ANNALES HISTORICO-NATURALES MUSEI NATIONALIS HUNGARICI
Volume 97 Budapest, 2005 pp. 197–224.

A revision of the Bracon (Lucobracon) species described by Szépligeti from the western Palaearctic Region (Hymenoptera: Braconidae, Braconinae)

J. PAPP

Department of Zoology, Hungarian Natural History Museum
H-1088 Budapest, Baross utca 13, Hungary

Abstract – Of the 88 *Bracon* FABRICIUS, 1804 species described by SZÉPLIGETI between 1896 and 1904 from the western Palaearctic Region (mainly from the historical Hungary) 16 species belong to the subgenus *Lucobracon* FAHRINGER, 1927. Five species remained valid and 11 species names proved to be junior synonyms of five others. The 5 valid species are redescribed. Holotype, lectotype and paralectotype specimens are designated when it was necessary. The following four new synonyms are established: *Bracon erraticus* WESMAEL, 1838 = *Bracon aestivalis* SZÉPLIGETI, 1901, **syn. n.**; *Bracon sphaerocephalus* SZÉPLIGETI, 1901 = *Bracon globiceps* SZÉPLIGETI, 1901, **syn. n.**; *Bracon mirus* SZÉPLIGETI, 1901 = *Bracon miroides* TOBIAS, 1957 **syn. n.** = *Bracon xyletini* HEDQVIST, 1973 **syn. n.** With 108 figures.

Key words – SZÉPLIGETI, *Bracon, Lucobracon*, subgeneric division, redescription.

INTRODUCTION

In his six papers, SZÉPLIGETI (1896*a*, *b*, 1901*a*, *b*, *c*, 1904)) described a total of 88 species *of Bracon* FABRICIUS, 1804. The majority of the specimens served for the description of 86 new species originating from the historical Hungary or the Carpatho-Pannonian zoogeographical district and two species from two other countries in the western Palaearctic Region, one from the European part of Russia (Kazan) and one from Israel (Haifa). In the modern system of the genus *Bracon* the SZÉPLIGETI's species are assigned to five subgenera: *Bracon* s. str. 45 species, *Cyanopterobracon* TOBIAS, 1957 2 species, *Glabrobracon* FAHRINGER, 1927 23 species, *Lucobracon* FAHRINGER, 1927 16 species and *Pigeria* VAN ACHTERBERG, 1985 2 species.

The following 16 *Bracon* species were described in the subgenus *Lucobracon*:

B. aestivalis SZÉPLIGETI, 1901, **syn. n.** = *Bracon erraticus* WESMAEL, 1838, senior name

B. confinis SZÉPLIGETI, 1901, = *Bracon erraticus* WESMAEL, 1838, senior name

B. congruus SZÉPLIGETI, 1901 = *Bracon erraticus* WESMAEL, 1838, senior name

B. curiosus SZÉPLIGETI, 1901 = *Bracon fortipes* WESMAEL, 1838, senior name

B. fumarius SZÉPLIGETI, 1901, valid name

B. fumigidus SZÉPLIGETI, 1901, valid name

B. globiceps SZÉPLIGETI, 1901, **syn. n.** = *Bracon sphaerocephalus* SZÉPLIGETI, 1901, senior name

B. hungaricus (SZÉPLIGETI, 1896) (*Pseudovipio*), valid name

B. lautus SZÉPLIGETI, 1901 = *Bracon fortipes* WESMAEL, 1838, senior name

B. longiventris SZÉPLIGETI, 1901 = *Bracon hungaricus* (SZÉPLIGETI, 1896), senior name

B. mirus SZÉPLIGETI, 1901, valid name

B. palaestinensis SZÉPLIGETI, 1901 = *Bracon femoralis* (BRULLÉ, 1832) (*Vipio*), senior name

B. semirugosus SZÉPLIGETI, 1901 = *Bracon fortipes* WESMAEL, 1838, senior name

B. similis SZÉPLIGETI, 1901 = *Bracon erraticus* WESMAEL, 1838, senior name

B. sphaerocephalus SZÉPLIGETI, 1901, valid name

B. ventricosus SZÉPLIGETI, 1901 = *Bracon erraticus* WESMAEL, 1838, senior name

Based on the taxonomic status of SZÉPLIGETI's *Bracon* species, two groups can be recognized: five species remained valid, and eleven species names proved to be junior synonyms. The junior synonyms belong to five valid species as follows: five names to *Bracon erraticus*, three names to *Bracon fortipes*, one name to *Bracon femoralis*, one name to *Bracon hungaricus* and one name to *Bracon sphaerocephalus*.

Besides the names of SZÉPLIGETI, the following names by other authors are placed also in synonymy (the synonymy either confirmed or the new synonymy is established here):

Bracon femoralis (BRULLÉ, 1832), senior name = *Bracon carinatulus* TELENGA, 1936, junior name = *Bracon hedwigae* SCHMIEDEKNECHT, 1897, junior name; = *Bracon xystus* MARSHALL, 1897, junior name

Bracon hungaricus (SZÉPLIGETI, 1896), senior name = *Bracon xanthostigma* (KOKUJEV, 1904), junior name

Bracon mirus SZÉPLIGETI, 1901, senior name = *Bracon miroides* TOBIAS, 1957, **syn. n.** = *Bracon xyletini* HEDQVIST, 1973, **syn. n.**

The following five *Bracon* species of SZÉPLIGETI proved to be valid: *Bracon fumarius*, *Bracon fumigidus*, *Bracon hungaricus*, *Bracon mirus* and *Bracon sphaerocephalus*. They are redescribed in this paper and are compared with their nearest species to promote their unambiguous taxonomic recognition and their placement in the system of the *Bracon* species of the Palaearctic Region. It should be mentioned that *Bracon fumigidus* and *Bracon sphaerocephalus* were synonymized with *Bracon nigriventris* WESMAEL, 1838 by TOBIAS (1986: 147).

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

Eye: OOL = ocellar-ocular line, i.e. shortest distance between hind ocellus and compound eye; POL = postocellar line, i.e. shortest distance between hind ocelli.

Alar veins: *m–cu* = transverse medio-cubital vein; *2–SR* = transverse cubital vein; *3–SR* second section of the radial vein; *SR1* = third section of the radial vein; *1–2–CU1* = first and second sections of the discal vein; *1–R1* = first section of the radial vein; *1–SR–M* = first section of the cubital vein.

Bracon (Lucobracon) erraticus WESMAEL

Braco (sic) *erraticus* WESMAEL, 1838: 35 ♀♂, type locality: "environs de Bruxelles" (Belgium). – TELENGA 1936: 164 (♀), 169 (♂) (in key), 257 (redescription) (in Russian) and 367 (♀), 371 (♂) (in key, in German). SHENEFELT 1978: 1630 (literature up to 1973). TOBIAS 1986: 145 and 149 (in key, in Russian). TOBIAS & BELOKOBYLSKIJ 2000: 162 and 164 (in key, in Russian).

Bracon aestivalis SZÉPLIGETI, 1901*a*: 261 (in key) and 275 (description) (in Hungarian), 1904: 161 (in key) and 170 (description) (in German) ♀ (syntype series one female), type locality: "Újbánya" (=Nová Bana, Slovakia), female holotype (designated in 1968) in Hungarian Natural History Museum, Budapest; examined, **syn. n.** – FAHRINGER 1927: 243 (in key) and 311 (redescription) (in section *Striobracon* as valid species). TELENGA 1936: 165 (in key) and 259 (redescription) (in Russian), 367 (in key, in German) in section *Striobracon* as valid species. SHENEFELT 1978: 1462 as valid species (literature up to 1974). TOBIAS 1986: not mentioned. PAPP 2004: 171 (as valid species, type depository).

Bracon confinis SZÉPLIGETI, 1901*a*: 261 (in key) and 276 (description) (in Hungarian), 1904: 161 (in key) and 169 (description) (in German) ♀ (syntype series ?one female), type locality: "P.-Maróth" (= Pilismarót, Hungary), female lectotype (designated in 1968) in Hungarian Natural History Museum, Budapest; examined. – TELENGA 1936: 165 (in key), 259 (redescription) (in Russian) and 367 (in key, in German) as valid species. SHENEFELT 1978: 1628 as valid species (literature up to 1969). TOBIAS 1986: 149 (as synonym of *Bracon erraticus*). PAPP 2004: 173 (as *Bracon erraticus* var. *confinis*, type depository).

Bracon congruus SZÉPLIGETI, 1901*a*: 261 (♀), 263 (♂) (in keys) and 276 (description) (in Hungarian), 1904: 161 (♀), 164 (♂) (in keys) and 169 (description) (in German) ♀♂ (syntype series 2 ♀♀ + 2 ♂♂), type locality: "Budapest" (Hungary), female lectotype (and one female + two male paralectotypes, designated in 1968) in Hungarian Natural History Museum, Budapest; examined. – TELENGA 1936: 258 (as synonym of *Bracon secernendus* SCHULZ, 1906). SHENEFELT 1978: 1629 (as synonym of *Bracon confinis*). PAPP 2004: 173 (lectotype identical with *Bracon erraticus* var. *confinis*, type depository).

Bracon similis SZÉPLIGETI, 1901*a*: 261 (in key) and 276 (description) (in Hungarian), 1904: 161 (in key) and 170 (description) (in German) ♀ (syntype series ?one female), type locality: "Budapest" (Hungary), female lectotype (designated in 1968) in Hungarian Natural History Museum, Budapest; examined. – TELENGA 1936: 165 (in key), 259 (redescription) (in Russian) and 367 (in key, in German) as valid species. SHENEFELT 1978: 1539 as valid species (literature up to 1936). TOBIAS 1986: not mentioned. PAPP 2004: 181 (as *Bracon erraticus* var. *confinis*, type depository).

Bracon ventricosus SZÉPLIGETI, 1901*a*: 261 (in key) and 276) (description) (in Hungarian), 1904: 163 (in key) and 174 (description) (in German) ♀ (syntype series two females), type locality: "Budapest" (Hungary), female lectotype (and one female paralectotype, designated in 1968) in Hungarian Natural History Museum, Budapest; examined. – TELENGA 1936: 164 (in key), 256 (redescription) (in Russian) and 367 (in key, in German) as valid species. SHENEFELT 1978: 1650 as valid species (literature up to 1936). TOBIAS 1986: not mentioned. PAPP 2004: 182 (as *Bracon erraticus* var. *confinis*, type depository).

Remarks – The form *aestivalis* represents an extreme variety of *Bracon erraticus*. In the nominate form only the tergites 1–2 are rugose or rugulose; in the form *aestivalis* the tergites 1–5 are with posteriorly weakening rugosity. – *Bracon (Lucobracon) erraticus* is a highly variable species considering its corporal ground colour as well as the extension of its dark colour pattern and, furthermore, the strength and extension of the sculpture on tergites 1–5, running and positions of the veins of the fore wing. The redescription and taxonomic placement of this species will be discussed in a paper of WESMAEL's *Bracon* species.

Bracon (Lucobracon) femoralis (BRULLÉ)
(Figs 1–12)

Vipio femoralis BRULLÉ, 1832: 384 no. 851 ♀, type locality: "Morée" (Greece). Quotation of the original description and type designation in PAPP 1998: 245 and 1999: 296. – SHENEFELT 1978: 1848 (as *Vipio femoralis*, literature up to 1936).

Bracon carinatulus TELENGA, 1936: 144 (in key, in "sectio" *Glabrobracon*) and 183 (description) (in Russian), 345 (in key) and 383 (description) (in German) ♀, type locality: "Turkestan, Bezirk Kashka-Darja, Kammaschi" (Uzbeghistan), examined one female det. TOBIAS. – SHENEFELT 1978: 1620 as synonym of *Bracon hedwigae*. TOBIAS 1959: 895 and 1986: 143 (as synonym of *Bracon hedwigae* in key, in Russian). PAPP 1998: 245 (as synonym of *Bracon femoralis*) and 1999: 296 (synonyms, type designations).

Bracon hedwigae SCHMIEDEKNECHT, 1897: 590 ♀. PAPP 1998: 245 and 1999: 296 (quotation of type locality and original description, synonymization, type designation).

Bracon xystus MARSHALL, 1897: 66 ♀, female lectotype in Museo Nacional de Ciencias Naturales, Madrid. PAPP 1999: 296 (quotation of type locality and original description, synonymization and type designation).

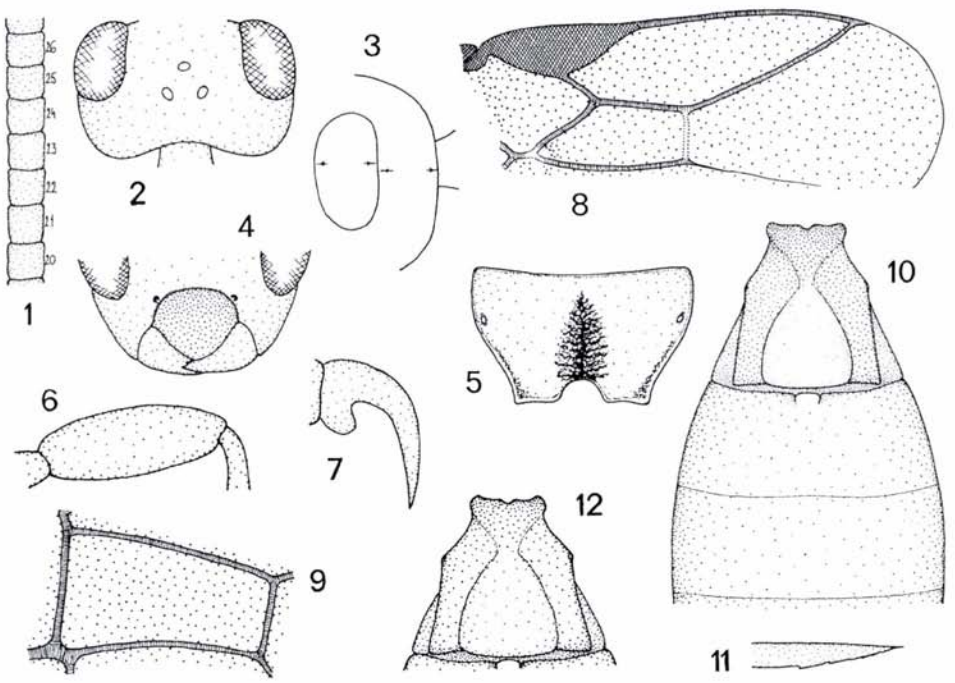
Bracon palästinensis (sic) SZÉPLIGETI, 1901*b*: 152 (description), 1904: 188 (in key) ♀ (syntype series one female), type locality: "Haifa" (Israel), female holotype (designated in 1969) in Hungarian Natural History Museum, Budapest; examined. – TELENGA 1936: 144 (in key), 185

(redescription) (in Russian) and 346 (in key, in German) as valid species. SHENEFELT 1978: 1579 as valid species (literature up to 1936). PAPP 2004: 179 (as synonym of *Bracon femoralis*, type depository).

Material examined (5 ♀♀ + 2 ♂♂) – Female holotype of *Bracon palaestinensis* from Israel. Bulgaria (Shabla): 1 ♀. Macedonia (prov. Skopje, Torbešija, D. Kolican): 1 ♂. Greece (Athens): 1 ♂. Tunisia: 1 ♀. Spain (prov. Sevilla): 2 ♀♀.

The female lectotype of *Bracon femoralis* (deposited in Paris Museum) is in a very poor condition, hence unappropriate for a redescription; its identification, however, unambiguously justifies its senior synonymy over the four names listed before. The present redescription is based on the female holotype of *Bracon palaestinensis* which proved to be identical with the female lectotype of *Bracon femoralis*.

Redescription of the female holotype of Bracon palaestinensis – Body 5.5 mm long. Antennae damaged, right antenna with 32 and left antenna with 24 antennomeres. First flagellomere 1.3 times and 30th flagellomere subcubic, i.e. just longer than brod. – Head in dorsal view (Fig. 2) less transverse, 1.66 times as broad as long, eye 1.4 times as long as temple, temple moderately rounded, occiput weakly excavated. Ocelli small, elliptic, OOL 1.3 times longer than POL. Eye in lateral view



Figs 1–12. *Bracon femoralis* (BRULLÉ, 1832): 1 = flagellomeres 20–26, 2 = head in dorsal view, 3 = eye and temple in lateral view, 4 = ventral half of head in frontal view, 5 = propodeum, 6 = hind femur, 7 = claw, 8 = distal part of right fore wing, 9 = first discal cell of fore wing, 10 = tergites 1–3 of the female holotype, 11 = posterior end of ovipositor, 12 = first tergite of female

1.3 times as high as wide, temple beyond middle of eye just shorter than eye and evenly wide (Fig. 3). Oral opening large, its horizontal diameter 2.2 times as long as shortest distance between opening and eye (Fig. 4). Head polished.

Mesosoma in lateral view 1.7 times as long as high, polished. Notaulix indistinct. Propodeum medially with a carina and along it with shortening rugae-rugulae, otherwise polished (Fig. 5). Femora thick, hind femur 2.6 times as long as broad medially (Fig. 6). Claw of tarsi deeply downcurved (Fig. 7).

Fore wing somewhat shorter than body. Pterostigma (Fig. 8) 2.8 times as long as wide and issuing *r* from its middle; *r* 0.8 times width of pterostigma, *3–SR* slightly longer than *2–SR*, *SR1* bent, 2.2 times as long as *3–SR* and ending fairly far from tip of wing; *1–R1* 1.5 times as long as ptertostigma. First discal cell long, *1–M* 1.5 times length of *m–cu*, *1–M–SR* just bent and 1.8 times as long as *1–M* (Fig. 9).

First tergite (Fig. 10) broad, somewhat shorter than broad behind and fairly evenly broadening posteriorly, margin of scutum smooth. Second tergite 2.8 times as broad as long and 0.8 times as long as third tergite, suture between tergites 2–3 straight, shallow and smooth. Every tergite polished. Hypopygium pointed, ovipositor sheath about as long as hind tibia, posterior end of ovipositor as in Fig. 11.

Ground colour of head and mesosoma black. Antenna black. Palpi blackish with rusty tint. Pronotum, mesoscutum and tegula reddish. Metasoma reddish yellow. Legs black, femora apically dark rusty. Wings brownish fumous, pterostigma and veins brown.

Variable features of the females (4 ♀♀) – Body 4 mm (3 ♀♀) and 5 mm (1 ♀) long. Antenna short and with 35 (1 ♀), 36 (1 ♀) and 37 (1 ♀) antennomeres; middle flagellomeres cubic to just transverse (Fig. 1). Head in dorsal view 1.7 times as broad as long and temple slightly more rounded (3 ♀♀). Propodeum medially widely rugose (3 ♀♀) and carina absent (1 ♀). Hind femur 2.8 times as long as broad medially (2 ♀♀). Fore wing: Pterostigma 2.8–2.9 times as long as wide, *3–SR* somewhat longer (3 ♀♀) or smowhat shorter (1 ♀) than *2–SR*. First tergite as long as broad behind (Fig. 12). Second tergite somewhat longer than third tergite (3 ♀♀) or tergites 2–3 equal in length (1 ♀♀), suture between them deep (1 ♀). Ovipositor sheath as long as hind tibia + basitarsus (4 ♀♀). Mesosoma entirely black (1 ♀) or mesoscutum faintly rusty to reddish (1 ♀).

Variable features of the males (2 ♂♂) – Body 4 mm (1 ♂) and 5 mm long (1 ♂). Antenna as long as body and with 34–35 antennomeres; flagellomeres slightly longer than broad. Sculpture of propodeum restricted medially. First tergite as long as broad behind. Metasoma with a median black streak.

Host unknown.

Distribution – Spain, Tunisia, Greece, Macedonia, Bulgaria, Israel, Georgia, Azerbaidjan, Uzbekistan.

Remarks – Bracon femoralis is nearest to *B. santaecrucis* SCHMIEDEKNECHT, 1897 considering their alar venation of fore wing, form of head in dorsal view and tergites 1–3; their distinction is presented as follows:

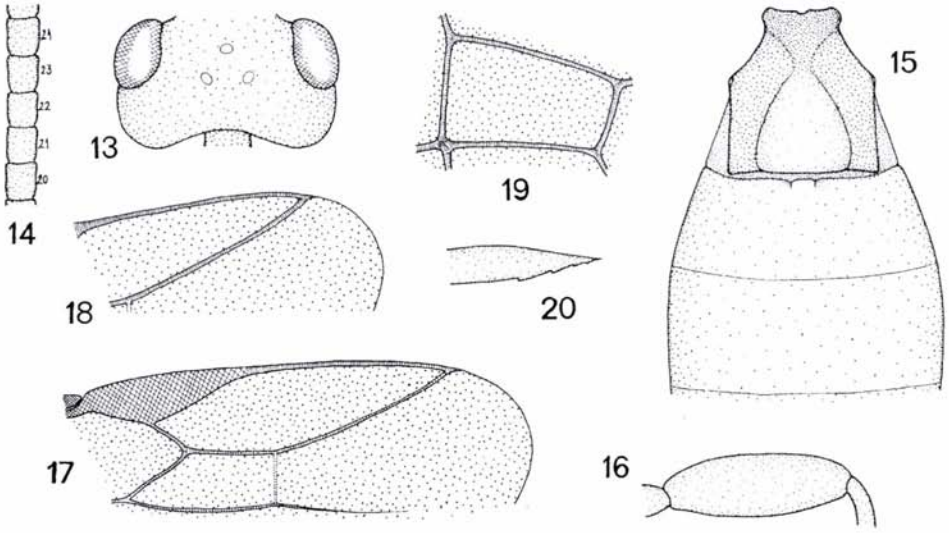
1 (2) Head in dorsal view (Fig. 2) less transverse, 1.6–1.7 times as broad as long, temple moderately rounded. Middle flagellomeres cubic to just transverse (Fig. 1). Tergites 2–3 of equal length (minute deviations feasible), first tergite with broadening sides (Figs 10, 12). Hind femur 2.6–2.8 times as long as broad (Fig. 6). Pterostigma 2.8–2.9 times as long as wide and issuing *r*

from its middle (Fig. 8); first discal cell long, *1–SR–M* 1.8–1.9 times as long as *1–M* (Fig. 9). Posterior end of ovipositor as in Fig. 11. Mesoscutum and usually pronotum reddish to rusty, hind femur black. ♀♂: 4–5 mm
B. femoralis (BRULLÉ)

2 (1) Head in dorsal view (Fig. 13) transverse, 1.75–1.8 times as broad as long, temple rounded. Middle flagellomeres slightly longer (Fig. 14). Third tergite somewhat longer than second one, first tergite with subparallel sides (Fig. 15). Hind femur 3–3.1 times as long as broad (Fig. 16). Pterostigma 3.1–3.3 times as long as wide and issuing *r* proximally from its middle; *SR–1* ending more or less before tip of wing (Figs 17–18); first discal cell less long, *1–SR–M* 1.7 times as long as *1–M* (Fig. 19). Posterior end of ovipositor as in Fig. 19. Mesoscutum and pronotum black, hind femur yellow. ♀♂: 4–5 mm *B. santaecrucis* SCHMIEDEKNECHT

Bracon (Lucobracon) fortipes WESMAEL

Braco [sic!] *fortipes* WESMAEL, 1838: 18 ♀ (syntype series one female), type locality: "environs de Liége" (Belgium), female holotype (present designation) in Institut Royal de Scinces Naturelles de Belgium, Bruxelles; examined. – TELENGA 1936: 164 (♀), 169 (♂) (in key), 257



Figs 13–20. *Bracon santaecrucis* SCHMIEDEKNECHT, 1897: 13 = head in dorsal view, 14 = flagellomeres 20–24, 15 = tergites 1–3, 16 = hind femur, 17 = distal part of right fore wing, 18 = distal end of right fore wing, 19 = first discal cell of fore wing, 20 = posterior end of ovipositor

(redescription) (in Russian) and 367 (♀), 371 (♂) (in key, in German). SHENEFELT 1978: 1618 (literature up to 1971). TOBIAS 1986: not mentioned. TOBIAS & BELOKOBYLSKIJ 2000: 164 (as synonym of *Bracon erraticus* with question mark).

Bracon curiosus SZÉPLIGETI, 1901*a*: 262 (in key) and 277 (description) (in Hungarian), 1904: 164 (in key) and 174 (description) (in German) ♂ (syntype series one male), type locality: "Budapest" (Hungary), male lectotype (designated in 1968) in Hungarian Natural History Museum, Budapest; examined. – TELENGA 1936: 167 (in key), 264 (redescription) (in Russian) and 370 (in key, in German) as valid species. SHENEFELT 1978: 1630 (literature up to 1936) as valid species. TOBIAS 1986: not mentioned. PAPP 2004: 173 (as synonym of *Bracon fortipes*, type depository).

Bracon lautus SZÉPLIGETI, 1901*a*: 264 (in key) and 278 (description) (in Hungarian), 1904: 178 (in key) and 183 (description) (in German) ♀ (syntype series at least three females), type locality: "Budapest" (Hungary), female lectotype (designated in 1968; "var. 1. ♀" and "var. 2. ♀" specimens lost or destroyed) in Hungarian Natural History Museum, Budapest; examined. – TELENGA 1936: 175 (in key), 293 (redescription) (in Russian) and 378 (in key, in German) as valid species. SHENEFELT 1978: 1621 (literature up to 1969) as valid species. TOBIAS 1986: 147 (as synonym of *Bracon nigriventris* WESMAEL). PAPP 2004: 177 (as *Bracon fortipes* var. *lautus* SZÉPLIGETI, type depository).

Bracon semirugosus SZÉPLIGETI, 1901*a*: 184 (in key) and 273 (description) (in Hungarian), 1904: 163 (in key) and 174 (description) (in German) ♀ (syntype series two females), type locality: "Budapest" (Hungary), female lectotype (and one female paralectotype, designated in 1968) in Hungarian Natural History Museum, Budapest; examined. – TELENGA 1936: 163 (in key), 253 (redescription) (in Russian) and 366 (in key, in German) ♀ as valid species. SHENEFELT 1978: 1648 (literature up to 1958) as valid species. TOBIAS 1986: not mentioned. PAPP 2004: 181 (as *Bracon fortipes* var. *lautus*, type depository).

Remarks – Bracon fortipes is highly variable considering its colour pattern and, less variable, its sculpture. The ground colour of body is yellow, reddish-yellow, testaceous, rarely rusty; the dark (brown to black) colour pattern extends variably on vertex, mesosoma and tergites.

Bracon (Lucobracon) fumarius SZÉPLIGETI
(Figs 21–33)

Bracon fumarius SZÉPLIGETI, 1901*a*: 268 (in key) and 282 (description) (in Hungarian), 1904: 188 (in key) and 194 (description) (in German) ♀ (syntype series two females), type locality: "Budapest" (Hungary), female lectotype (and one female paralectotype, designated in 1968) in Hungarian Natural History Museum, Budapest; examined. – FAHRINGER 1927: 292 (in key) and 1928: 460 (redescription). TELENGA 1936: 148 (in key) and 203 (redescription) (in Russian), 350 (in key, in German). SHENEFELT 1978: 1618 (literature up to 1974). TOBIAS 1986: 147 (in key, in Russian). PAPP 2004: 175 (type depository).

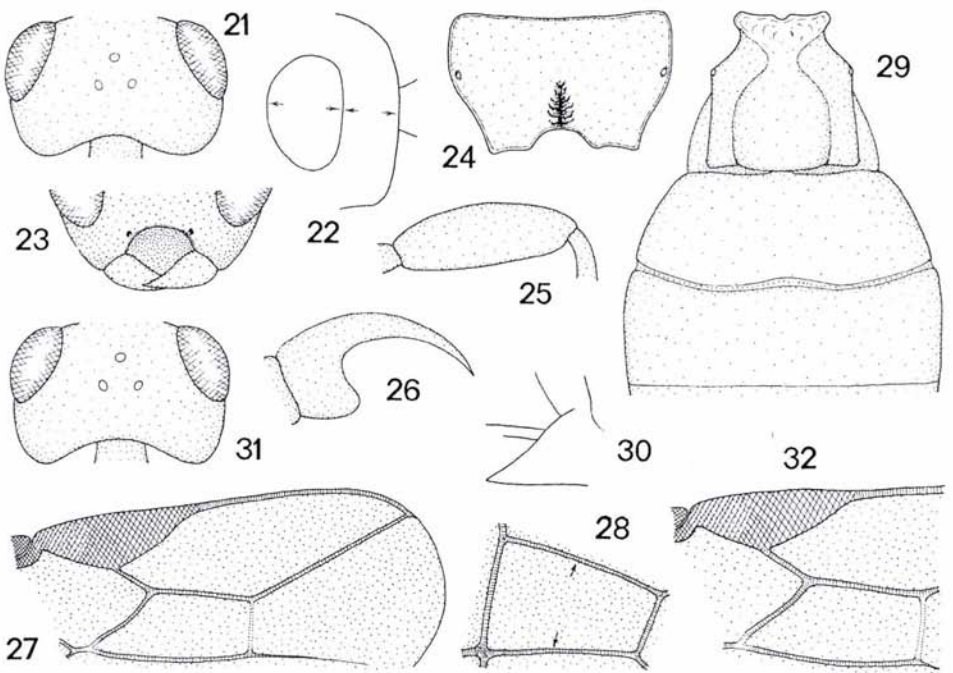
Type designation – Designation of the female lectotype of *Bracon fumarius*: (first label, printed) "Budapest / Gellérthegy"; (second label) [18]"98. VI. 18." (handscript) / "Szépligeti"

(printed); third label is my lectotype card, fourth label is with the inventory number "Hym. Typ. No. 1307 / Museum Budapest".

Designation of the female paralectotype of *Bracon fumarius*: (first label, printed) "Budapest / Svábhegy"; (second label) [18] "99. VII. 17." (handscript) / "Szépligeti" (printed); third label is my paralectotype card, fourth label is with the inventory number 1308. Conditions of the types is given in PAPP (2004: 175).

Material examined (10 ♀♀ + 5 ♂♂). – Hungary: two female types of *Bracon fumarius* and one male paralectotype of *Bracon indubius* SZÉPLIGETI (syn. in part) and 2 ♀♀ from four localitires. Romania (Transylvania): 1 ♂. Germany: 1 ♀. Croatia: 1 ♀. France: 1 ♀. Italy: 1 ♀. Bulgaria: 1 ♂. Cyprus: 2 ♀♀ + 2 ♂♂ from one locality.

Redescription of the female lectotype of Bracon fumarius – Body 3.1 mm long. Antennae damaged, right antenna with 9 and left antenna with 12 flagellomeres. First flagellomere twice and 12th flagellomere 1.4 times as long as broad. – Head in dorsal view (Fig. 21) less transverse, 1.7 times as broad as long, eye 1.3 times as long as temple, temple rounded, occiput excavated. Ocelli hardly elliptic, OOL twice length of POL. Eye in lateral view 1.5 times as long as wide, temple 0.7 times as



Figs 21–32. *Bracon fumarius* SZÉPLIGETI, 1901: 21 = head in dorsal view of female lectotype, 22 = eye and temple in lateral view, 23 = ventral half of head in frontal view, 24 = propodeum, 25 = hind femur, 26 = claw, 27 = distal part of right fore wing of female lectotype, 28 = first discal cell of fore wing, 29 = tergites 1–3 of female lectotype, 30 = hypopygium in lateral view, 31 = head in dorsal view of female and male, 32 = pterostigma and second submarginal cell of fore wing, female and male

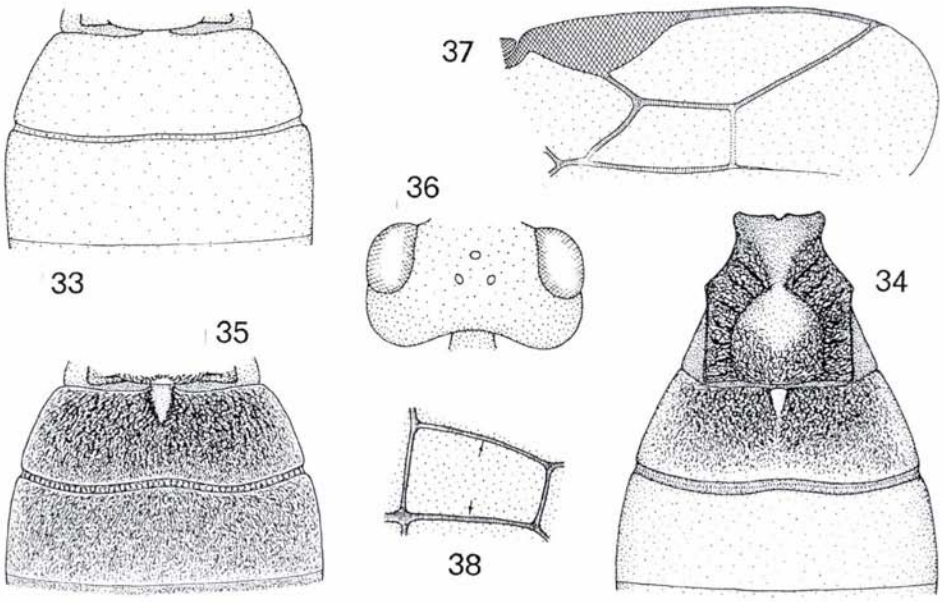
wide as eye and evenly broad beyond eye (Fig. 22). Oral opening fairly large, horizontal diameter of opening 1.6 times as long as shortest distance between opening and eye (Fig. 23). Head polished.

Mesosoma in lateral view 1.6 times as long as high, together with propodeum polished. Notaulix faintly distinct. Propodeum above lunule with a short keel and along it with short rugulae (Fig. 24). Femora thick, fore femur 2.8 times and hind femur 2.9 times as long as broad medially (Fig. 25). Claw of hind leg long, its basal lobe fairly large (Fig. 26).

Fore wing somewhat shorter than body. Pterostigma (Fig. 27) 2.6 times as long as wide and issuing *r* just proximally from its middle; *r* 0.7 times as long as width of pterostigma, *3–SR* 1.2 times as long as *2–SR*, *SR1* straight, twice as long as *3–SR* and reaching tip of wing, i.e. marginal cell long; *1–R1* clearly 1.5 times length of pterostigma. First discal cell moderately elongate, *1–M* 1.8 times as long as *m–cu*, *1–SR–M* almost straight and 1.5 times as long as *1–M* (Fig. 28).

First tergite (Fig. 29) broad, somewhat shorter than broad behind, beyond pair of spiracles less broadening posteriorly, margin of scutum subcrenulate, otherwise tergite polished. Second tergite 2.7 times as broad as long laterally and 1.2 times longer than third tergite. Suture between tergites 2–3 bisinuate and almost smooth (Fig. 29). Tergites polished. Hypopygium pointed as in Fig. 30; ovipositor sheath as long as hind tibia.

Ground colour of body reddish yellow to testaceous with much dark coloured pattern. Antenna dark brown. Palpi light brownish to brownish. Vertex brownish. Pronotum brown. Pair of lateral maculae of mesoscutum brown to blackish brown. Propodeum and mesosternum dark brown. Scutum of first tergite and further tergites medially brown to blackish brown. Legs reddish yellow; first coxa basally and coxae 2–3 entirely brown. Hind femur brown, apically reddish yellow; hind



Figs 33–38. *Bracon fumarius* SZÉPLIGETI, 1901: 33 = tergites 2–3, female and male. – *Bracon erraticus* WESMAEL: 34 = tergites 1–3, 35 = tergites 2–3, 36 = head in dorsal view, 37 = distal part of right fore wing, 38 = first discal cell

tibia apically brown. Tarsi brownish fumous. Wings fairly fumous, pterostigma brownish and basally yellowish; veins brownish.

Redescription of the female paralectotype of Bracon fumarius – Similar to the female lectotype. Body 3 mm long. Antennae damaged, right antenna with 16 and left antenna with 18 flagellomeres. Head in dorsal view 1.6 times as broad as long, eye somewhat longer than temple. Hind femur 2.9 times as long as broad medially. Vein *r* almost as long as width of pterostigma. *3–SR* 1.3 times length of *2–SR*. Second tergite just longer than third tergite. Dark colour of body and legs more extended.

Variable features of the females and males (3 ♀♀ + 2 ♂♂) – Body 2.8–3 mm (♀) long and 2.7–2.9 mm long (♂). Antenna as long as head, mesosoma and half of metasoma combined and with 24–26 antennomeres (females, males with damaged antennae). Head in dorsal view 1.6–1.7 times as broad as long (♀♂), eye 1.3–1.5 times as long as temple (Fig. 31). Vein *r* issuing either just proximally from or from middle of pterostigma, *3–SR* 1.3 times (Fig. 32) to 1.2 times as long as *2–SR*. Tergites 2–3 equal in length, suture between them almost straight (1 ♀ + 2 ♂, Fig. 33). Dark colour pattern of body variable (♂).

Host unknown.

Distribution – Hungary, Serbia, Romania (Transylvania), Italy.

Remarks – Bracon fumarius is nearest to *Bracon erraticus* WESMAEL, 1838, their distinction is presented as follows:

1 (2) Tergites 1–3(–5) sculptured, first tergite posteriorly and laterally and second tergite longitudinally rugose, tergites 3(–5) with weakening rugosity (Figs 34, 35). Head in dorsal view somewhat more transverse, 1.8–1.9 times as broad as long (Fig. 36). Marginal cell somewhat short, *SR–1* ending before tip of wing (Fig. 37). First discal cell with less diverging *1–SR–M* and *1–2–CU1* (Fig. 38, see arrows). Body usually with more dark-coloured patterns (♀). ♀: (3–)3.5–4.5 mm, ♂: 2.8–4 mm

B. erraticus WESMAEL

2 (1) Tergites 1–5 polished, i.e. without sculpture (Figs 29, 33). Head in dorsal view somewhat less transverse, 1.7 times as broad as long (Fig. 21). Marginal cell long, *SR–1* reaching tip of wing (Fig. 27). First discal cell with more diverging *1–SR–M* and *1–2–CU1* (Fig. 28, see arrows). Body usually with less dark colour pattern (♀). ♀: 2.8–3 mm, ♂: 2.7–2.9 mm

B. fumarius SZÉPLIGETI

Bracon (Lucobracon) fumigidus SZÉPLIGETI (Figs 39–50)

Bracon fumigidus SZÉPLIGETI, 1901*a*: 266 (in key) and 280 (description) (in Hungarian), 1904: 180 (in key) and 184 (description) (in German) ♀♂ (type series: two females and one male), type locality: "P.-Maróth" (=Pilismarót, Hungary), female lectotype (and one female + one male

paralectotypes, designated in 1968) in Hungarian Natural History Museum, Budapest; examined. – FAHRINGER 1927: 262 (♀), 275 (♂) (in keys) and 392 (redescription) (in "sectio *Orthobracon*"). TELENGA 1936: 176 (♀), 177 (♂) (in keys) and 297 (redescription) (in Russian), 379 (♀) and 380 (♂) (in keys, in German). SHENEFELT 1978: 1618 (literature up to 1974). TOBIAS 1986: 147 and TOBIAS & BELOKOBYLSKIJ 2000: 162 (in keys, as synonym of *Bracon nigriventris* WESMAEL, 1838). PAPP 2004: 175 (as valid species, type depository).

Bracon indubius var. 1. ♀♂ and var. 2. ♀ SZÉPLIGETI, 1904: 183 (description), locality var. 1.: Budapest (♀) and Pilismarót (♂) (Hungary) and var. 2.: Novi (Croatia), 4 ♀♀ + 3 ♂♂ (var. 1.) and 2 ♀♀ (var. 2.) in Hungarian Natural History Museum; examined. – FAHRINGER 1927: 398 (var. 1. = var. *biroi*) and 399 (var. 2. = var. *minor*). TELENGA 1936: not mentioned.

Type designation – Designation of the female lectotype of *Bracon fumigidus* SZÉPLIGETI: (first label, printed) "Budapest / Szépligeti"; second label is my lectotype card, third label is with the inventory number "Hym. Typ. No. 1429 / Museum Budapest".

Designation of the female paralectotype of *Bracon fumigidus*: (first label, printed) "Budapest / Svábhegy"; (second label) [18]"99. VII. 17." (handscript) "Szépligeti" (printed); third label is my paralectotype card, fourth label is with the inventory number 1431.

Designation of the male paralectotype of *Bracon fumigidus*: (first label, printed) "Budapest / Zugliget"; (second label) [18] "97. VI. 16." (handscript) "Szépligeti" (printed); third label is my paralectotype card, fourth label is with the inventory number 1430.

Material examined (18 ♀♀ + 18 ♂♂) – Hungary: two female and one male types of *Bracon fumigidus* and 9 ♀♀ + 8 ♂♂ from 12 localities. Romania (Transylvania): 2 ♀♀ from 2 localities. Germany: 2 ♀♀ + 1 ♂ from one locality. Austria: 1 ♀. Italy: 1 ♂. Serbia: 1 ♀ + 1 ♂ from 2 localities. Bulgaria: 1 ♂. Greece: 2 ♂♂ from 2 localities. Turkey: 1 ♂. Armenia: 1 ♀. Mongolia: 2 ♂♂ from two localities.

Redescription of the female lectotype of Bracon fumigidus – Body 3.6 mm long. Antenna damaged and with 22 antennomeres, first flagellomere 1.6 times, second flagellomere 1.25 times as long as broad, further flagellomeres cubic. – Head in dorsal view (Fig. 39) subcubic, 1.6 times as broad as long, eye somewhat longer than temple, temple rounded, occiput excavated. Ocelli just elliptic, OOL twice as long as POL. Eye in lateral view 1.3 times as high as wide, temple beyond middle of eye 0.7 times as wide as eye and ventrally slightly widening (Fig. 40). Oral opening large, horizontal diameter of opening 1.4 times as long as shortest distance between opening and eye (Fig. 41). Head polished, face laterally and below toruli finely granulose.

Mesosoma in lateral view twice as long as high, polished. Notaulix indistinct. Femora thick, hind femur 2.5 times as long as broad medially (Fig. 42). Claw of hind leg relatively long, its basal lobe fairly large (Fig. 43).

Fore wing one-sixth shorter than body. Pterostigma (Fig. 44) 2.8 times as long as wide and issuing *r* from its middle; *r* 0.7 times as long as width of pterostigma, *3–SR* 1.4 times length of *2–SR*, *SR1* straight, 1.4 times as long as *3–SR* and ending before tip of wing, i.e. marginal cell short; *1–R1* 1.75 times as long as pterostigma. First discal cell narrow, *1–M* 1.9 times as long as *m–cu*, *1–SR–M* faintly bent and 1.6 times length of *1–M* (Fig. 45).

First tergite (Fig. 46) slightly shorter than broad behind, beyond pair of spiracles just broadening; scutum behind and lateral part of tergite rugo-rugulose. Second tergite 2.8 times as broad behind as long and slightly shorter than third tergite; suture between tergites 2–3 weakly bisinuate, smooth. Second tergite rugo-rugulose, its hind margin together with further tergites polished. Hypopygium

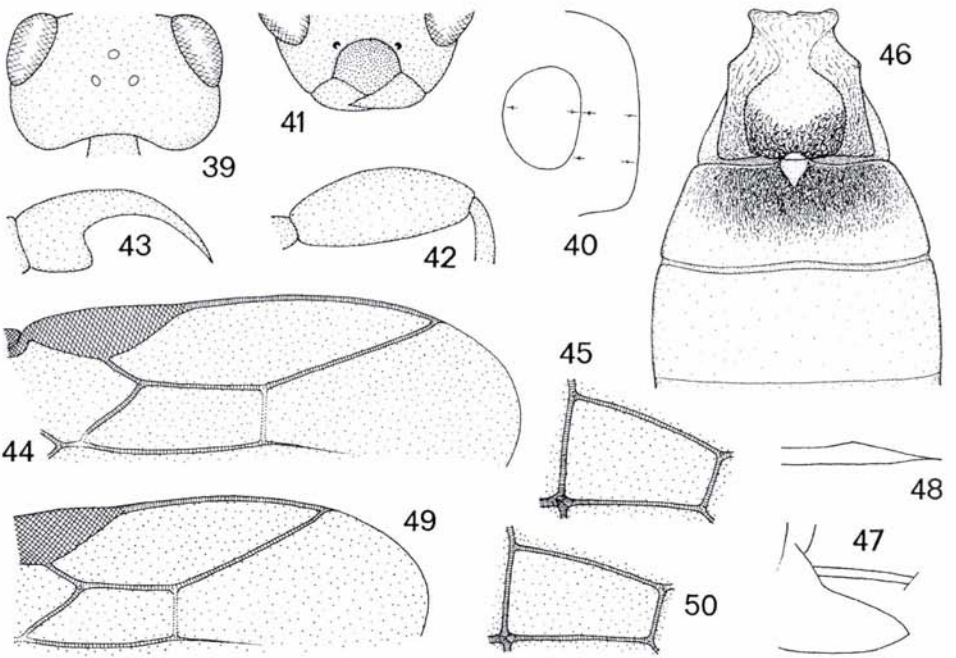
pointed as in Fig. 47; ovipositor sheath long, as long as hind tarsus and two-thirds of hind tibia; posterior end of ovipositor as in Fig. 48.

Ground colour of body reddish yellow. Head and mesosoma with much dark brown to blackish pattern, tergites medially brown to brownish, sternites reddish yellow. Fore leg reddish yellow, coxa brownish; middle and hind legs brown to brownish, hind femur apically and tibiae 2–3 basally reddish yellow. Wings faintly fumous, pterostigma brown and veins light brown.

Deviating features of the female paralectotype – ("Var." sensu Szépligeti; metasoma missing). Similar to the female lectotype. Head 1.66 times as broad as long. Hind femur slightly less thick, 2.7 times as long as broad just before its middle. Dark colour patter of head and mesosoma more extended.

Deviating features of the male paralectotype – Similar to the female. Body 3.2 mm long. Pterostigma three times as long as wide. Rugo-rugulose sculpture of second tergite restricted to its middle.

Variable features of 16 females – Similar to the female types. Body 3–3.4 mm long. Antenna as long as head, mesosoma and half to two-thirds of metasoma combined, with 25–28 antennomeres, usually with 26 antennomeres. Flagellomeres cubic, subcubic to 1.2 times longer than broad, usually cubic. Head 1.6–1.7 times and rarely 1.75 times as broad as long, usually 1.6–1.65 times. Pterostigma



Figs 39–50. *Bracon fumigidus* SZÉPLIGETI, 1901: 39 = head in dorsal view, 40 = eye and temple in lateral view, 41 = ventral half of head in frontal view, 42 = hind femur, 43 = claw, 44 = distal part of right fore wing of female lectotype, 45 = first discal cell of fore wing of female lectotype, 46 = tergites 1–3, 47 = hypopygium in lateral view, 48 = posterior end of ovipositor, 49 = distal part of right fore wing, female and male, 50 = first discal cell of fore wing, female and male

2.8–3(–3.2) times as long as wide. Hind femur 2.5–2.6 times, rarely 2.7 times, as long as broad. Dark pattern of colour variable.

Variable features of 17 males – Similar to the male paralectotype. Body 2.8–3.1 mm, usually 3 mm, long. Antenna nearly to entirely as long as body and with 27–37, usually with 27–33, antennomeres, flagellomeres 1.3–1.7 times as long as broad. Head 1.6–1.8 times as broad as long. Tergites 2–3 rugo-rugulose (3 ♂). Dark colour pattern of body variable.

Remarks – Bracon fumigidus is nearest to *Bracon larvicida* WESMAEL, 1838, the distinction between the two species is presented as follows:

1 (2) Marginal cell of fore wing approaching tip of wing (Figs 44, 49); first discal cell relatively high, *1–M* 1.8–1.9 times length of *m-cu* (Figs 45, 50). Hind femur thick, 2.5–2.6 times as long as broad (Fig. 42). ♀: mesosoma reddish-yellow with dark (light brown to blackish) pattern; ♂: body black with less light colour pattern. ♀♂: 3.6–3.8 mm *B. fumigidus* SZÉPLIGETI

2 (1) Marginal cell of fore wing usually reaching (Fig. 51), rarely just approaching, tip of wing; first discal cell relatively low, *1–M* less than twice length of *m-cu* (Fig. 52). Hind femur less thick, 2.8–2.9 times as long as broad medially (Fig. 53–54). ♀♂: mesosoma black with few rusty patterns. ♀♂: (2–)2.5–4 mm *B. larvicida* WESMAEL

Distinction between *Bracon fumigidus* and *Bracon nigriventris* (see also Taxonomic note below):

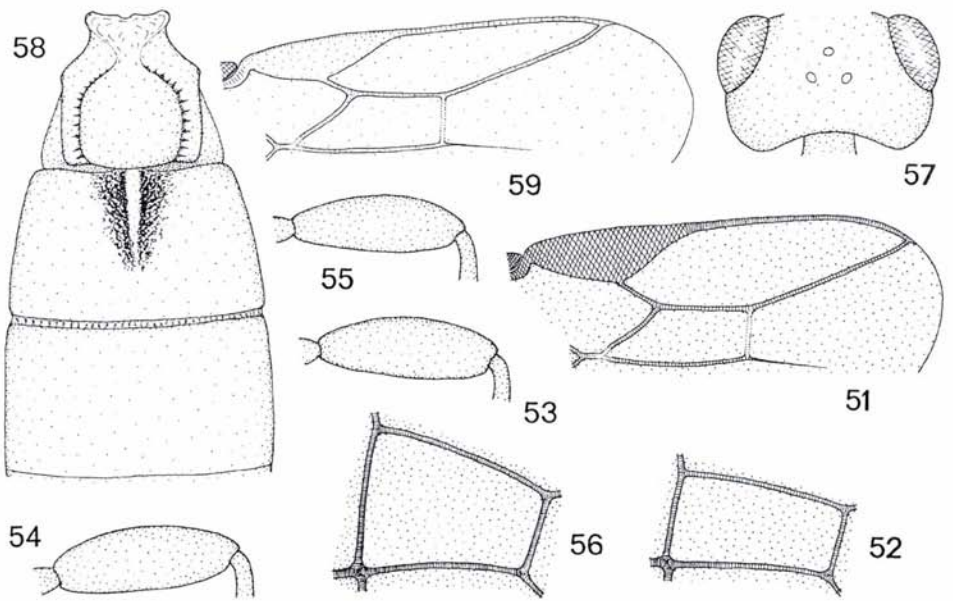
1 (2) Marginal cell of fore wing only approaching tip of wing (Figs 44, 49). Flagellomeres subcubic to cubic. Hind femur thick, 2.6 times as long as broad (Fig. 42) (subgeneric features of *Lucobracon*). Temple in dorsal view rounded (Fig. 39). First tergite 1.3 times (♀) and 1.2 times (♂) as long as broad behind; second tergite less transverse, 1.8 times as broad basally as long (Fig. 46). First discal cell less high, *1–SR–M* 3–3.2 times as long as *m-cu* (Fig. 45, 50). Colour of female: head and mesosoma reddish-yellow with much dark (light brown to blackish) pattern; tergites reddish-yellow, medially brownish; colour of male: body black with less light colour pattern. ♀♂: 3.6–3.8 mm *B. (Lucobracon) fumigidus* SZÉPLIGETI

2 (1) Marginal cell of fore wing reaching tip of wing (Fig. 107). Flagellomeres 1.5–1.6 times as long as broad. Hind femur less thick, 3–3.2 times as long as broad (Fig. 55) (subgeneric features of *Glabrobracon*). Temple in dorsal view somewhat more rounded (Fig. 105). First tergite quadrate, as long as broad behind; second tergite transverse, 2.8 times as broad basally as long (Fig. 106). First discal cell fairly high, *1–SR–M* 2.5 times as long as *m-cu* (Fig. 56). Body black or, less usually, head and mesosoma with few light

patterns, tergites 1–2 reddish-yellow, further tergites blackish to black or metasoma rarely reddish-yellow to yellow. ♀♂: 2.5–4.5 mm

B. (Glabrobracon) nigriventris WESMAEL

Taxonomic note – TOBIAS (1986: 147) and TOBIAS & BELOKOBYLSKIJ (2000: 162) placed the name *Bracon fumigidus* in junior synonymy with *Bracon nigriventris* WESMAEL, 1838, and assigned the species *Bracon nigriventris* in the subgenus *Lucobracon*. Having examined the female holotype of *Bracon nigriventris* and the female lectotype of *B. fumigidus* I am of the opinion that they represent two valid species: *B. nigriventris* belongs to the subgenus *Glabrobracon* and *B. fumigidus* to the subgenus *Lucobracon*. The distinction between these two species is presented above. *Bracon nigriventris*, as indicated, is correctly assigned in the subgenus *Glabrobracon*, however, with a few deviating features typical to the subgenus *Lucobracon*.



Figs 51–59. *Bracon larvicida* WESMAEL, 1838: 51 = distal part of right fore wing, 52 = first discal cell of fore wing, 53–54 = hind femur. – *Bracon nigriventris* WESMAEL, 1838: 55 = hind femur, 56 = first discal cell of fore wing. – *Bracon brachypterus* TOBIAS, 1959: 57 = head in dorsal view, 58 = tergites 1–3, 59 = distal part of right fore wing

Bracon (Lucobracon) hungaricus (SZÉPLIGETI)
(Figs 60–73)

Pseudovipio hungaricus SZÉPLIGETI, 1896*a*: 286 (description in Hungary) and 360 (description in German) ♀ (type series: two females), type locality: "Budapest: Rákos" (Hungary), female lectotype (and one female paralectotype, designated in 1969) in Hungarian Natural History Museum, Budapest; examined. – FAHRINGER 1927: 70 (♀), 75 (♂) (in keys) and 111 (redescription). PAPP 2004: 184 (type depository).

Bracon hungaricus (SZÉPLIGETI): SZÉPLIGETI 1901*a*: 180 (comb. n.), 183 (♀) and 262 (♂) (in keys, in Hungarian), 1904: 162 (♀) and 164 (♂) (in keys, in German). – TELENGA 1936: 170 (♀), 177 (♂) (in keys) and 267 (redescription) (in Russian), 372 (♀), 379 (♂) (in keys, in German). SHENEFELT 1978: 1620 (literature up to 1969). TOBIAS 1986: 137 and BELOKOBYLSKIJ & TOBIAS 2000: 153 (in keys, in Russian).

Bracon longiventris SZÉPLIGETI, 1901*a*: 183 (♀), 263 (♂) (in keys), 272 (description) (in Hungarian), 1904: 162 (♀), 164 (♂) (in keys), 173 (description) (in German) ♀♂ (syntype series: four females and one male), type locality: "Novi" (Croatia, till 1920 Hungary), female lectotype (and three female + one male paralectotypes) in Hungarian Natural History Museum, Budapest; examined. – FAHRINGER 1927: 112 (as *Pseudovipio hungaricus* var. *longiventris*). TELENGA 1936: 267 (as synonym of *Bracon hungaricus*). SHENEFELT 1978: 1620 (literature up to 1969, as *Bracon hungaricus* var. *longiventris* after PAPP 1969: 318, 327). PAPP 2004: 177 (as *Bracon hungaricus* var. *longiventris*, type depository).

Vipio (Pseudovipio) xanthostigma KOKUJEV, 1904: 204 (description in Latin) ♀ (syntype series: one female), type locality: "Akmolinskaya oblast': Dzhematurskaya step'" (Kazakhstan; in Russian), female syntype in (?)Zoological Institute, Sankt Petersburg; not examined. –TELENGA 1936: 170 (♀), 177 (♂) (in keys), 268 (redescription) (in Russian) and 372 (♀), 380 (♂) (in keys, in German) as valid species. TOBIAS 1961: 170 (as synonym of *Bracon hungaricus*). SHENEFELT 1978: 1626 (as *Bracon xanthostigma* valid species).

Type designation – Designation of the female lectotype of *Pseudovipio hungaricus* (SZÉPLIGETI): (first label, printed) "Budapest / Rákos" (above on label) "1896 VII" (reverse on label); second label is my lectotype card, third label is with the inventory number "Hym. Typ. No. 1361 / Museum Budapest"; fourth label is with the actual name *Bracon hungaricus* given by me.

Designation of the female paralectotype of *P. hungaricus*: (first label) "Hungaria" (printed) "Szeghalom / 1894. VII. 3. / leg. Kertész K." (label attached by me following the data of the original description); second label is my paralectotype card; third label is with the inventory number 1362; fourth label is with the actual name *Bracon hungaricus*. The female specimen from "Kis-Újszállás" (or Kisújszállás, Hungary) taken by DADAY is lost or destroyed, i.e. I did not find it in the Museum Budapest.

Designation of the female lectotype of *Bracon longiventris* SZÉPLIGETI: (first label) "Novi / Kertész" (printed above on label) "1899 VII. 14." (handscript, reverse on label); (second label, printed) "Croatia"; third label is my lectotype card; fourth label is with the inventory number 1356; fifth label is with the actual name *Bracon hungaricus* var. *longiventris* given by me in 1965.

Designation of the three female and one male paralectotypes of *Bracon longiventris*: with the same five labels as the lectotype, inventory numbers 1357–1359 (3 ♀♀) and 1360 (1 ♂).

Material examined – Bracon hungaricus (50 ♀♀ + 40 ♂♂): Hungary: 41 ♀♀ + 30 ♂♂ from 38 localities. Romania (Transylvania): 4 ♂♂ from two localities. Slovakia: 4 ♀♀ + 2 ♂♂ from 4 locali-

ties. Czechia: 1 ♂. Croatia 1 ♀ + 2 ♂♂ from two localities. Bulgaria: 2 ♀♀ from two localities. Georgia: 1 ♀ + 1 ♂ from two localities. Turkey: 1 ♀. *Bracon hungaricus* var. *longiventris* (9 ♀♀ + 2 ♂♂): Hungary: 1 ♂. France: 1 ♀. Croatia: 4 ♀♀ + 1 ♂. Bulgaria: 1 ♀. Montenegro (or Crna Gora): 1 ♀. Turkey: 2 ♀♀ from two localities.

Redescription of the female lectotype of Bracon hungaricus – Body 4.6 mm long. Both antennae damaged, right antenna with 30 and left antenna with 28 antennomeres (according to the original description antenna with 33 antennomeres). First flagellomere almost twice and 30 flagellomere 1.3 times as long as broad. – Head in dorsal view (Fig. 60) subcubic, 1.57 times as broad as long, eye somewhat protruding and 1.7 times as long as temple, temple rounded, occiput weakly excavated. Ocelli small and just elliptic, OOL 2.6 times length of POL. Eye in lateral view 1.4 times as high as wide, temple beyond middle of eye nearly as wide as eye (Fig. 61). Oral opening fairly large, horizontal diameter of opening 1.5 times as long as shortest distance between opening and eye (Fig. 62). Head polished.

Mesosoma in lateral view almost twice as long as high, polished. Notaulix distinct. Propodeum above lunule with somewhat concentric rugulae, otherwise polished (Fig. 63). Femora thick, hind femur 2.9 times as long as broad medially (Fig. 64). Claw of hind leg long, its basal lobe less large (Fig. 65).

Fore wing short, 0.7 times length of body. Pterostigma (Fig. 66) three times as long as wide and issuing *r* distally from its middle; *r* somewhat shorter than width of pterostigma, *3–SR* slightly longer than *2–SR*, *SR1* weakly bent, 1.8 times as long as *3–SR* and ending fairly far before tip of wing, i.e. marginal cell short; *1–R1* 1.4 times as long as pterostigma. First discal cell long and nearly parallel-sided, *1–M* 1.25 times length of *m-cu*, *1–SR–M* bent and 1.9 times as long as *1–M* (Fig. 71).

First tergite (Fig. 67) broad, slightly broader behind than long, nearly evenly broadening posteriorly, scutum posteriorly rugose-rugulose, its margin crenulate. Second tergite long trapezeform, 1.4 times as broad behind as long, just longer than third tergite, suture between them straight, deep, very finely crenulate. Second tergite medially rugose, laterally together with further tergites polished, third tergite antero-medially with a few rugulae. Hypopygium protruding beyond last tergite, pointed, ovipositor sheath long, one-fifth shorter than body.

Ground colour of body reddish yellow. Scape and pedicel testaceous, flagellum dark brown. Mandible yellow, apically brown, palpi pale yellow. Propodeum and mesosternum blackish. First tergite almost entirely and second tergite medially (the rugose surface) brown; third tergite posteriorly, fourth to sixth tergites almost entirely brown. Sternites yellowish. Legs reddish yellow, hind femur with faint brownish suffusion, hind tibia apically brownish, tarsi brownish. Wings faintly brownish fumous, pterostigma and veins brownish.

Female paralectotype of *Bracon hungaricus* similar to the female lectotype; dark colour of body dark brown to black and somewhat more extended.

Deviating features of the types (four females + one male) of Bracon longiventris – Body 4 (1 ♂) and 5 mm (4 ♀♀). Antenna with 32 antennomeres (1 ♀), antennae of further specimens (3 ♀♀ + 1 ♂) damaged. Head in dorsal view slightly less cubic, 1.6–1.7 times as broad as long, eye 1.5 times as long as temple. Sculpture of propodeum above and lateral from lunule somewhat stronger (Fig. 68). *3–SR* of fore wing either as long as *2–SR* (female lectotype and one male paralectotype) or somewhat longer (three female paralectotypes, Fig. 69). Second tergite entirely (Fig. 70) and third tergite basally rugose. Tergites 2–3 of male of equal length (Fig. 73). Ground colour body rather rusty, dark pattern more extended. – On the basis of these deviating features the taxon *longiventris* received the status as *Bracon hungaricus* var. *longiventris* (SZÉPLIGETI).

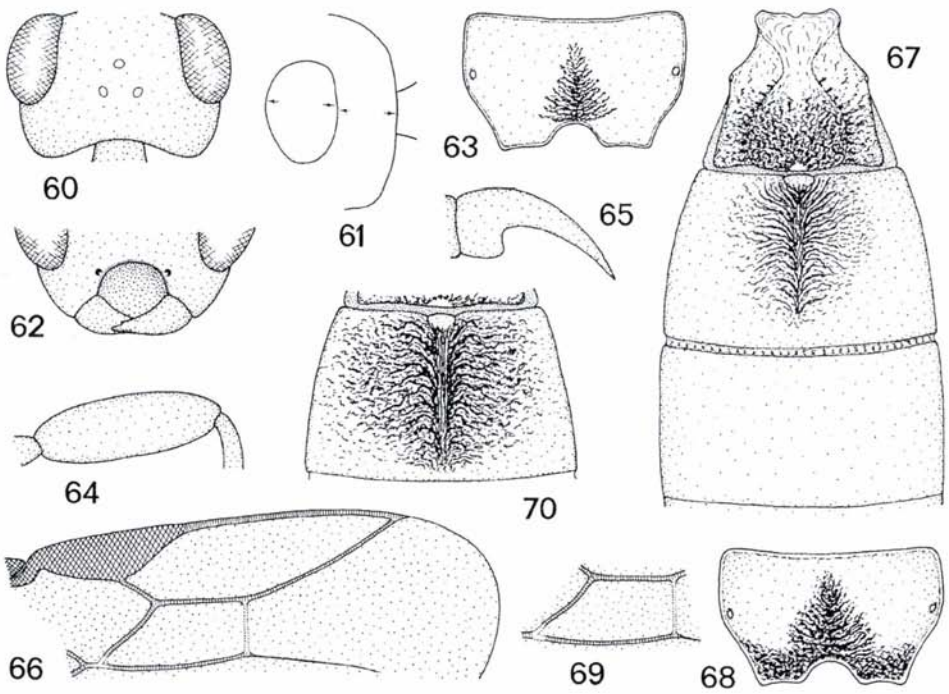
Deviating features of the 45 females – Similar to the types of *Bracon hungaricus*. Body (4–)4.5–5.5(–6) mm long. Antenna with (29–)32–34(–36) antennomeres. Eye in dorsal view (1.5-)1.7 times as long as temple. Hind femur somewhat less thick, 3.1 times as long as broad medi-

ally (3 ♀♀). Second submarginal cell relatively long, *SR1* 1.6–1.7 times length of *3–SR* (3 ♀♀). First tergite as long as broad behind (3 ♀♀). Second tergite (almost) entirely rugose and third tergite basally rugulose (6 ♀). Hind tergites with variable blackish to black pattern.

Deviating features of the 37 males – Similar to the females. Body 3.5–4.5(–5) mm long. Antenna about as long as body and with (27–)30–35 antennomeres. Hind femur 2.9–3 times as long as broad medially. Second submarginal cell long as in female (2 ♂♂). First tergite as long as broad behind, tergites 2–3 relatively less long (19 ♂♂). Dark colour of body more extended.

Distribution – France, Czechia, Hungary, Slovakia, Romania (Transylvania), Croatia, Bulgaria, European Russia, Georgia, Turkey, Kazakhstan, Mongolia.

Remarks – Bracon hungaricus is nearest to *Bracon thuringiacus* SCHMIEDEKNECHT, 1897 and *B. brachypterus* TOBIAS, 1959 considering their elongate corporal form, less broad head and venation of wing; the distinction of the three species is keyed:

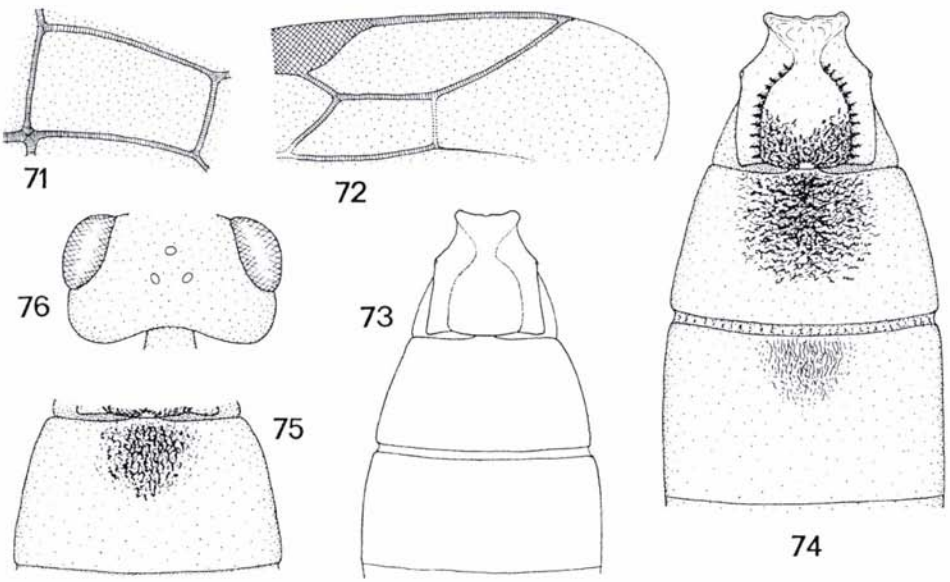


Figs 60–70. *Bracon hungaricus* (SZÉPLIGETI, 1896): 60 = head in dorsal view, 61 = eye and temple in lateral view, 62 = ventral half of head in frontal view, 63 = propodeum of female lectotype, 64 = hind femur, 65 = claw, 66 = distal part of right fore wing of female lectotype, 67 = tergites 1–3 of female lectotype, 68 = propodeum of female and male, 69 = second submarginal cell of fore wing, female and male, 70 = second tergite of female and male

1 (2) Second tergite somewhat shorter than third tergite, second tergite medially rugose (Fig. 74) or baso-medially rugulose (Fig. 75), otherwise polished; first tergite somewhat longer than broad behind (Fig. 74). Head in dorsal view 1.7 times as broad as long, eye 1.3 times length of temple (Fig. 76). Antenna with 26–28 flagellomeres, distal flagellomeres subcubic. Body black, head rusty, face, cheek and margin of eye brown. ♀: 3.5–4 mm
B. thuringiacus SCHMIEDEKNECHT

2 (1) Second tergite somewhat longer than third tergite or tergites 2 and 3 of equal length; first tergite broader behind than long (*B. hungaricus*, Fig. 67) or as broad behind as long (*Bracon brachypterus*, Fig. 58). Head in dorsal view 1.6 times as broad as long. Body light coloured with black(ish) pattern.

3 (4) Eye (1.5–)1.7 times length of temple, temple less rounded (Fig. 60). Antenna with 29–33 antennomeres, distal flagellomeres at most 1.5 times as long as broad. Second tergite more or less rugose (Figs 67, 70). Scutum of first tergite less wide, i.e. margin laterally from scutum less narrow (Fig.



Figs 71–76. *Bracon hungaricus* (SZÉPLIGETI, 1896): 71 = first discal cell of fore wing, 72 = distal part of right fore wing, female and male, 73 = tergites 1–3 of male. – *Bracon thuringiacus* SCHMIEDEKNECHT, 1897: 74 = tergites 1–3 of female lectotype, 75 = second tergite of female, 76 = head in dorsal view

67). Marginal cell of fore wing a bit less narrow (Fig. 66). Ground colour of body reddish-yellow usually with less dark pattern, pterostigma brownish. ♀: 4–6 mm, ♂: 3.5–5 mm *B. hungaricus* (SZÉPLIGETI)

4 (3) Eye 1.3 times length of temple, temple more rounded (Fig. 57). Antenna with (19–)22–26 antennomeres, distal flagellomeres 1.7–1.8 times as long as broad. Second tergite baso-medially rugo-rugulose, otherwise polished. Scutum of first tergite wide, i.e. margin laterally from scutum narrow (Fig. 58). Marginal cell of fore wing narrow (Fig. 59). Ground colour of body yellow usually with more dark patterns, pterostigma opaque yellow. ♀: 2.8–4.5 mm *B. brachypterus* TOBIAS

Bracon (Lucobracon) mirus SZÉPLIGETI
(Figs 77–89)

Bracon mirus SZÉPLIGETI, 1901*a*: 183 (in key) and 271 (description) (in Hungarian), 1904: 162 (in key) and 173 (description) (in German) ♀ (syntype series: ?one female), type locality: "Fonyód" (Hungary), female lectotype in Hungarian Natural History Museum, Budapest; examined. – FAHRINGER 1927: 249 (in key) and 363 (redescription) (in "sectio" *Lucobracon*). TELENGA 1936: 158 (in key) and 232 (redescription) (in Russian), 361 (in key, in German) (in "sectio" *Striobracon*). SHENEFELT 1978: 1622 (literature up to 1969). TOBIAS 1961: 168 (assigned in subgenus *Lucobracon*) and 1986: 141 (in key, in Russian). PAPP 2004: 178 (type depository).

Bracon (Lucobracon) miroides TOBIAS, 1957: 498 (description) ♀, type locality: "Caucasus, Adzhark ASSR, Kead" (Georgia; in Russian), female holotype in Zoological Institute, Sankt Petersburg; examined, **syn. n.** – TOBIAS 1958: 104 (in key as valid species, in Russian). SHENEFELT 1978: 1622 (as valid species, literature up to 1958). TOBIAS 1986: 141 (in key as valid species, in Russian).

Bracon xyletini HEDQVIST, 1973: 89 (description) ♀, type locality: "Norbotten, Haparanda Sandskär" (Sweden), female holotype in HEDQVIST's Collection (Vallentuna, Sweden); examined, **syn. n.** – SHENEFELT 1978: 1551 (as valid species).

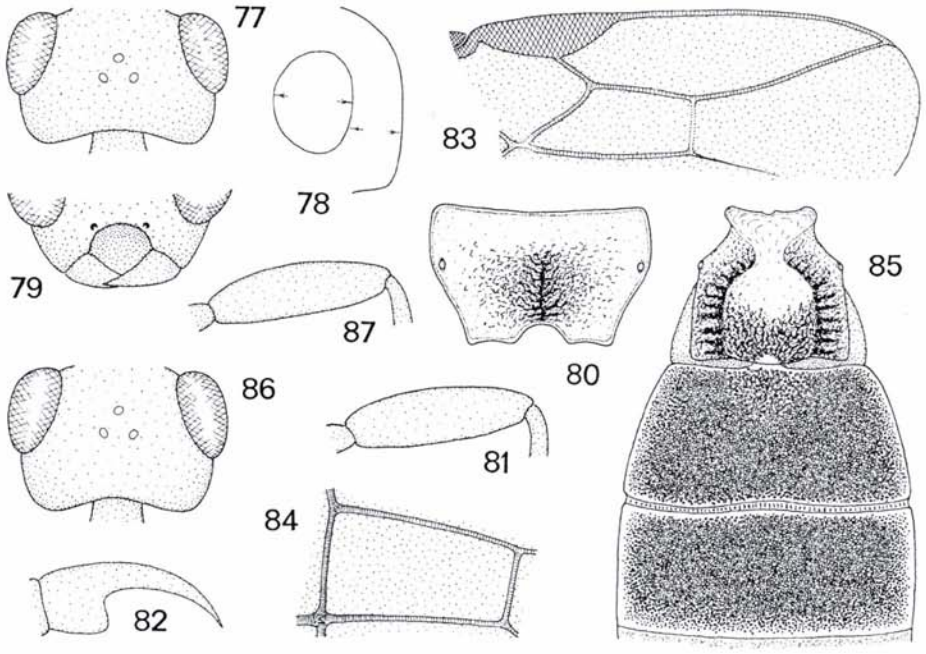
Type designation – Designation of the female lectotype of *Bracon mirus* SZÉPLIGETI (designated in 1968): (first label, printed) "Fonyód / Szépligeti" (Hungary); second label is my lectotype card and third label is with the inventory number "Hym. Typ. No. 400 / Museum Budapest". Condition of the lectotype is given in PAPP (2004: 178). Condition of the holotypes of *Bracon miroides* and *Bracon xyletini* is good.

Material examined (6 ♀♀ + 1 ♂). – Female lectotype (*Bracon mirus*) and female holotypes (*Bracon miroides, Bracon xyletini*) of the three taxa detailed above. 1 ♀: Hungary, Nagybózsva, Senyő-völgy (in Sátor Mts), 21 July 1957, leg. G. RÁCZ. 1 ♀: The Netherlands, Meyendel, near the Hague, Bierlap, inner dunes, 14–21 June 1974, leg. A.P. M. VAN DER ZON. 1 ♂: Czechia, Karlovy Vary – Dvory, 7 May 1951, leg. Z. BOUČEK. 1 ♀: Mongolia, Bulgan aimak, 11 km W von Somon Bajannuur am See Bajan nuur, 1000 m, 24 June 1968, leg. Z. KASZAB (loc. No. 1145).

Redescription of the female lectotype of Bracon mirus – Body 3.6 mm long. Antenna damaged, right scape present (i.e. right pedicel and flagellum missing), left antenna with 29 antennomeres (or 27 flagellomeres). – Head in dorsal view (Fig. 77) less transverse, 1.7 times as broad as long, eye somewhat protruding and 1.7 times as long as temple, temple rounded, occiput weakly excavated. Ocelli just elliptic and near to each other, OOL 2.6 times length of POL. Eye in lateral view 1.3 times as high as wide, temple beyond middle of eye 0.7 times as wide as eye and ventrally somewhat widening (Fig. 78, see arrows). Oral opening large, horizontal diameter of opening 1.45 times longer than shortest distance between opening and eye (Fig. 79). Head polished, above toruli uneven.

Mesosoma in lateral view 1.7 times as long as high. Notaulix faintly distinct, hind lateral part of mesoscutum uneven. Propodeum rugo-rugulose, medio-longitudinal keel weak, anterior (or horizontal) base of propodeum smooth and shiny (Fig. 80). – Hind femur 3.3 times as long as broad medially (Fig. 81). Claw of hind leg moderately curved and with a fairly long basal lobe (Fig. 82).

Fore wing about as long as body. Pterostigma (Fig. 83) less wide, 3.3 times as long as wide and issuing *r* slightly distally from its middle; *r* just as long as width of pterostigma, second submarginal short: *3–SR* 1.3 times as long as *2–SR*, *SR1* twice as long as *3–SR* and approaching tip of wing; *1–R1* 1.8 times length of pterostigma. First discal cell narrow, *1–M* 1.4 times as long as *m–cu*, *1–SR–M* faintly bent and 1.8 times as long as *1–M* (Fig. 84).



Figs 77–87. *Bracon mirus* SZÉPLIGETI, 1901: 77 = head in dorsal view of female lectotype, 78 = eye and temple in lateral view, 79 = ventral half of head in frontal view, 80 = propodeum, 81 = hind femur of female lectotype, 82 = claw, 83 = distal part of right fore wing, 84 = first discal cell of fore wing, 85 = tergites 1–3, 86 = head in dorsal view of female, 87 = hind femur of female

First tergite (Fig. 85) slightly shorter than broad behind, beyond pair of spiracles just broadening; scutum longitudinally rugo-rugulose, margin of scutum crenulate, lateral part of tergite rugulose. Second tergite 2.1 times as broad as long and slightly longer than third tergite; suture between tergites 2–3 weakly bisinuate, finely crenulate. Tergites 2–3 granulose (Fig. 85), a rather unique sculpture concerning the European species of *Bracon*. Hypopygium pointed as in Fig. 88; ovipositor sheath long, somewhat longer than body, posterior end of ovipositor as in Fig. 11.

Ground colour of body reddish yellow. Black: prosternum, three maculae of mesoscutum, ventral half of mesopleurum, mesosternum, propodeum, first tergite (scutum with rusty suffusion) and second tergite antero-medially. Legs reddish yellow. Wings faintly brownish fumous, pterostigma and veins opaque brown to light brown.

Variable features of four females – Body 3.3–4.2 mm long. Antenna with 33 (1 ♀), 34 (1 ♀) and 36 (1 ♀) antennomeres. Head in dorsal view (Fig. 86) 1.6 times (1 ♀) and 1.66 times (1 ♀) as broad as long. Hind femur 3.6 times (2 ♀♀) as long as broad. *SR1* 1.6 times (2 ♀♀, Fig. 89), 1.77 times (1 ♀) and 1.9 times (1 ♀) as long as *3–SR*. Mesoscutum almost entirely reddish yellow (1 ♀) or head dark rusty, mesosoma almost entirely black and 4–7 segments of metasoma black (1 ♀, melanic form).

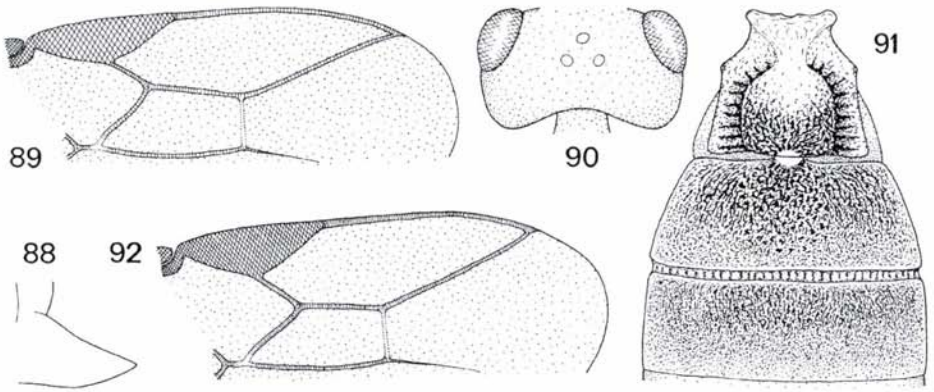
Male unknown.

Host – *Xyletinus hanseni* A. JANSON, 1947 (Coleoptera, Anobiidae) after HEDQVIST (1973).

Distribution – Nederland, Czechia, Hungary, Sweden, European part of Russia, Georgia, Kazakhstan, Mongolia.

Remarks – *Bracon mirus* is nearest to *Bracon nomas* TOBIAS, 1961 considering their long ovipositor sheath, broad first tergite and reddish-yellow corporal colour; the two species are distinguished by the features keyed:

1 (2) In dorsal view eye protruding and 1.7–1.8 times as long as temple (Figs 77, 86). Tergites 2–3 granulose, second tergite slightly longer than third one; suture between tergites 2–3 bisinuate (Fig. 85). Pterostigma 3.3 times as long as



Figs 88–92. *Bracon mirus* SZÉPLIGETI, 1901: 88 = hypopygium in lateral view, 89 = distal part of right fore wing of female. – *Bracon nomas* TOBIAS, 1961: 90 = head in dorsal view, 91 = tergites 1–3, 92 = distal part of right fore wing

wide, *r* issuing somewhat distally from its middle, *3–SR* 1.3 times longer than *2–SR* (Figs 83, 89). ♀: 3.3–4.2 mm *B. (L.) mirus* SZÉPLIGETI

2 (1) In dorsal view eye not protruding and 1.2–1.3 times as long as temple (Fig. 90). Tergites 2–3 longitudinally rugo-rugulose, third tergite posteriorly subrugulose, second tergite a bit longer than third one, suture between them straight (Fig. 91). Pterostigma 2.8–2.9 times as long as wide, *r* issuing from its middle, *3–SR* just longer than *2–SR* (Fig. 92). ♀: 3.8–4.5 mm, ♂: 3.2 mm *B. (L.) nomas* TOBIAS

Bracon (Lucobracon) sphaerocephalus SZÉPLIGETI (Figs 93–104)

Bracon sphaerocephalus SZÉPLIGETI, 1901*a*: 267 (in key) and 280 (description) (in Hungarian); 1904: 186 (in key) and 192 (description) (in German) ♀♂ (type series: six females and three males), type locality: "Budapest" (Hungary), female lectotype (and five female + two male paralectotypes) in Hungarian Natural History Museum, Budapest; examined. – FAHRINGER 1927: 283 (♀), 301 (♂) (in keys) and 1928: 489 (redescription) (in "sectio" *Glabrobracon*). TELENGA 1936: 143 (♀), 153 (♂) (in keys), 183 (redescription) (in Russian) and 345 (♀), 355 (♂) (in keys, in German) (in "sectio" *Glabrobracon*). SHENEFELT 1978: 1624 (literature up to 1974). TOBIAS 1986: 147 (as synonym of *Bracon nigriventris* WESMAEL). PAPP 2004: 181 (type depository).

Bracon globiceps SZÉPLIGETI, 1901*a*: 267 (in key) and 281 (description) (in Hungarian); 1904: 186 (in key) and 192 (description) (in German) ♀ (syntype series: ?one female), type locality: "Budapest" (Hungary), syntype series lost (see PAPP 2004: 175), **syn. n.** – FAHRINGER 1927: 283 (in key) and 463 (redescription) (in "sectio" *Glabrobracon*) ("Stimmt mit *Br. sphaerocephalus* SZÉPL. [siehe dort] überein und ist wahrscheinlich nur eine var. davon." a quotation taken over after SZÉPLIGETI 1904: 192). TELENGA 1936: 143 (in key), 183 (redescription) (in Russian) and 345 (in key, in German) as valid species. SHENEFELT 1978: 1570 (literature up to 1936) as valid species. TOBIAS 1986: not mentioned. PAPP 2004: 175 (as *Bracon (Lucobracon) ?sphaerocephalus*)

Type designation – Designation of the female lectotype of *Bracon sphaerocephalus* SZÉPLIGETI (designated in 1968): (first label, printed) "Budapest / Mátyásföld"; (second label) [18] "97. VI. 2" (handscript) / "Szépligeti" (printed); third label is my lectotype card; fourth label is with the inventory number "Hym. Typ. No. 1420 / Museum Budapest". – Condition of the lectotype is given in PAPP (2004: 181).

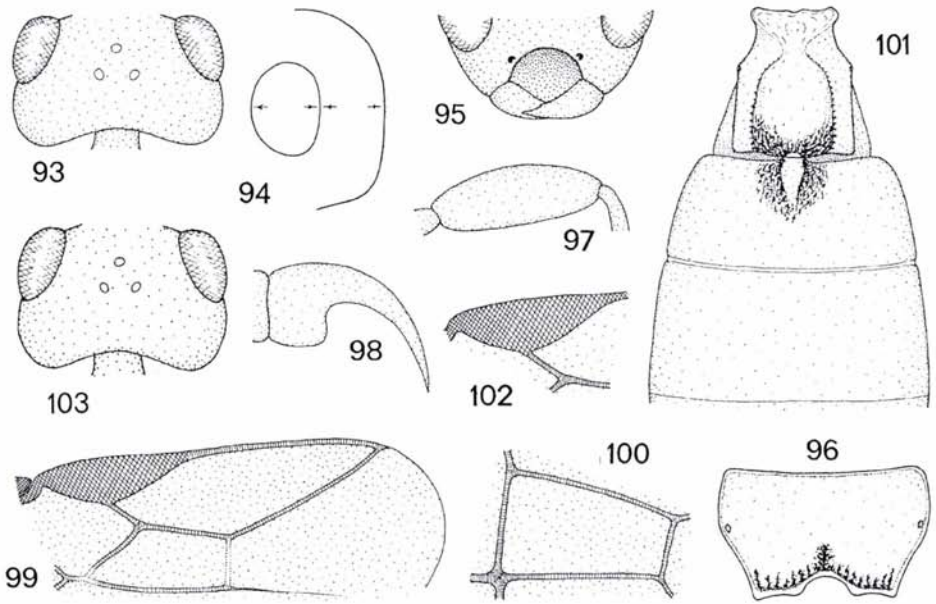
Designations of the five female paralectotypes of *Bracon sphaerocephalus*: 1) 1 ♀: (first label, printed) "Budapest / Óbuda"; (second label) [18]"95. V. 20" (handscript) "Szépligeti" (printed); third label is my paralectotype card and fourth label is with the inventory number 1420. – 2) 1 ♀ (first label with my handscript) "Budapest / Óbuda / 1895. V. 20 / Szépligeti"; second label is my paralectotype card and third label is with the inventory number 1422. – 3) 2 ♀♀: (first label, printed) "Budapest / Gellérthegy"; (second label) [18] "95. VIII. 13" (1 ♀) [18] "97. V. 15" (1 ♀) (handscripts) "Szépligeti" (printed); third label is my paralectotype card, fourth label is with the inventory numbers 1423–1424. – 4) 1 ♀ (first label, printed) "Budapest / Svábhegy"; (second label) [18] "98. V. 2" (handscript) /

"Szépligeti" (printed); third label is my paralectotype card, fourth label is with the inventory number 1428. One female paralectotype (No. 1424) is in Zoological Institute, Sankt Petersburg as exchange material.

Designations of the three male paralectotypes of *Bracon sphaerocephalus*: (first label, printed) "Budapest / Gellérth." [h.=hegy, hill] locality of the three males; (second label) [18] "95. VII. 10" (1 ♂, No. 1425), [18] "97. V. 15" (1 ♂, No. 1426), [18] "95. VIII. 13 (1 ♂, No. 1427) (handscripts) / "Szépligeti" (3 ♂♂, printed); third labels are my paralectotype cards and fourth labels are with the inventory numbers 1425 to 1427. One male paralectotype (No. 1425) belongs to *Bracon fumarius* SZÉPLIGETI (see also at this species). Conditions of the paralectotypes are given in PAPP (2004: 181).

Material examined (25 ♀♀ + 60 ♂♂) – Scotland: 1 ♀ + 6 ♂♂ from one locality. England: 4 ♂♂ from two localities. Germany: 2 ♂♂ from one locality. Hungary: 16 ♀♀ + 16 ♂♂ from 23 localities. Italy: 2 ♀♀ + 1 ♂ from two localities. Serbia: 2 ♂ from two localities. Montenegro (or Crna Gora): 1 ♀. Bulgaria: 1 ♀ + 5 ♂♂ from five localities. Greece: 4 ♂♂ from two localities. Turkey: 2 ♂♂ from two localities. Russia (European part): 1 ♂. Iran: 2 ♂♂ from one locality. – Mongolia: 4 ♀♀ + 11 ♂♂ from 14 localities.

Redescription of the female lectotype of Bracon sphaerocephalus – Body 3.2 mm long. Antennae damaged, left antenna with 21 and right antenna with 14 antennomeres. First flagellomere 1.5 times and 19th flagellomere 1.3 times as long as broad. – Head in dorsal view (Fig. 93) subcubic, 1.66



Figs 93–103. *Bracon sphaerocephalus* SZÉPLIGETI, 1901: 93 = head in dorsal view of female lectotype, 94 = eye and temple in lateral view, 95 = ventral half of head in frontal view, 96 = propodeum, 97 = hind femur, 98 = claw, 99 = distal part of right fore wing, 100 = first discal cell of fore wing, 101 = tergites 1–3, 102 = pterostigma of female, 103 = head of female in dorsal view

times as broad as long, eye slightly longer than temple, temple rounded, occiput excavated. Ocelli small and just elliptic, OOL twice as long as POL. Eye in lateral view fairly wide, 1.55 times as high as wide, temple beyond middle of eye just less wide than eye and evenly broad beyond eye (Fig. 94, see arrows). Oral opening large, its horizontal diameter 1.6 times as long as shortest distance between opening and eye (Fig. 95). Head polished, face finely granulose.

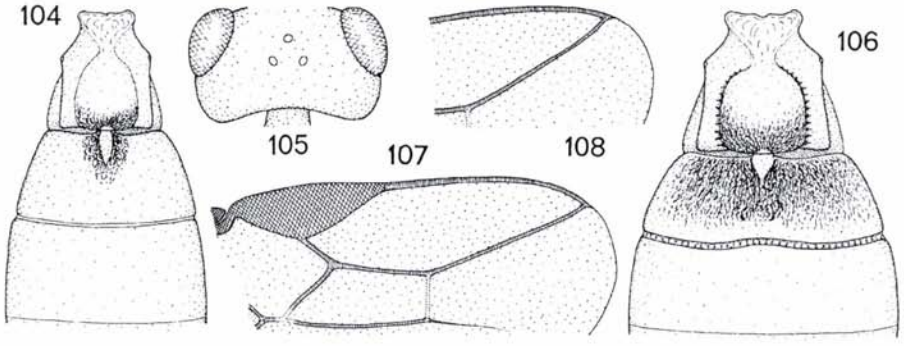
Mesosoma in lateral view twice as long as high, polished. Notaulix almost indistinct. Propodeum polished, close around lunule with rugulae (Fig. 96). Femora thick, hind femur 2.9 times as long as broad medially (Fig. 97). Claw of hind leg fairly long, its basal lobe small (Fig. 98).

Fore wing somewhat shorter than body. Pterostigma (Fig. 99) 3.3 times as long as wide and issuing *r* from its middle; *r* 0.7 times as long as width of pterostigma, *3–SR* a bit longer than *2–SR*, *SR1* weakly bent, twice as long as *3–SR* and ending before tip of wing, i.e. marginal cell short; *1–R1* somewhat less than 1.5 times as long as pterostigma. First discal cell less narrow, *1–M* 1.8 times as long as *m–cu*, *1–SR–M* almost straight and 1.6 times length of *1–M* (Fig. 100).

First tergite (Fig. 101) less long, somewhat longer than broad behind, beyond pair of spiracles just broadening posteriorly, margin of scutum finely crenulate, scutum behind somewhat concentrically rugo-rugulose. Second tergite 2.5 times as broad behind as long laterally and shorter than third tergite; suture between tergites 2–3 faintly arched, moderately deep and smooth. Second tergite antero-medially rugulose, otherwise together with further tergites polished. Hypopygium pointed, ovipositor sheath long, as long as hind tibia + tarsus combined.

Ground colour of body brownish black. Scape and pedicel brownish black, flagellum dark brown. Margin of eye above light brown. Clypeus and mandible brownish yellow, palpi light brownish. Tegula dark rusty. Tergites with faint rusty tint and sternites with brownish yellow pattern. Legs blackish brown to brown, fore femur apically and tibiae basally brownish yellow, tarsi brown to brownish. Wings brownish fumous, pterostigma brown and veins light brown.

Redescription of the four female paralectotypes of Bracon sphaerocephalus – Similar to the female lectotype. Body 3–3.3 mm long. Antenna short, as long as head, mesosoma and tergites 1–2 combined, with 23 (1 ♀) and 24 (1 ♀) antennomeres; penultimate flagellomere subcubic, i.e. a bit longer than broad. Rugo-rugulose sculpture around lunule extending to hind margin of propodeum (Fig. 96). Hind femur 2.8 times as long as broad medially (2 ♀♀). Pterostigma 2.8–2.9 times as long as wide (Fig. 102). First tergite as long as broad behind (1 ♀). Ground colour of body brown to yellowish brown (1 ♀).



Figs 104–108. *Bracon sphaerocephalus* SZÉPLIGETI, 1901: 104 = tergites 1–3 of male. – *Bracon nigriventris* WESMAEL: 105 = head in dorsal view, 106 = tergites 1–3, 107 = distal part of right fore wing, 108 = distal end of right fore wing

Redescription of the two male paralectotypes of Bracon sphaerocephalus – Similar to the female types. Body 2.5 mm long (1 ♂). Antennae damaged; first flagellomere twice and 18th flagellomere 1.7 times (1 ♂) as long as broad. Head in dorsal view (Fig. 103) subcubic, 1.5 times (1 ♂) and 1.57 times (1 ♂) as broad as long. Hind femur 2.8 times as long as broad (1 ♂).

Variabilities of 25 females – Similar to the types. Body (2.5–)3–4.5(–5) mm long. Head in dorsal view 1.5–1.65 times as broad as long. Antenna with 22–25 antennomeres. Hind femur 2.8–3 times as long as broad. Pterostigma 2.8–3.3 times as long as wide.

Variabilities of the 60 males – Similar to the females. Body 2–4(–4.5) mm long. Antenna as long as head, mesosoma and two-thirds of metasoma, with (24–)27–30(–32) antennomeres. Head exceptionally 1.6 times as broad as long. Tergites 2–3 of equal length (Fig. 104).

New hosts – 1) 1 ♀ + 6 ♂♂: Scottland, Yellowcraigs, ex larva *Cleonis pigra* (SCOPOLI, 1763) (Coleoptera, Curculionidae) July 1997, host's foodplant (collected 2 February 1997) *Cirsium arvense* (Compositae), leg. E. LOTHIAN and educ. M.R. SHAW. 2) Italy, Rome, ex larva *Eteobalea serratella* (TREITSCHKE, 1833) (Lepidoptera, Cosmopterigidae) 27 June 1994, host's foodplant *Linaria vulgaris*, leg. et educ.?

Distribution – Palaearctic Region, in Europe fairly frequent to sporadic.

Remarks – Bracon sphaerocephalus is nearest to *B. (Glabrobracon) nigriventris* WESMAEL, 1838 (this species is in the subgenus *Glabrobracon*, however, with a few deviating features typical of the subgenus *Lucobracon*), the two species are distinguished by the features keyed:

1 (2) Head in dorsal view (Fig. 93) subcubic, 1.5–1.6 times as broad as long. Second tergite shorter than third one and antero-medially rugulose, first tergite somewhat longer than broad behind (Fig. 101). *SR–1* of fore wing ending before tip of wing (Fig. 99). Penultimate flagellomere of female subcubic, i.e. a bit longer than broad. Tergites 1–3 brownish-black and at most with (faint) rusty tint. ♀: 3–3.3 mm, ♂: 2.5–3.1 mm

B. (L.) sphaerocephalus SZÉPLIGETI

2 (1) Head in dorsal view (Fig. 105) transverse, 1.7–1.8 times as broad as long. Tergites 2–3 of equal length (minute deviations feasible), first tergite as long as broad behind, second tergite longitudinally rugulose (Fig. 106). *SR–1* of fore wing reaching tip of wing (Fig. 107), rarely rather approaching (Fig. 108). Penultimate flagellomere of female 1.7–1.8 times as long as broad. Tergites 1–3 frequently light brown. ♀: 3–4.5 mm, ♂: 2.5–3.5 mm

B. (L.) nigriventris WESMAEL

*

Acknowledgements – My sincere thanks are due to the late Dr. P. DESSART (Bruxelles), to Dr. C. VILLEMANT (Paris), to Dr. I. IZQUIERDO (Madrid) as well as to Dr. S. A. BELOKOBYLSKIJ and Dr. V. I. TOBIAS (Sankt Petersburg) who were kind enough to arrange for me the study of the types of several *Bracon* species by WESMAEL, BRULLÉ, MARSHALL, TELENGA and TOBIAS. Their assistance considerably promoted my taxonomic work with SZÉPLIGETI's *Bracon* species.

REFERENCES

ACHTERBERG, C. VAN (1993): Illustrated key to the subfamilies of the Braconidae (Hymenoptera: Ichneumonoidea). – *Zoologische Verhandelingen* **283**: 1–189.

BRULLÉ, A. (1832): *Expedition scientifique de Moreé. Section des sciences physiques. Tome III.* – Levrault, Paris F.G., 400 pp.

FAHRINGER, J. (1925–1928): *Opuscula braconologica. Palaearktische Region. Lieferung 1–9.* – Verlag F. Wagner, Wien, 606 pp.

HEDQVIST, K.-J. (1973): A new species of the genus Bracon F. from North Sweden (Hym., Ichneumonoidea, Braconidae). – *Entomologisk Tidskrift* **94**: 89–90.

KOKUJEV, N. (1904): Hymenoptera asiatica nova. – *Revue Russe d'*Entomologie **4**: 213–215.

MARSHALL, T. A. (1897–1900): Les Braconides (3e partie-Supplément). – In: E. ANDRÉ (ed.) : *Species des Hyménopteres d'*Europe & d'Algérie. Tome 5bis. Froment-Dubosclard, Paris, 334 pp.

PAPP, J. (1969): A synopsis of the Bracon Fabr. species of the Carpathian Basin (Hymenoptera, Braconidae), III. Subgenus Lucobracon (Fahr.) Tob. – *Annales historico-naturales Musei nationalis hungarici* **61**: 317–335.

PAPP, J. (1998): Contributions to the braconid fauna of Cyprus (Hymenoptera, Braconidae: Braconinae). – *Entomofauna* **19**: 241–252.

PAPP, J. (1999): A revision of the Bracon species described by O. Schmniedeknecht (Insecta: Hymenoptera: Braconidae: Braconinae). – *Entomologische Abhandlungen* **58**: 289–308.

PAPP, J. (2004): Type specimens of the braconid species by Gy. Szépligeti deposited in the Hungarian Natural History Museum (Hymenoptera: Braconidae). – *Annales historico-naturales Musei nationalis hungarici* **96**: 153–223.

SCHMIEDEKNECHT, O. (1897): Das Studium der Braconiden nebst einer Revision der europäischen und benachbarten Arten der Gattungen Vipio und Bracon. – *Illustrierte Wochenschrift für Entomologie* **1** (1896): 496–498, 510–513, 527–530, 540–543, 557–559, 570–573, 589–592.

SHENEFELT, R. D. (1978): Braconidae 10: Braconinae, Gnathobraconinae, Mesostoinae, Pseudodicrogeniinae, Telengainae, Ypsistocerina, plus Braconidae in general, major groups, unplaced genera and species. – In: VAN DER VECHT, J. & SHENEFELT, R. D. (eds): *Hymenopterorum Catalogus (nova editio), pars 15.* W. Junk, 's-Gravenhage, pp. 1425–1872.

SZÉPLIGETI, GY. (1896*a*): Adatok a magyar fauna braconidáinak ismeretéhez. (Beiträge zur Kenntniss der ungarischen Braconiden). – *Természetrajzi Füzetek* **19**: 165–186 (in Hungarian), 228–242 (in German).

SZÉPLIGETI, GY. (1896*b*): Adatok a magyar fauna braconidáinak ismeretéhez. (Második Közlemény). (Beiträge zur Kenntniss der ungarischen Braconiden. Zweiter Teil). – *Természetrajzi Füzetek* **19**: 285–321 (in Hungarian), 359–386 (in German).

SZÉPLIGETI, GY. (1901*a*): A palaearktikus Braconidák meghatározó táblázatai. [Bestimmungstabelle der paläarktischen Braconiden]. – *Pótfüzetek a Természettudományi Közlönyhöz: Állattani Közlemények* **33**: 174–184, 261–288.

SZÉPLIGETI, GY. (1901*b*): Braconiden aus Syrien und Palästina, in der Sammlung des Ung. National-Museums. – *Természetrajzi Füzetek* **24**: 152.

SZÉPLIGETI, GY. (1901*c*): Braconidae. – In: MOCSÁRY, S. & SZÉPLIGETI, GY.: Hymenoptera. Zichy Jenő gróf harmadik ázsiai utazása. II. kötet. Zichy Jenő gróf harmadik ázsiai utazásának állattani eredményei. Dritte asiatische Forschungsreise des Grafen Eugen Zichy. Band II. Zoologische Ergebnisse der dritten asiatische Forschungsreise des Grafen Eugen Zichy. Victor Hornyászky, Budapest and Karl v. Hiersemann, Leipzig, pp. 121–169.

SZÉPLIGETI, GY. (1904): Übersicht der Gattungen und Arten der paläarktischen Braconiden. – *Mathemathische und Naturwissenschaftliche Berichte aus Ungarn* **19** [1901]: 145–203.

TELENGA, N. A. (1936): Nasekomye pereponchatokrylye, sem. Braconidae, podsem Braconinae. [Hymenopterous insects, family Braconidae, subfamily Braconinae.] – *Fauna SSSR* **5(3)**. Nauka, Leningrad, 403 pp.

TOBIAS, V. I. (1957): Novye podrod i vidy rodov Bracon F. i Habrobracon Ashm. (Hymenoptera, Braconidae) iz stepnykh i pustynnykh oblastey SSSR. [New subgenus and species of the genera Bracon F. and Hadrobracon Ashm. (Hymenoptera, Braconidae) of the steppe and desert areas of the USSR.] – *Entomologicheskoye Obozrenie* **36**: 476–500.

TOBIAS, V. I. (1958): Nayezdniki-brakonidy rodov Bracon F. i Habrobracon Ashm. (Hymenoptera, Braconidae) stepnoy i pustynnoy zon SSSR. [Bracon F. and Hadrobracon Ashm. (Hymenoptera, Braconidae) of the steppe and desert zone of the USSR.] – *Trudy Vsesoyuznovo Entomologicheskovo Obshchestva* **46**: 68–108.

TOBIAS, V. I. (1961): K sistematike i biologii rodov Bracon F. i Habrobracon Ashm. (Hymenoptera, Braconidae). [To the systematics and biology of the genera Bracon F. and Hadrobracon Ashm. (Hymenoptera, Braconidae).] – *Trudy Vsesoyuznovo Entomologicheskovo Obshchestva* **48**: 129–180.

TOBIAS, V. I. (1986): 27. otryad Hymenoptera – Pereponchatokrylye. Semeystvo Braconidae – Brakonidy [1]. – In: MEDVEDEV, G. S. (ed.): *Opredelitel' nasekomykh evropeyskoy chasti SSSR. Tom III. Pereponchatokrylye. Chetvertaya Chast'*. [Keys to the Insects of the European Part of the USSR volume III. Hymenoptera. Part four] Nauka, Leningrad, 501 pp.

TOBIAS, V. I. & BELOKOBYLSKIJ, S. A. (2000): 27. Otryad Hymenoptera – Pereponchatokrylye. Podotryada Apocrita – Stebel'chatovrykiye. Nadsem Ichneumonoidea. 54. Sem. Braconidae – Brakonidy. [27th order: Hymenoptera. Suborder: Apocrita. Superfamily: Ichneumonoidea. 54th family: Braconidae.] – In: LER, P. A. (ed.): *Opredelitel'* nasekomykh Dal'nevo Vostoka Rossii. Tom. IV. Setchatokryloobraznye, skorpionnitzy, pereponchatokrylye. Chast' 4. (Key to the insects of Russian Far East. Vol. IV. Neuropteroidea, Mecoptera, Hymenoptera Part 4.) Dal'nauka, Vladivostok, 650 pp.

WESMAEL, C. (1838): Monographie des Braconides de Belgique. – *Nouveaux Mémoires de l'* Academie royale des Sciences Bruxelles **11**: 1–166.