 times as broad as long, eye three times as long as temple, temple more receded (Fig. 38). Hind femur 3.6–3.7 times as long as broad. Forewing: pterostigma four times as long as wide, *3–SR* 2.5–2.7 times as long as *2–SR*, *SR1* just longer than *3–SR* (Fig. 39). First tergite 1.4–1.6 times as long as broad behind, second tergite 1.6–1.75 times as broad behind as long, around polished antero-median field striate (Fig. 40). Tergites with steel blue shine.

Host unknown.



Figs 34–40. *Bathyaulax* (*Bathyaulax*) *cyanogaster* (SZÉPLIGETI, 1901) (female lectotype: 34, female paralectotype: 35, female: 36–37, male: 38–40): 34 = distal end of fore tibia with spur, 35 = propodeum, 36 = pterostigma and veins *r* + *3–SR* + *SR1*, 37 = tergite 2, 38 = head in dorsal view, 39 = distal part of right forewing, 40 = tergites 1–2. – **Figs 41–43.** *Bathyaulax* (*Goniobracon*) *areolatus* (SZÉPLIGETI, 1913) (female lectotype) (= *B.* (*G.*) *kersteni* GERSTAECKER, 1871): 41 = head in dorsal view, 42 = head in lateral view, 43 = hind femur

Distribution – Cameroon, Congo, Togo, Uganda (SHENEFELT 1978); Ghana, Ivory Coast, Nigeria (KAARTINEN & QUICKE 2007); Guinea, Zaire.

Taxonomic position – B. cyanogaster is closest to *B. bicolor* and *B. concolor*, the three species are separated in the key couplets 2 (3)–5 (4). In the key by KAARTINEN & QUICKE (2007: 128–129) it runs to *B. flavipera* (ENDERLEIN).

Bathyaulax (*Goniobracon*) *kersteni* (GERSTAECKER) (Figs 41–53)

Bracon kersteni GERSTAECKER, 1871: 356 ♀, type locality: "Mombas" (= Mombasa, Kenya), female holotype in ZMHB; not examined.

Iphiaulacidea kersteni (GERSTAECKER): FAHRINGER 1926: 195 (in key) and 212 (redescription, female, systematic position unclear).

Iphiaulax kersteni (GERSTAECKER): FAHRINGER 1935: 521, 536 (in key, ♀) and 579 (redescription of female); SHENEFELT 1978: 1774 (literature up to 1935, distribution).

Bathyaulax kersteni (GERSTAECKER): QUICKE 1984: 341 (comb. n.). KAARTINEN & QUICKE 2007: 129 (in key) and 170 (redescription, distribution).

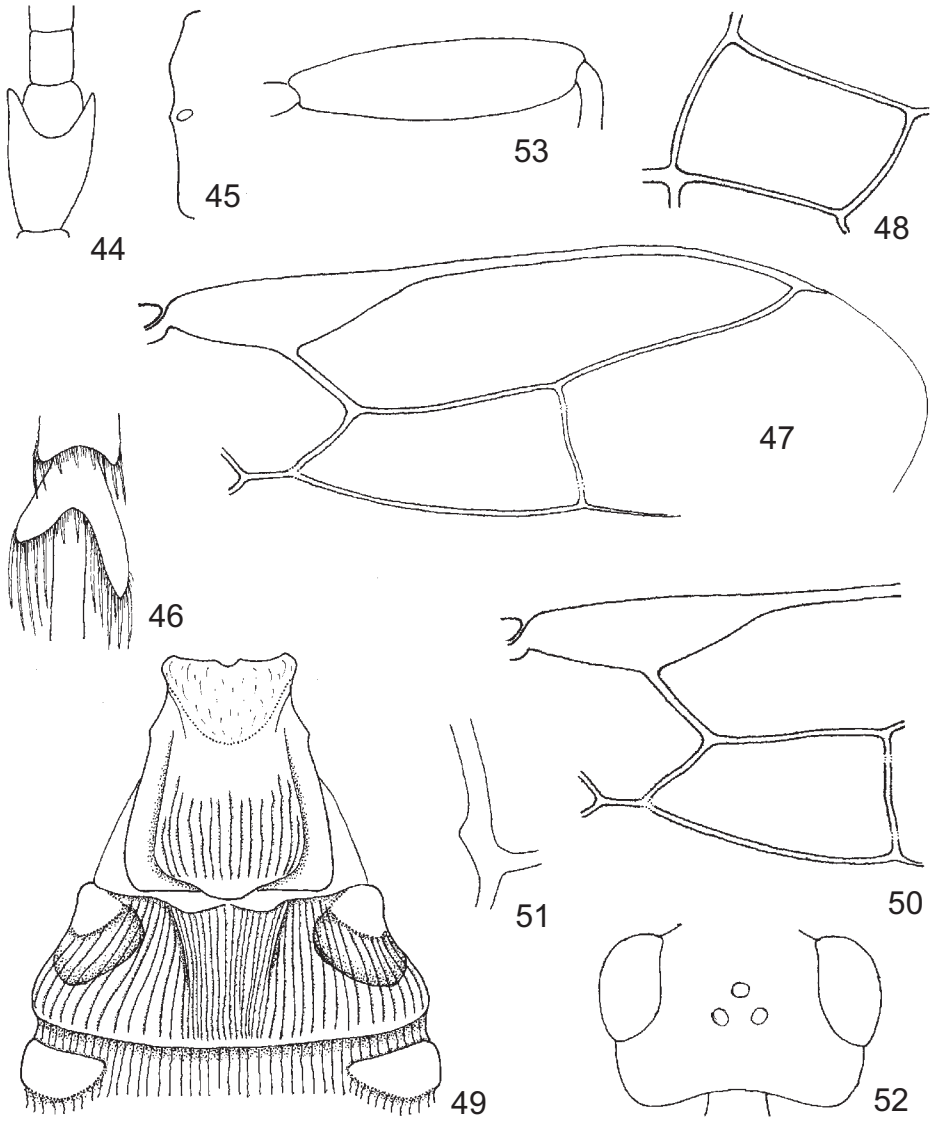
Goniobracon areolatus SZÉPLIGETI, 1913: 593 ♀, type locality: "Abyssinien: Ulano", female lectotype in HNHM; examined. – SZÉPLIGETI 1914*a*: 167, 1918: 187 (distribution); FAHRINGER 1935: as valid species 463, 464 (in key, ♀) and 467 (redescription of female); SHENEFELT 1978: as valid species 1684 (literature up to 1935).

Bathyaulax areolatus (SZÉPLIGETI): QUICKE 1984: 341 (as valid species, comb. n.); 1991: 174 (as valid species, type depository); KAARTINEN & QUICKE 2007: 170 (as new synonym of *Bracon kersteni* GERSTAECKER, 1871).

Goniobracon abdominalis SZÉPLIGETI, 1914*b*: 111 ♀, type locality: "Congo". KAARTINEN & QUICKE 2007: 170 (as new synonym of *Bracon kersteni* GERSTAECKER, 1871; "The holotype of *Goniobracon abdominalis* could not be found [in RMCA] and the synonymy is based on the description").

Lectotype (*female*) *of G. areolatus*, *here designated* – (First label, printed) "Ulamo/ 1912 III"; (second label, printed) "Abyssinia/Kovács"; (third label, handwriting) "Ethiopia"; fourth label is the lectotype card; fifth label is with the inventory number "1165"; sixth label is the original label det. SZÉPLIGETI with the name *G. areolatus* n. sp.; seventh label is with the synonymous name *Bathyaulax areolatus* (SZÉPL.) det. QUICKE 1989 (labels 3–7 were attached by me). – The lectotype is in fairly good condition: (1) pinned by the mesosoma (mesoscutum before prescutellar furrow/mesosternum); (2) both flagelli apically deficient; (3) right forewing basally damaged.

Non-type material examined – (1 ♀ + 1 ♂ in HNHM) 1 ♀: Kenya, Tsavo East Nat. Park, 1977, leg. D. QUICKE; "Bathyaulax sp. ... Section Goniobracon" det. QUICKE 1982; "Bathyaulax kersteni/det. KAARTINEN et QUICKE". – 1 ♂: Kenya, Watamu-Malindi, VIII 1976, leg. CABELLA.



Figs 44–49. *Bathyaulax* (*Goniobracon*) *areolatus* (SZÉPLIGETI, 1913) (female lectotype) (= *B.* (*G.*) *kersteni* GERSTAECKER, 1871): 44 = scape, pedicel and flagellomere 1, 45 = left lateral margin of propodeum, 46 = tarsomeres (3)–4) of left hind tarsus, 47 = distal part of right forewing, 48 = first discal cell, 49 = tergites 1–2(–3). – **Figs 50–53.** *Bathyaulax* (*Goniobracon*) *kersteni* (GERSTAECKER, 1871): 50 = distal part of right forewing: pterostigma, *r*, second submarginal cell, 51 = *3–CU1* with its swelling, 52 = head in dorsal view, 53 = hind femur

Redescription of the lectotype of G. areolatus – Body 11.5 mm long. Both antennae apically deficient yet somewhat longer than body. Scape in outer-lateral view deeply excised apically (Fig. 44). Head in dorsal view transverse (Fig. 41), 1.8 times as broad as long, eye 1.7 times as long as temple, temple rounded, ocelli elliptic and near to each other. Eye in lateral view 1.3 times as high as wide and 1.8 times wider than temple, temple beyond eye evenly wide (Fig. 42, see arrows). Head polished, face hairpunctured.

Mesosoma in lateral view 1.4 times as long as high, polished. Notaulix faintly distinct, smooth. Pair of spiracles at middle and along lateral margin of propodeum (Fig. 45). Fore tibia with one spur. Hind femur 3.1 times as long as broad medially (Fig. 43). Fourth tarsomere of hind tarsus clearly asymmetric in ventral view (Fig. 46).

Forewing as long as body. Pterostigma (Fig. 47) 3.3 times as long as wide and issuing *r* just proximally from its middle, *r* somewhat longer than width of pterostigma. Second submarginal cell short and widening (i.e. *3–SR* and *2–M* diverging) distally, *3–SR* twice as long as *2–SR*, *r–m* 0.7 times as long as *3–SR*, *SR1* feebly S-form and 1.35 times as long as *3–SR*. First discal cell lower: *1–M* one-sixth longer than *m–cu* (Fig 48).

First tergite (Fig. 49) 1.2 times as long as broad behind, broadening posteriorly, scutum posteriorly with longitudinal striation. Second tergite transverse, 2.8 times as broad as long, together with antero-median field striated. Further tergites also transverse and striate. Hypopygium pointed, ovipositor sheath as long as hind femur + tarsus combined.

Antenna black. Body and legs testaceous, ocellar field black. Wings brown fumous, pterostigma yellow and apically black, veins brown.

Deviating features of the female (1 ♀) – Similar to the female lectotype of *G. areolatus*. Body 12 mm long. Head in dorsal view 1.75 times as broad as long. Eye in lateral view 1.3 times as high as wide. Hind femur 2.6 times as long as broad medially. Forewing: pterostigma 3.6 times as long as wide, second submarginal cell short and unusually wide, *3–SR* 2.3 times as long as *2–SR* (Fig. 50), *3–SR*, *SR1* slightly longer than *3–SR*. Second tergite three times as broad behind as long.

Deviating features of the male (1 ♂) – Similar to the female. Body 12 mm long. Antenna about one-fourth longer than body. Head in dorsal view less transverse, 1.65 times as broad as long, eye twice as long as temple (Fig. 52). Hind femur 2.9 times as long as broad medially (Fig. 53). Forewing: *3–SR* 2.1 times as long as *2–SR*. First tergite 1.25 times as long as broad behind, second tergite 3.2 times as broad behind as long. Head dorsomedially black.

Host unknown.

Distribution – Tropical Africa: Angola, Eritrea, Ethiopia, Kenya, Mozambique, Namibia, Somalia, South Africa, Tanzania. – Palaearctic Region: Arabia, Egypt, Yemen (Socotra) (SHENEFELT 1978, KAARTINEN & QUICKE 2007).

Taxonomic position – B. kersteni is nearest to *B. martinii* (GRIBODO) and *B. transitus* (SZÉPLIGETI), for their distinction see couplets 11 (6)–14 (13). In the key by KAARTINEN & QUICKE (2007: 130) it runs to *B. martinii*, *B. nigritarsus* KAARTINEN et QUICKE and *B. bifoveae* KAARTINEN et QUICKE.

Bathyaulax (*Goniobracon*) *martinii* (GRIBODO) (Figs 54–74)

Bracon martinii GRIBODO, 1879: 346 ♀, type locality: Mahal-Uonz, Sohoa, Abyssinia, female holotype ("un solo esemplare femmina") in MSNG; examined. – GRIBODO 1881: 262 (redescription).

Goniobracon martinii (GRIBODO): SZÉPLIGETI 1906: 582 (in key, supposed identity with *G. robustus*); FAHRINGER 1935: 467 (in key) and 474 (redescription); SHENEFELT 1978: 1685 (literature up to 1972, distribution).

Bathyaulax martinii (GRIBODO): KAARTINEN & QUICKE 2007: 130 (in key) and 179 (comb. n., redescription, distribution).

Iphiaulax robustus CAMERON, 1906: 57 ♀, type locality: "Natal Durban", "Type" in the BMNH; examined. – SCHULZ 1911: 71 (as synonymy with *B. martinii*); SHENEFELT 1978: 1685 (as synonym of *Goniobracon martinii* GRIBODO, literature up to 1972, distribution).

Goniobracon robustus (CAMERON): SZÉPLIGETI 1906: as valid species 582 (in key); FAHRINGER 1935: 374 (as synonym of *G. martinii*); SHENEFELT 1978: 1685 (as synonym of *G. martinii*, literature up to 1972); KAARTINEN & QUICKE 2007: 152 (as synonym of *B. martinii*).

Iphiaulax atriceps KRIECHBAUMER, 1894, *Goniobracon gutta* ENDERLEIN, 1920 and *Goniobracon pectinatus* ENDERLEIN, 1920: these three further synonyms of *B. martinii* were indicated by KAARTINEN & QUICKE (2007: 179).

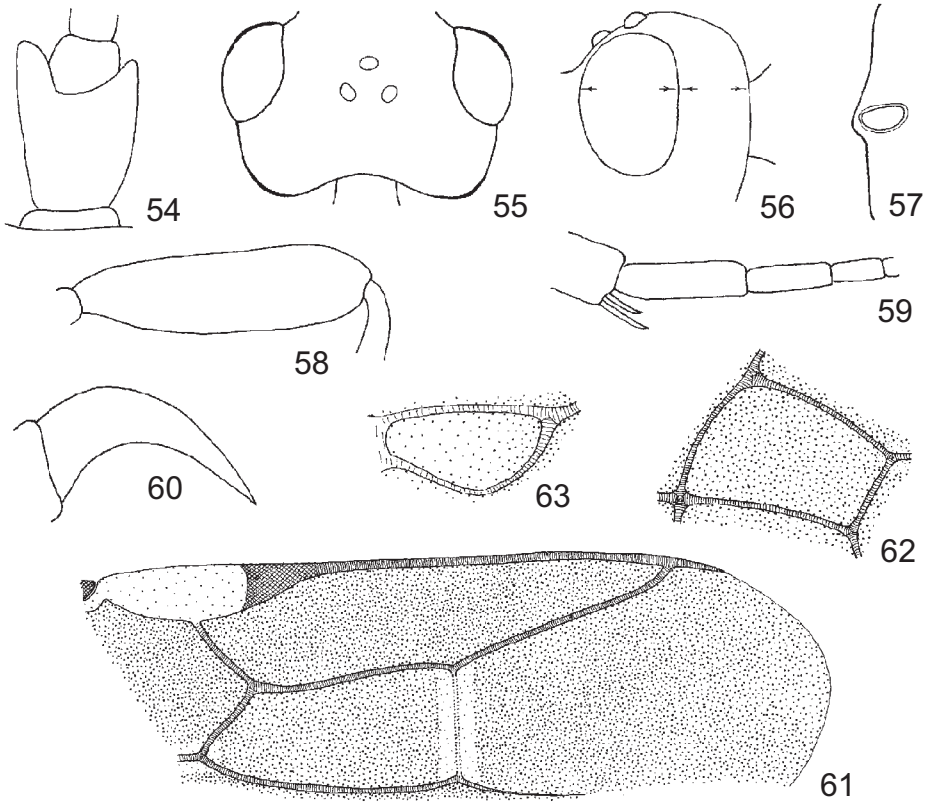
Holotype (*female*) *of Bracon martinii* – (First label) "Scioa" (printed) "Mahal-Uonz VI." (handwriting)/Antinori 18" (printed) "77" (handwriting); (second label close below first label with my handwriting) "Abyssinia"; (third label with GRIBODO's handwriting) "Bracon/Martinii/Tipo Grib./ ♀"; (fourth label, printed red) "Typus"; (fifth label, handwriting) "Martinii/♀ Grib."; sixth label is the holotype card and seventh label is with the actual name *Bathyaulax* (*Goniobracon*) *martinii* (GRIBODO). – The holotype is in good condition: (1) pinned by mesosoma; (2) antennae apically deficient (left antenna glued on a separate card); (3) left foreleg (except coxa) and left middle leg (except coxa and trochanter) missing; (4) hind pair of wings hardly visible, i.e. "hidden" by forewings.

Holotype (*female*) *of Iphiaulax robustus* – (First label, round with red frame) "Type"; (second label, printed) "Natal/D'Urban"; (third label, printed) "Republic of South Africa" (attached by me); (fourth label, printed) "P. Cameron Coll./1914 – 110."; (fifth label) "B. M. Type/Hym." (printed)/"3c.333" (handwriting); (sixth label, with CAMERON's handwriting) "Iphiaulax/robustus/Cam. Type/Natal"; seventh label is the holotype card and eighth label is with the actual name *Bathyaulax* (*Goniobracon*) *martinii* (GRIBODO). – The holotype is in fairly good condition: (1) pinned by mesosoma; (2) left antenna apically deficient (right flagellum missing); (3) right forewing missing.

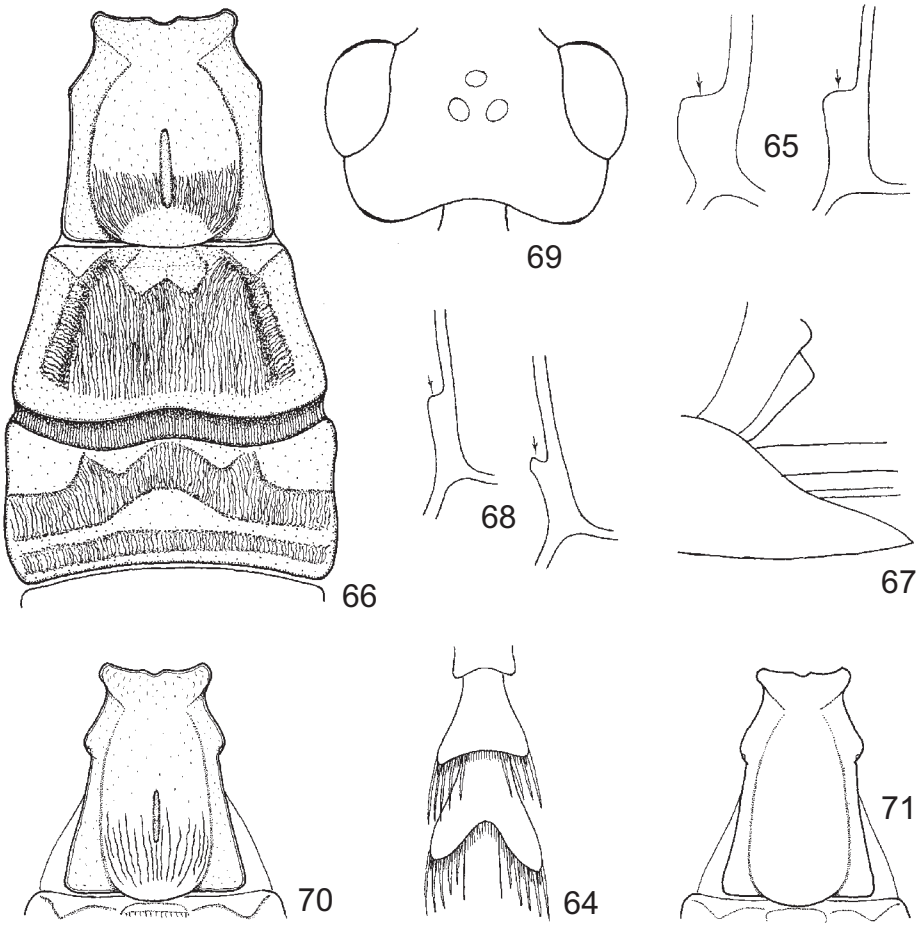
Non-type material examined – (7 ♀♀ + 7 ♂♂, in HNHM) 1 ♀: Abyssinia, Harrar. – 1 ♂: Mozambique. – 3 ♀♀ + 4 ♂♂: Tanzania, Ukami. 1 ♀: Tanzania, Kilimanjaro. – 1 ♀: Tanzania, Montengo Hochland, WSW von Songea, Ugano, 1500–1700 m, 21–29 February 1936,

leg. ZERNY; named as *Goniobracon martinii* GRIB. det. FAHRINGER. – 1 ♀: Tanzania, Manow. – 1 ♂: Tanzania, Kibonoto, Kilimanjaro, 1000–1300 m, June 1905, leg. SJÖSTEDT. – 1 ♂: Tanzania (= Deutsch Ost-Afrika).

Remarks on the redescription of the holotype of B. martinii – The redescription given by KAARTINEN & QUICKE (2007) was supposedly based on the female holotype of *Bathyaulax pectinatus* ENDERLEIN; the males (male holotype of *Iphiaulax atriceps* ENDERLEIN and male lectotype of *Bathyaulax gutta* ENDERLEIN) were not considered; the female holotype of *B. martinii* was not mentioned at all in "Material examined". They did not mention the variable features of this species. My redescription of *B. martinii* is essentially a detailed addition to the redescription by KAARTINEN & QUICKE (2007).



Figs 54–63. *Bathyaulax* (*Goniobracon*) *martinii* (GRIBODO, 1879) (female holotype): 54 = scape and pedicel, 55 = head in dorsal view, 56 = head in lateral view, 57 = left lateral margin of propodeum, 58 = hind femur, 59 = hind leg in lateral view: distal end of hind tibia with pair of spurs + tarsomeres 1–3, 60 = claw, 61 = distal part of right forewing, 62 = first discal cell, 63 = *cu–a* of hindwing



Figs 64–71. *Bathyaulax* (*Goniobracon*) *martinii* (GRIBODO, 1879) (female and male: 64; female holotype: 65, 66, 67; female: 68; male: 69, 70–71): 64 = tarsomeres 3–4 of left hind tarsus in ventral view, 65 = *3–CU1*: two varieties of its swelling (♀), 66 = tergites 1–3, 67 = posterior end of metasoma, 68 = *3–CU1*: two varieties of its swelling (♂), 69 = head in dorsal view, 70–71 = tergite 1

Redescription of the holotype of Bracon martinii – Body 17 mm long. Antenna about as long as body, apically deficient. Scape (Fig. 54) in outer-lateral view pyriform, 1.3 times as long as broad apically, deeply excised. Flagellomeres transverse, flagellomeres 1–2 cubic. Head in dorsal view transverse (Fig. 55), 1.7 times as broad as long, eye 1.4 times longer than temple, temple rounded. Eye in lateral view 1.4 times as high as wide and 1.4 times wider than temple, temple beyond eye evenly wide (Fig. 56, see arrows). Malar space 1.7 times as long as basal width of mandible. Head polished, face densely punctate.

Mesosoma in lateral view 1.25 times as long as high. Notaulix weakly distinct on declivous part of mesoscutum. Propodeum laterally punctate, otherwise polished, pair of elliptic spiracles medially close to lateral margin (Fig. 57). Fore tibia with one spur. Hind femur 3.5 times as long as broad medially, rather parallel sided (Fig. 58). Hind basitarsus just shorter than tarsomeres 2–3 combined (Fig. 59). Fourth tarsomere of hind tarsus in ventral view less asymmetric as in Fig. 64. Claw downcurved and widening basally as in Fig. 60.

Forewing as long as body. Pterostigma (Fig. 61) almost 3.8 times as long as wide and issuing *r* just proximally from its middle; *r* 1.5 times longer than width of pterostigma, *3–SR* S-form, almost 2.4 times as long as *2–SR* and 0.8 times as long as *SR1* (or *SR1* 1.25 times as long as *3–SR*), *SR1* approaching tip of wing. First discal cell high, *1–M* bent and 1.65 times as long as *m–cu*, *1–SR–M* almost straight and slightly (1.2 times) longer than *1–M* (Fig. 62). First subdiscal cell: *3–CU1* swollen, 2.8 times thicker than rest of vein (Fig. 65, see arrows). – Hindwing: *cu–a* incurved (Fig. 63).

First tergite (Fig. 66) as long as broad behind and evenly broadening posteriorly, pair of basal keels short and less distinct, pair of spiracles near to base of tergite, scutum posteriorly with a medio-longitudinal sulcus, apically with fine striation, margin of tergite narrow. Second tergite transverse (Fig. 66), almost 1.9 times as broad behind as long laterally, pair of small antero-lateral fields smooth and separated by deep impression, antero-median field together with medial part of tergite finely striated. Third tergite more transverse, antero-laterally with a pair of polished swellings, otherwise striated. Further tergites transverse and with fine striation. Hypopygium (Fig. 67) pointed and surpassing tip of metasoma, ovipositor sheath as long as hind tibia + tarsus combined.

Antenna and head black, oral opening brownish yellow. Meso- and metasoma brownish yellow. Legs brownish yellow, hind tibia and tarsus blackish. Forewing proximally yellow, distally evenly blackish brown fumous (i.e. without black transverse streaks); pterostigma proximally yellow, distally black, along *r–m* with a hyaline "fenestra". Hind wing proximally yellow, distally blackish brown.

Deviating features of the holotype of Iphiaulax robustus – Similar to the female holotype of *B. martinii*. Body 18 mm long. Head in dorsal view 1.7 times as broad as long. Pterostigma 4.1 times as long as wide, *r* 1.75 times longer than width of pterostigma, *SR1* just longer than *3–SR*. Swollen part of *3–CU1* variable (Fig. 68). Hind femur 3.3 times as long as broad distally. Blackish brown fumous part of fore wing with two yellowish "fenestra": below pterostigma and around *r–m*.

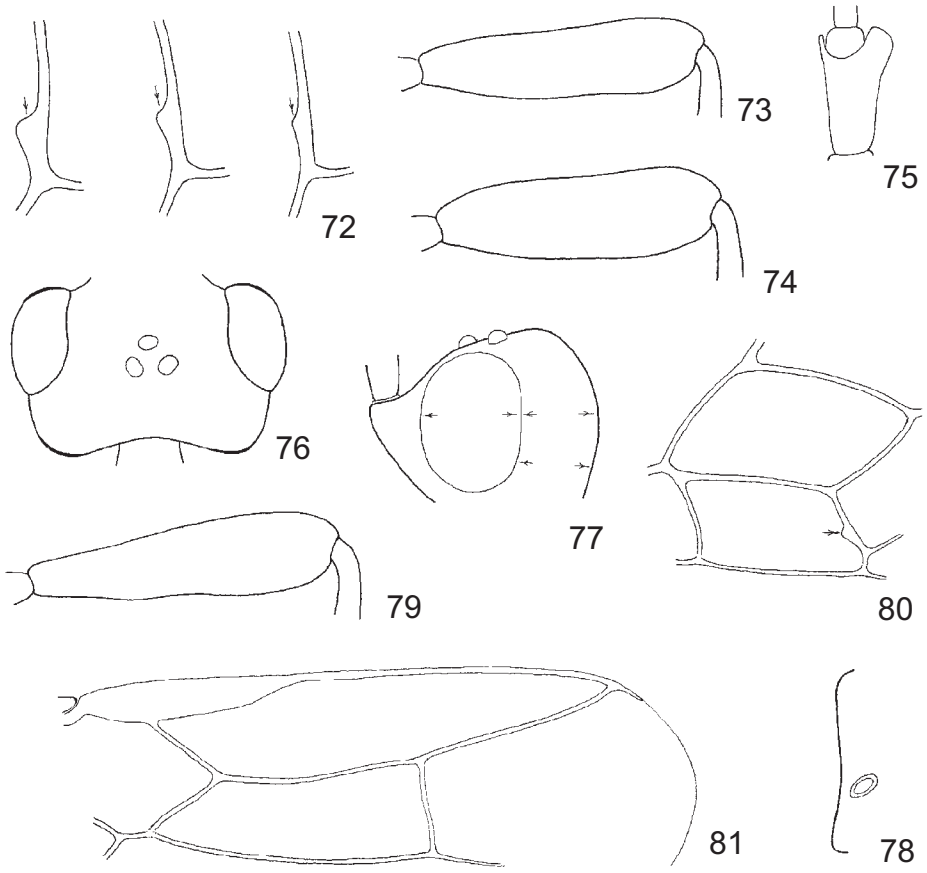
Variable features of seven females – Similar to the female holotype of *B. martinii*. Body 17–20 mm long. Head in dorsal view 1.7–1.8 times as broad as long. Hind femur 3.1–3.75 times as long as broad distally. Variability of swollen part of *3CU1* as in Figs 65, 68. First tergite as long as broad behind to 1.25 times longer than broad behind. "Fenestra" of forewing variable in size, forewing with two transverse blackish streaks. Black head with rusty to testaceous pattern of variable extent (4 ♂♂).

Description of the male (7 ♂♂) – Similar to the female. Body 13–17 mm long. Antenna somewhat longer than body. Eye in dorsal view 1.7–2 times as long as temple, temple more rounded (Fig. 69). Hind femur 3.2–3.8 (Figs 73–74) times as long as broad distally. Forewing: *3–SR* 2.2–3 times as long as *2–SR*, variability of the swollen part of *3–CU1* as in Fig. 72.

First tergite as long as to 1.2–1.4 times as long as broad behind (Fig. 71). Black head with more or less light coloured pattern (5 ♂♂).

Host unknown.

Distribution – Widely distributed, i.e. frequent to common in tropical Africa. Reported from the following countries: Equatorial Guinea, Eritrea, Ethiopia, Kenya, Malawi, Mozambique, Republic of South Africa, Rwanda, Sudan, Tanzania, Zambia, and Zimbabwe. – Palaearctic Region: Algeria (SHENEFELT 1978, KAARTINEN & QUICKE 2007).



Figs 72–74. *Bathyaulax* (Goniobracon) *martinii* (GRIBODO, 1879) (male): 72 = three varieties of the swollen part of *3–CU1*, 73–74 = hind femur (3.8 times as long as broad distally: Fig. 73, 3.2 times: Fig. 74). – **Figs 75–81.** *Bathyaulax* (*Goniobracon*) *perspicax* (SZÉPLIGETI, 1905) (female holotype): 75 = scape, 76 = head in dorsal view, 77 = head in lateral view, 78 = left lateral margin of propodeum, 79 = hind femur, 80 = first discal and first subdiscal cells of forewing, 81 = distal part of right forewing

Taxonomic position – B. martinii is nearest to *B. transitus*, the two species are distinguished by the features given in couplets 13 (14)–14 (13). In the key by KAARTINEN & QUICKE (2007: 130) it runs to *B. kersteni*, *B. nigritarsus* (KAARTINEN et QUICKE) and *B. bifoveae* KAARTINEN et QUICKE.

Bathyaulax (*Goniobracon*) *perspicax* (SZÉPLIGETI) (Figs 75–84)

Iphiaulax perspicax SZÉPLIGETI, 1905: 32 ♀, type locality: "Sierra Leone", female holotype in HNHM; examined.

Goniobracon perspicax (SZÉPLIGETI): SZÉPLIGETI 1906: 582. VIERECK 1914: 63 (type species of *Goniobracon*); FAHRINGER 1935: 461 (in key) and 480 (redescription); SHENEFELT 1978: 1686 (literature up to 1935, distribution).

Bathyaulax perspicax (SZÉPLIGETI): QUICKE 1981: 496, 1984: 341–342 and 1991: 178 (comb. n.); KAARTINEN & QUICKE 2007:129 (in key) and 188 (redescription, distribution).

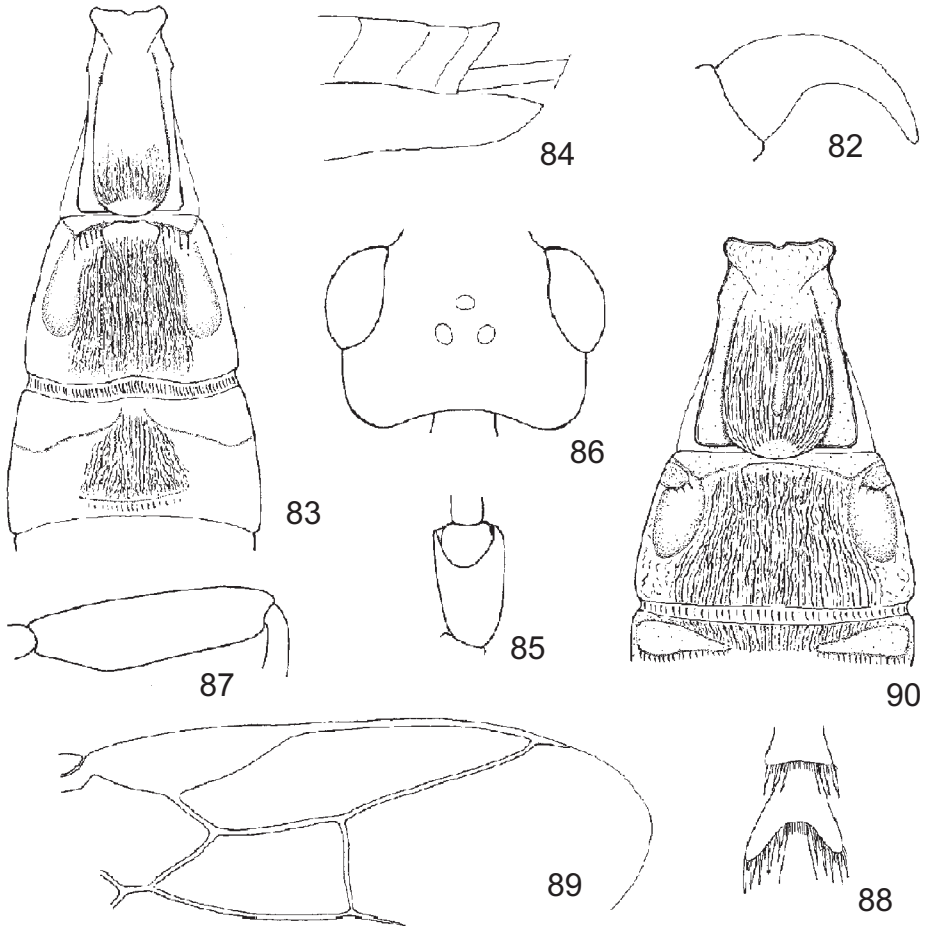
Goniobracon seminiger SZÉPLIGETI, 1914*a*: 167 ♀, type locality: "Togo, Bismarckburg", female holotype in ZMHB; not examined. – QUICKE & KOCH 1990: 214 (as valid species, type designation and depository); KAARTINEN & QUICKE 2007: 188 (as new synonym of *Iphiaulax perspicax* SZÉPLIGETI, 1905).

Lectotype (*female*) *of Iphiaulax perspicax*, *here designated* – (First label, handwriting) "Sierra Leone"; (second label) "Goniobracon perspicax Sz." (handwriting) "det. Szépligeti" (printed) "1906" (handwriting); third label is the lectotype card, fourth label is with the inventory number "1162" and fifth label is with the name *Bathyaulax perspicax* SZÉPL. (det. QUICKE 1989) (handwriting). – The lectotype is in fairly good condition: (1) pinned by mesosoma; (2) right flagellum missing; (3) tarsomeres 2–5 of right hind leg missing; (4) pair of forewing damaged medially.

Redescription of the lectotype of Iphiaulax perspicax – Body 20 mm long. Antenna about as long as body. Scape 1.4 times as long as broad apically, in outer-lateral view deeply excised and ledged (Fig. 75). Head in dorsal view less transverse (Fig. 76), 1.65 times as broad as long, eye 1.6 times as long as temple, temple rounded, ocelli just elliptic and near to each other, OOL four times as long as POL. Eye in lateral view 1.3 times as high as wide and one-fifth wider than temple, temple indistinctly narrowing ventrally (Fig. 77, see arrows). Head polished, face with rather disperse subhairpunctures.

Mesosoma in lateral view twice as long as high, polished. Notaulix indistinct. Pair of spiracles elliptic, posteriorly from middle and along margin of propodeum (Fig. 78). Fore tibia with one spur. Hind femur four times as long as broad distally (Fig. 79). Fourth tarsomere of hind tarsus asymmetric in ventral view (*cf.* Fig. 88). Claw less pointed and less downcurved, somewhat broadening basally (Fig. 82).

Forewing almost as long as body. Pterostigma (Fig. 81) long, five times as long as wide and issuing *r* clearly proximally from its middle; *r* long, twice as long as width of pterostigma. Second submarginal cell long and widening (i.e. *3–SR* and *2–M* diverging) distally, *3–SR* 2.5 times as long as *2–SR* and faintly S-form, *r–m* 0.4 times as *3–SR*, *SR1* almost straight and as long as *3–SR*. First discal cell lower: *1–M* 1.2 times as long as *m–cu*, *1–SR–M* weakly bent and 1.4 times as long as *1–M* (Fig. 80). First subdiscal cell: *3–CU1* swollen as in Fig. 80 (see arrow).



Figs 82–84. *Bathyaulax* (*Goniobracon*) *perspicax* (SZÉPLIGETI, 1905) (female holotype): 82 = claw, 83 = tergites 1–3, 84 = posterior end of metasoma. – **Figs 85–90.** *Bathyaulax* (*Goniobracon*) *rufus* (SZÉPLIGETI, 1906) (male lectotype): 85 = scape and pedicel, 86 = head in dorsal view, 87 = hind femur, 88 = tarsomeres (3)–4 of right hind tarsus in ventral view, 89 = distal part of right forewing, 90 = tergites 1–2(–3)

First tergite long (Fig. 83), 1.75 times as long as broad, moderately broadening posteriorly, scutum smooth and only behind longitudinally striolate. Second tergite quadrate, 1.25 times as broad behind as long, antero-median field anteriorly distinct and smooth, otherwise together with tergite striolate, laterally indented. Suture between tergites 2–3 bisinuate, crenulated. Third tergite shorter than second tergite and its hind margin concave (Fig. 83), together with further tergites medially finely rugulose, laterally polished. Hypopygium narrow and pointed (Fig. 84), ovipositor sheath as long as body.

Antenna black. Head yellow, above black. Mesosoma, metasoma and legs testaceous, beyond third tergite metasoma black. Hind tibia basally yellow, otherwise blackish to black, hind tarsus also black. Wings yellow, forewing distally with three brown transverse streaks, pterostigma: proximal half yellow, distal half brown. Hindwing distally brown.

Male and host unknown.

Distribution – Cameroon, Congo, Gabon, Gambia, Senegal, Sierra Leone (SHENEFELT 1978, KAARTINEN & QUICKE 2007).

Taxonomic position – B. perspicax differs from all other *Bathyaulax* species (except *B. rufus*) by its elongate body form, long pterostigma, second submarginal cell and first tergite. The nearest species is *B. rufus*, the two species are separated by the features disclosed in the couplets 8 (9)–9 (8). In the key by KAARTINEN & QUICKE (2007: 129) it runs to *B. artoi* KAARTINEN et QUICKE.

Bathyaulax (*Goniobracon*) *rufus* (SZÉPLIGETI) (Figs 85–101)

Megagonia rufa SZÉPLIGETI, 1906: ♂, type locality: "Deutsch-Ost-Afrika: Mto-ya-kifaru" (Tanzania), male lectotype in HNHM; examined. – FAHRINGER 1935: 487 (in key) and 493 (redescription); SHENEFELT 1978: 1697 (literature up to 1935, distribution).

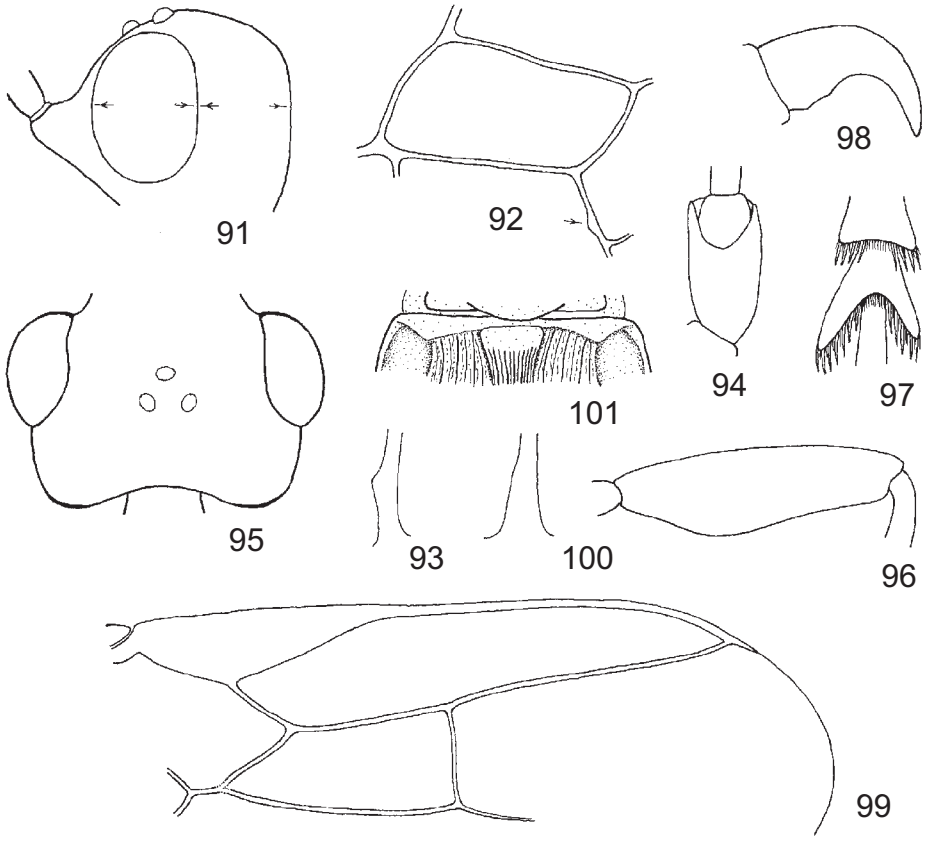
Bathyaulax rufus (SZÉPLIGETI): QUICKE 1981: 496 (comb. n.), 1991: 183 (type depository).

Bathyaulax rufus SZÉPLIGETI, 1908: 29 ♀, type locality: "Kilimandjaro: Kibonoto, Steppe" (Tanzania), female holotype ("1 Exempl.") in NHRS; examined, **syn. n.** – FAHRINGER 1931: as valid species 370 (in key) and 1935: 395 (redescription); SHENEFELT 1978: as valid species 1456 (literature up to 1935).

Lectotype (*male*) *of Megagonia rufa*, *here designated* – (first label, printed) "Africa or./Katona" (=KÁLMÁN KITTENBERGER); (second label, printed) "Mto-ja-/Kifaru", "1905. I." (handwriting, reverse second label); (third label, printed) "Tanzania"; fourth label is the lectotype card; fifth label is with the inventory number "1169"; sixth label is with the actual name *Bathyaulax rufa* (SZÉPL.) det. QUICKE 1989. – The lectotype is in fairly good condition: (1) pinned by the mesosoma (prescutellar furrow/mesosternum anteriorly); (2) flagelli apically deficient, fragments of flagelli glued on a separate card;

(3) pair of forewings beyond pterostigma damaged, left forewing glued on a separate card; (4) missing: tarsus of right hind leg and claw of left hind leg.

Redescription of the lectotype of Megagonia rufa – Body 17 mm long. Antenna about one-sixth longer than body. Scape 1.65 times as long as broad apically, here in outer-lateral view deeply excised (Fig. 85). Head in dorsal view subcubic (Fig. 86), 1.5 times as broad as long, eye 1.35 times as long as temple, temple weakly rounded. Ocelli small, almost round and OOL twice as long as POL. Eye in lateral view 1.4 times as high as wide and eye somewhat wider than temple, temple beyond eye evenly wide (Fig. 91, see arrows). Head polished, face densely rugulose.



Figs 91–101. *Bathyaulax* (*Goniobracon*) *rufus* SZÉPLIGETI, 1906 (male lectotype: Figs 91–93; = *Megagonia rufa* SZÉPLIGETI, 1906) (= *Bathyaulax rufus* SZÉPLIGETI, 1908, female holotype: Figs 94–101): 91 = head in lateral view, 92 = first discal cell of right forewing, 93 = swelling of *3–CU1* of right forewing, 94 = scape and pedicel, 95 = head in dorsal view, 96 = hind femur, 97 = tarsomeres (3)–4 of hind tarsus in ventral view, 98 = claw, 99 = distal part of right forewing, 100 = swelling of *3–CU1* of right forewing, 101 = anterior part of second tergite

Mesosoma in lateral view twice as long as high, polished. Notaulix distinct, smooth. Pair of spiracles elliptic, posteriorly from middle and along lateral margin of propodeum (*cf.* Fig. 78). Fore tibia with one spur. Hind femur 3.5 times as long as broad proximally (Fig. 87). Fourth tarsomere of hind tarsus in ventral view asymmetric: its two lobes fairly widely sprawling (Fig. 88). Claw downcurved, basally with faint excision (Fig. 98).

Forewing somewhat shorter than body. Pterostigma (Fig. 89) 3.3 times as long as wide and issuing *r* proximally from its middle; *r* somewhat shorter than width of pterostigma. Second submarginal cell short and widening (i.e. *3–SR* and *2–M* diverging) distally, *3–SR* 1.5 times as long as *2–SR*, *SR1* weakly S-form and 1.6 times as long as *3–SR*. First discal cell lower, *1–M* almost 1.3 times as long as *m–cu*, *1–SR–M* faintly bisinuate and 1.6 times as long as *1–M*, swollen part of *3–CU1* rather small (Figs 92, 93, see arrow).

First tergite (Fig. 90) 1.25 times as long as broad behind, broadening posteriorly, scutum longitudinally striated. Second tergite twice as broad behind as long, its antero-median field anteriorly distinct and together with rest of tergite striated, tergite laterally indented. Suture between tergites 2–3 straight, crenulated. Third tergite transverse, its latero-basal pair of fields wide and polished, otherwise tergite striated (Fig. 90). Tergites 4–6 transverse and with weakening sculpture.

Antenna black. Head, mesosoma, metasoma and legs testaceous. Wings brown fumous, forewing below pterostigma with a yellowish "fenestra", pterostigma yellow, distally brown.

Deviating features of the holotype of Bathyaulax rufus SZÉPLIGETI, 1908 – Similar to the male lectotype of *M. rufa*. Body 15 mm long. Antenna one-fifth longer than body. Scape 1.85 times as long as broad apically, here more excavated (Fig. 94). Head in dorsal view subcubic (Fig. 95), 1.65 times as broad as long, temple rounded. Hind femur 3.3 times as long as broad proximally, distally slightly more narrowing (Fig. 99). Fourth tarsomere of hind tarsus in ventral view more sprawling (Fig. 97). Antero-median field of second tergite more distinct, its striation stronger (Fig. 101). Ovipositor sheath almost as long as meta- and mesosoma combined. Ocellar field and frons black.

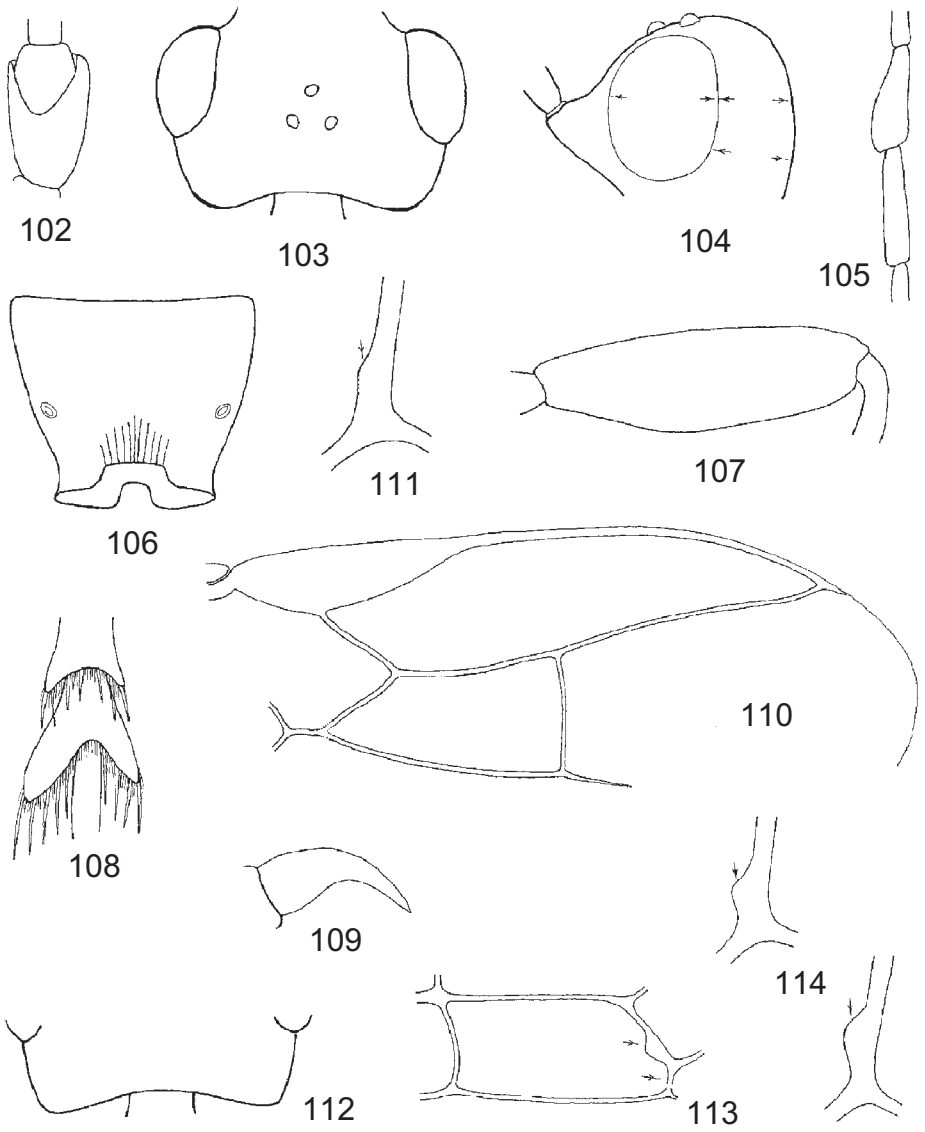
Host unknown.

Distribution – Tanzania.

Taxonomic position – B. rufus is nearest to *B. perspicax*, the two species are distinguished by the features in couplets 8 (9)–9 (8). In the key by KAARTINEN & QUICKE (2007: 132) it runs to *B. fortisulcatus* (STRAND, 1912).

Bathyaulax (*Goniobracon*) *transitus* (SZÉPLIGETI) sp. rev.
(Figs 102–124)

Goniobracon transitus SZÉPLIGETI, 1913: 593 ♀♂, type locality: "Ost-Afrika: Assab" (Tanzania), female lectotype (and five female + nine male paralectotypes) in HNHM; examined. – FAHRINGER 1935: as valid species 462 (in key) and 482 (redescription); SHENEFELT 1978: as valid species 1686 (literature up to 1935, distribution).



Figs 102–114. *Bathyaulax* (*Goniobracon*) *transitus* (SZÉPLIGETI, 1913) (female lectotype: Figs 102–111, female paralectotype: Figs 112–114): 102 = scape and pedicel, 103 = head in dorsal view, 104 = head in lateral view, 105 = maxillary palpomeres (2)–3–4–(5), 106 = propodeum, 107 = hind femur, 108 = tarsomeres (3)–4 of hind tarsus in ventral view, 109 = claw, 110 = distal part of right forewing, 111 = swelling of *3–CU1* of right forewing, 112 = temple in dorsal view, 113 = first subdiscal cell of right forewing, 114 = two varieties of swelling of *3–CU1* of right forewing

Bathyaulax transitus (SZÉPLIGETI): QUICKE 1981: 496 (comb. n.), 1991: 174 (as valid species, type depository); KAARTINEN & QUICKE 2007: 197 (as new synonym of *Megagonia rufa* SZÉPLIGETI, 1906).

Lectotype (*female*), *here designated* – (First label, printed) "Assab/1907" (above) "III.10–20." (reverse on label, handwriting); (second label, printed) "Tanzania/Africa or./ Katona" (= KÁLMÁN KITTENBERGER); third label is the lectotype card, fourth label is with the inventory number "1176", fifth label close below fourth label and with SZÉPLIGETI's original name label; sixth label is with the actual name *Bathyaulax transitus* (SZÉPL.) det. QUICKE 1989. – The lectotype is in good condition: (1) pinned by the mesosoma (hind mesoscutum/fore mesosternum), (2) hind left wing apically and transversely incurved; (3) head glued to mesosoma.

Paralectotypes (*five females*) – (First labels, printed) "Assab/1907" (above) "II.1.– III.10." (reverse on label, handwriting); (second labels, printed) "Tanzania/Africa or./Katona" (=KÁLMÁN KITTENBERGER); third labels are the paralectotype cards, fourth labels are with the inventory numbers 1177–1181, fifth labels are with the actual name *B. transitus* (SZÉPLIGETI) det. J. PAPP 1991. – Three paralectotypes are in good condition (nos 1178–1180) and two in less good condition (nos 1177 and 1181).

Paralectotypes (*nine males*) – Labels identical to those of the paralectotypes; inventory numbers: 1183–1190 and 1192. – Eight paralectotypes are in good (nos 1183–1190) and one is in poor condition (no. 1191).

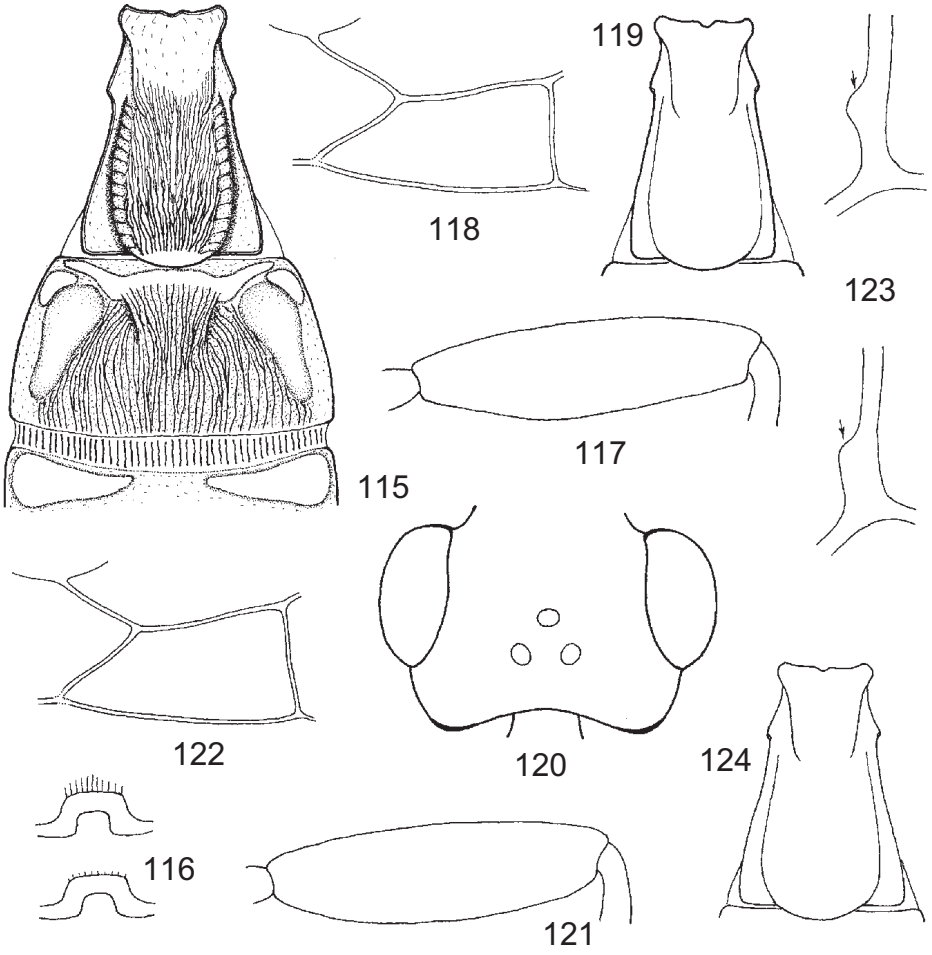
Remark – From the original type series (7 ♀♀ + 10 ♂♂) one female (no. 1182) and one male (no. 1191) paralectotypes is in the Zoological Institute, Sanktpetersburg as exchange material.

Redescription of the lectotype – Body 18 mm long. Antenna shorter than body and with many transverse flagellomeres. Scape 1.65 times as long as broad apically, here in outer-lateral view deeply excised (Fig. 102). First flagellomere 1.3 times, second to fifth flagellomeres 2 to 5 gradually more transverse, last 6–8 flagellomeres gradually more elongate so that penultimate flagellomere 1.4 times as long as broad. Head in dorsal view transverse (Fig. 103), 1.75 times as broad as long, eye 1.65 times as long as temple, temple rounded. Ocelli small, near to each other, weakly elliptic, OOL 2.8 times as long as POL. Eye in lateral view almost 1.3 times as high as wide and 1.5 times as wide as temple, temple beyond eye slightly widening (Fig. 104, see arrows). Third maxillary palpomere flattened as in Fig. 105. Head polished, face rugulose.

Mesosoma in lateral view stout, somewhat longer than high, polished. Notaulix distinct, shallow, smooth. Pair of spiracles of propodeum elliptic, somewhat beyond its middle and along its lateral margin; around lunule with striae, its posterior rim strongly sclerotized (Fig. 106). Fore tibia with one spur. Hind femur 3.2 times as long as broad just proximally (Fig. 107). Hind basitarsus as long as second and half of third tarsomeres combined. Fourth tarsomere of hind tarsus asymmetric in ventral view, lobes fairly wide as in Fig. 108. Claw weakly downcurved (Fig. 109).

Forewing shorter (i.e. 16 mm) than body. Pterostigma (Fig. 110) 3.6 times as long as wide and issuing *r* proximally from its middle, *r* somewhat longer than width of pterostigma. Second submarginal cell short, clearly widening (i.e. *3–SR* and *2–M* distally) diverging;

3–SR 1.7 times as long as *2–SR* and 1.4 times as long as *r–m*; *SR1* bent, 1.7 times as long as *3–SR* and ending near tip of wing (Fig. 110). First discal cell: *1–M* curved, 1.25 times as long as *m–cu*, *1–SR–M* faintly S-form and 1.6 times as long as *1–M* (*cf.* Fig. 92). First subdiscal cell closed distally (Fig. 113, see lower arrow), swelling of *3–CU1* as in Fig. 113 (see upper arrow).



Figs 115–124. *Bathyaulax* (*Goniobracon*) *transitus* (SZÉPLIGETI, 1913) (female lectotype: Fig. 115, female paralectotype: Figs 116–119, male paralectotype: Figs 120–124): 115 = tergites 1–2(–3), 116 = two varieties of the striation of lunule, 117 = hind femur, 118 = second submarginal cell of right forewing, 119 = tergite 1, 120 = head in dorsal view, 121 = hind femur, 122 = second submarginal cell, 123 = two varieties of swelling of *3–CU1* of right forewing, 124 = tergite 1

First tergite (Fig. 115) 1.3 times as long as broad behind, broadening posteriorly, pair of basal keels merging into longitudinal striation of scutum, pair of spiracles clearly before middle of tergite, scutum laterally crenuliform, its striation posteriorly stronger. Second tergite transverse, twice as broad behind as long, its antero-median field wide and striate, tergite itself also striate, laterally indented, pair of antero-lateral polished fields small. Suture between tergites 2–3 deep, crenulated. Third tergite three times as broad behind as long medially, striate, basally with a pair of polished transverse fields (Fig. 115). Further tergites also transverse, striate. Hypopygium elongate and pointed, ovipositor sheath shorter than body.

Scape dark rusty, flagellum black. Body and legs testaceous. Forewing: basally yellowish, median streak (on first discal and subdiscal cells) dark brown, distally brown fumous, between median and distal part a bright "fenestra", pterostigma yellow, apically blackish; veins yellow to dark brown. Hindwing basally yellow, distally brownish fumous.

Redescription of the five female paralectotypes – Similar to the female lectotype. Body 14–17 mm long (14: 2 ♀♀, 15: 1 ♀, 17: 2 ♀♀). Head in dorsal view 1.7–175 times as broad as long, temple less rounded (Fig. 112). Lunule of propodeum with short (1 ♀) to very short (4 ♀♀) striae (Fig. 116). Hind femur 3.3–3.5 times as long as broad proximally (Fig. 117). Forewing: *3–SR* 1.55 times (2 ♀♀, Fig. 118) to 1.7 times (Fig. 110) as long as *2–SR*; *2–CU1* almost twice as long as *cu–a*, swelling of *3–CU1* distinct (Fig. 113, see upper arrow), subdiscal cell distally closed (Fig. 113, see lower arrow); varieties of swelling see Fig. 114. First tergite 1.25 to 1.6 times as long as broad behind (1.25: 2 ♀♀, 1.4: 1 ♀, 1.6: 2 ♀♀, Fig. 119).

Redescription of the nine male paralectotypes – Similar to the female types. Body 13–17 mm long (13: 2 ♂♂, 14: 2 ♂♂, 15: 2 ♂♂, 16: 2 ♂♂, 17: 1 ♂). Head in dorsal view less transverse, 1.6–1.65 times as broad as long, temple more rounded (Fig. 120). Hind femur 3.2–3.7, mostly 3.5, times as long as broad medially, rather evenly broad (Fig. 121). Forewing: *3–SR* 1.5 to 1.8 times as long as *2–SR* (1.5: 4 ♂♂ Fig. 122, 1.65: 1 ♂, 1.7: 3 ♂♂, 1.8: 1 ♂), *SR1* 1.6 to 1.9 times as long as *3–SR* (1.6: 3 ♂♂, 1,7: 3 ♂♂, 1.8: 2 ♂♂, 1.9: 1 ♂) and *1–R1* 1.4 to 1.55 times as long as pterostigma; two varieties of swelling of *3–CU1* as in Fig. 123. First tergite 1.25 times (5 ♂♂, Fig. 115) to 1.4 times (3 ♂♂, Fig. 124) as ong as broad behind, somewhat more broadening posteriorly.

Host unknown.

Distribution – Eritrea, Somalia, Tanzania (SHENEFELT 1978).

Taxonomic position – The name *Bathyaulax transitus* (SZÉPLIGETI, 1913) was placed in junior synonymy with *Megagonia rufa* SZÉPLIGETI, 1906 by KAARTINEN & QUICKE (2007: 197). The male lectotype of *M. rufa* SZÉPLIGETI, 1906 (= female holotype of *Bathyaulax rufus* SZÉPLIGETI, 1908) and the female lectotype of *Goniobracon transitus* SZÉPLIGETI, 1913 were re-examined and specific distinction was recognized between the two species. Consequently, they are considered as two valid species; the distinctive features between the females are as follows:

1(2) Head in dorsal view subcubic, 1.6 times as broad as long, eye almost 1.4 times as long as temple (Figs 95). Scape slightly less excised and less broadening apically (Figs 94). Eye in lateral view 1.4 times as wide as temple, temple beyond eye evenly wide (*cf.* Fig. 91). Forewing: *3–SR* 2.2 times as long as *r*, second submarginal cell less widening distally: *3–SR* 1.7 times as long as *r–m* (Fig. 99). Pair of lobes of fourth tarsomere of hind tarsus narrow, spinules short (Fig. 97). ♀: 15 mm
B. rufus (SZÉPLIGETI, 1906)

2(1) Head in dorsal view transverse, 1.75 times as broad as long, eye 1.65 times as long as temple (Fig. 103). Scape slightly more excised and more broadening apically (Fig. 102). Eye in lateral view 1.5 times as wide as temple, temple beyond eye slightly widening ventrally (Fig. 104). Forewing: *3–SR* 1.75 times as long as *r*, second submarginal cell more widening distally: *3–SR* 1.4 times as long as *r–m* (Fig. 110). Pair of lobes of fourth tarsomere of hind tarsus wide, spinules long (Fig. 108). ♀: 14–18 mm *B. transitus* (SZÉPLIGETI, 1913)

In the key of KAARTINEN & QUICKE (2007: 132) *B. transitus* runs to *B. concolor* as both have body and legs entirely testaceous (or "orange yellow"). The males of the two species are distinguished by a few features as follows:

1(2) Head in dorsal subcubic, almost 1.5 times as broad as long, eye 1.5 times as long as temple, temple less rounded (Fig. 13). Fourth tarsomere of hind tarsus less incised medially in ventral view (Fig. 17). Second tergite less transverse, 1.75 times as broad behind as long, its antero-median field polished; scutum of first tergite striate only posteriorly (Fig. 19). Scape in outer-lateral view weakly excised apically (Fig. 12). Fourth tergite polished. ♂: 14 mm
B. concolor SZÉPLIGETI, 1906

2(1) Head in dorsal view less subcubic, 1.6–1.65 times as broad as long, eye twice as long as temple, temple more rounded (Fig. 120). Fourth tarsomere of hind tarsus more incised medially in ventral view (Fig. 108). Second tergite more transverse, twice as broad behind as long, its antero-median field striate; scutum of first tergite striate entirely (Fig. 115).

Scape in outer-lateral view deeply excised apically (Fig. 102). Fourth tergite densely rugulose to rugulose. ♂: 13–17 mm

B. transitus (SZÉPLIGETI, 1913)

KEY TO THE *BATHYAULAX* SPECIES BY SZÉPLIGETI (WITH TYPES HOUSED IN THE HUNGARIAN NATURAL HISTORY MUSEUM, BUDAPEST)

Females (and males)

In their revision KAARTINEN & QUICKE (2007: 128–134) presented a key to the 51 species of *Bathyaulax* SZÉPLIGETI, 1906 occurring in tropical Africa and in the Arabian Peninsula. Concerning the separation of the species primary emphasis was placed on the colour patterns of body, sculptural peculiarities of tergites (variable strength of striations, furrows, ridges and raised area of tergites) and secondary emphasis on the specific characters of the forewing venation.

In my key to the eight *Bathyaulax* species in question I placed primary emphasis on the measurements of the head, scape, tergites 1–2(–3), hind femur, fourth tarsomere of hind tarsus as well as forewing venation and secondary emphasis on the colour pattern of body. This approach promotes the reliable distinction of the species based on less variable features. Colour patterns of the braconid species in general are mostly variable; testaceous (or "orange yellow") ground colour of the *Bathyaulax* species is frequently spotted with blackish to black.

1(6) Antero-median field of second tergite polished (Figs 10, 19, 32). Wings usually almost evenly dark brown fumous and with small yellowish "fenestra" (subgenus *Bathyaulax* SZÉPLIGETI, 1906).

2(3) Head in dorsal view transverse, 1.8 times as broad as long, temple receded, eye 1.6 times as long as temple (Figs ♀: 21, ♂: 38). First tergite polished, second tergite less sculptured (Figs 32, 37). Forewing: *SR1* as long as to 1.2 times longer than *3–SR* (Figs 29, 36). Scape in outer lateral view with semicircular excision (Fig. 20). ♀: 15–19 mm, ♂: 13–15 mm *B.* (*B.*) *cyanogaster* (SZÉPLIGETI, 1901)

3(2) Head in dorsal view less transverse to subcubic (Figs 2, 13). First and second tergites sculptured (Figs 10, 19). Scape in outer-lateral view with weak semicircular excision (Figs 1, 12).

4(5) Head in dorsal view more transverse, 1.65 times as broad as long, temple rather receded, eye 1.8 times as long as temple (Fig. 2). Forewing: *SR1* twice as long as *3–SR*, pterostigma 3.8 times as long as wide (Fig. 8). Inner lobe of fourth tarsomere of hind tarsus long as in Fig. 7. Head and mesosoma rusty with much blackish suffusion, legs dark coloured. ♀: 14 mm *B.* (*B.*) *bicolor* SZÉPLIGETI, 1906

5(4) Head in dorsal view less transverse, 1.4 times as broad as long, temple weakly rounded, eye almost 1.5 times as long as temple (Fig. 13). Forewing: *SR1* almost 1.6 times as long as *3–SR*, pterostigma four times as long as wide (Fig. 18). Inner lobe of fourth tarsomere of hind tarsus shorter as in Fig. 17. Head, mesosoma and legs testaceous. ♂: 15 mm *B.* (*B.*) *concolor* (SZÉPLIGETI, 1906)

6(1) Antero-median field of second tergite striate (Figs 49, 66, 83, 90). Wings usually yellow with transverse brown streak(s), apically brown fumous (subgenus *Goniobracon* SZÉPLIGETI, 1906).

7(10) Head in dorsal view less transverse, 1.5–1.6 times as broad as long, temple less rounded (Figs 76, 86: ♂, 95). First tergite long, 1.5–1.6 times as long as broad posteriorly (Figs 83, 90). Mesosoma in lateral view elongate, 1.75–2 times as long as high.

8(9) Hind femur four times as long as broad (Fig. 79). Forewing: pterostigma long, 4.5 times as long as wide, issuing *r* clearly proximally from its middle; first submarginal cell long, *3–SR* 2.5 times as long as *2–SR* (Fig. 81). First tergite long: 1.75 times as long as broad behind, second tergite subquadrate: 1.25 times as broad behind as long (Fig. 83). Scape in outer-lateral view less deeply excised and ledged apically (Fig. 75). Claw less downcurved, basally without excision (Fig. 82). Forewing yellow, distally with three brown streaks. ♀: 20 mm *B.* (*G.*) *perspicax* (SZÉPLIGETI, 1905)

9(8) Hind femur 3.2 times (♂: 3.6 times) as long as broad (Figs 96, 87: ♂). Forewing: pterostigma wide, three times as long as wide, issuing *r* somewhat proximally from its middle; first submarginal cell short, *3–SR* 1.9 times (♂: twice) as long as *2–SR* (Figs 99, ♂: Fig. 89). First tergite shorter: 1.5 times as long as broad behind, second tergite transverse: twice as broad behind as long (Fig. ♂: 90). Scape in outer-lateral view deeply excised and not ledged apically (Fig. 85). Claw downcurved, basally with faint excision (Fig. 98). Forewing brown fumous, below pterostigma with yellowish "fenestra". ♀: 15 mm, ♂: 17 mm *B.* (*G.*) *rufus* (SZÉPLIGETI, 1906)

10(7) Head in dorsal view transverse, (1.6–)1.7–1.9 times as broad as long, temple more rounded (Figs 41, 52, 55, 69, 120). First tergite shorter, (1.1–)1.2–1.35 times as long as broad behind (Figs 49, 66, 115).

11(12) Second tergite transverse, 3 (♂)–3.2 (♀) times as broad as long (Fig. 49). Hind femur 2.6–3.1 times (♀) and 2.9 times (♂) as long as broad medially (Figs ♀: 43, ♂: 53). Temple in dorsal view more rounded (Figs ♀: 41, ♂: 52). Inner (or longer) spur of hind tibia longer than half basitarsus. ♀♂: 11–12 mm

B. (*G.*) *kersteni* (GERSTAECKER, 1871)

12(11) Second tergite less transverse, 1.8–2.2 times as broad behind as long (Figs 66, 115). Hind femur 3.1–3.7 times (♀♂) as long as broad medially (Figs ♀: 58, 117; ♂: 73, 74). Temple in dorsal view less rounded (Figs ♀: 55, 103; ♂: 69, 120). Inner (or longer) spur of hind tibia shorter than half basitarsus.

13(14) Forewing: second submarginal cell long, less widening distally, *3–SR* 2.4 times (♀) and 2.2–3 times (♂) as long as *2–SR* (Fig. 61 ♀), *3–CU1* more expanded (Fig. 68). First tergite as long as (Fig. 66 ♀) to 1.2(–1.3) times as long as broad behind (Figs 70–71 ♂). Fourth tarsomere of hind tarsus less asymmetric in ventral view (Fig. 64 ♀♂). Head black. ♀: 17–20 mm, ♂: 13–17 mm

B. (*G.*) *martinii* (GRIBODO, 1879)

14(13) Forewing: second submarginal cell short, more widening distally, *3–SR* 1.8 times (♀) and 1.4–1.6 times ♂) as long as *2–SR* (Figs ♀: 110, 118; ♂: 122), *3–CU1* less expanded (Figs ♀: 111, 114; ♂: 123). First tergite 1.3–1.5 times as long as broad behind (Fig. ♀: 115, 119; ♂: 124). Fourth tarsomere of hind tarsus more asymmetric in ventral view (Fig. 108 ♀♂). Head testaceous. ♀: 14–18 mm, ♂: 13–17 mm
B. (*G.*) *transitus* (SZÉPLIGETI, 1913)

List of the species of *Bathyaulax* SZÉPLIGETI

KAARTINEN & QUICKE (2007) considerably increased the number of the *Bathyaulax* species: from the 51 revised species, 27 were described as new to science. The descriptions and redescriptions of the species make it possible to assign them in three subgenera: *Bathyaulax*, *Bicentra* and *Goniobracon*. Subsequently the *Bathyaulax* species are affiliated according to their subgeneric assignment (the 52nd species is *B. transitus* revalidated in this paper).

Genus *Bathyaulax* SZÉPLIGETI, 1906
- Subgenus *Bathyaulax* SZÉPLIGETI, 1906
  - *angolensis* FAHRINGER, 1941
  - *appelatrix* (CAMERON, 1909)
  - *atripennis* (SZÉPLIGETI, 1914)
  - *bicolor* SZÉPLIGETI, 1906
  - (?)*bifoveae* KAARTINEN et QUICKE, 2007
  - *burrtikae* KAARTINEN et QUICKE, 2007
  - *concolor* SZÉPLIGETI, 1906
  - *cyanogaster* (SZÉPLIGETI, 1901)
  - *erythropus* KAARTINEN et QUICKE, 2007
  - *flavipera* (ENDERLEIN, 1920)
  - *foveiventris* (ROMAN, 1912)
  - *heinie* KAARTINEN et QUICKE, 2007
  - *ikonenae* KAARTINEN et QUICKE, 2007
  - *jimii* KAARTINEN et QUICKE, 2007
  - *juhai* KAARTINEN et QUICKE, 2007
  - *kossui* KAARTINEN et QUICKE, 2007
  - *kupariensis* KAARTINEN et QUICKE, 2007
  - *kvisti* KAARTINEN et QUICKE, 2007
  - *marjae* KAARTINEN et QUICKE, 2007

monteiroii (CAMERON, 1909)
nigritarsus KAARTINEN et QUICKE, 2007
nigriconus KAARTINEN et QUICKE, 2007
ollilae KAARTINEN et QUICKE, 2007
pippolaensis KAARTINEN et QUICKE, 2007
ramosus KAARTINEN et QUICKE, 2007
raunoi KAARTINEN et QUICKE, 2007
ruber (BINGHAM, 1902)
somaliensis (SZÉPLIGETI, 1914)
striolatus (SZÉPLIGETI, 1914)
syrnaensis (STRAND, 1912)
vannouhnysae KAARTINEN et QUICKE, 2007
zonatus FAHRINGER, 193l

Subgenus *Bicentra* VAN ACHTERBERG et SIGWALT, 1987
concavitarsis VAN ACHTERBERG et SIGWALT, 1987
lucidus (SZÉPLIGETI, 1911)

Subgenus *Goniobracon* SZÉPLIGETI, 1906
andrewi KAARTINEN et QUICKE, 2007
artoi KAARTINEN et QUICKE, 2007
atrox KAARTINEN et QUICKE, 2007
delagoaensis (CAMERON, 1909)
fortisulcatus (STRAND, 1912)
fritzeni KAARTINEN et QUICKE, 2007
hirticeps (CAMERON, 1909)
kersteni (GERSTAECKER, 1871)
larjuskinii KAARTINEN et QUICKE, 2007
martinii (GRIBODO, 1879)
perspicax (SZÉPLIGETI, 1905)
pickeri KAARTINEN et QUICKE, 2007
rufus (SZÉPLIGETI, 1906)
suviae KAARTINEN et QUICKE, 2007
transitus (SZÉPLIGETI, 1913)
varipennis (SZÉPLIGETI, 1914)
varkonyii KAARTINEN et QUICKE, 2007
williamii KAARTINEN et QUICKE, 2007

*

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