
# Entomofauna

ZEITSCHRIFT FÜR ENTOMOLOGIE

Band 23, Heft 16: 189-200 ISSN 0250-4413 Ansfelden, 31. Juli 2002


## Five new species of Braconinae from Turkey *)

**(Hymenoptera, Braconidae)**


**Ahmet BEYARSLAN**



### Abstract

*Bracon (Glabrobracon) baseflavus* **sp. nov.**, *B. (Habrobracon) didemie* **sp. nov.**, *B. (Lucobracon) isiklericus* **sp. nov.**, *B.(L.) surucicus* **sp. nov.** and *Vipio alpi* **sp. nov.** are described from Turkey. They are compared with related species. The diagnostic characteristics are illustrated in 15 figures.

### Zusammenfassung

*Bracon (Glabrobracon) baseflavus* **sp. nov.**, *B. (Habrobracon) didemie* **sp. nov.**, *B. (Lucobracon) isiklericus* **sp. nov.**, *B. (L.) surucicus* **sp. nov.** und *Vipio alpi* **sp. nov.** werden aus der Türkei beschrieben. Sie werden mit verwandten Arten verglichen, und ihre diagnostischen Markmale werden in 15 Abbildungen illustriert.


### Introduction

The Braconinae are one of the largest and most diverse subfamilies of the Braconidae, comprising more than 200 genera and 2.500 species worldwide. The majority of genera are confined to the tropics. Many names of genera and species will probably be synonymized, however, it is presumed, that many species are not yet described (ACHTERBERG 1983a, 1983b, 1985, 1988a; ACHTERBERG & QUICKE 1991; BEYARSLAN 1992, 1996; BEY-


*) This research was supported partly by the Turkish Scientific and Technical Research Council (TBAG-1491).

ARSLAN & FISCHER 1990; CHISHTI & QUICKE 1995; PAPP 1997, 1999a, 1999b, 1999c; QUICKE 1987, 1991; SHENEFELT 1978; TOBIAS 1976, 1986).

All members of the subfamily are ectoparasitoids usually of cryptic larvae of Lepidoptera, Coleoptera, rarely of Diptera and Hymenoptera. Their hosts most commonly occur in stems and fruits of herbage, rarely under the bark of trees.

The Braconinae fauna of Turkey is one of the more diversified and interesting one in the world but it is poorly investigated. KOHL (1905) recorded 5 species of the genus *Bracon* FABRICIUS, 1804 from the mountain Erciyes. FAHRINGER & FRIESE (1921) recorded one species of the genus *Vipio* LATREILE, 1804 from Asia minor. FAHRINGER (1922) recorded 19 species of 4 subfamilies of Braconidae. Only 2 species belong to the genus *Bracon*. BEYARSLAN (1986a, 1986b, 1987a, 1987b, 1988, 1991, 1992, 1996, 1999) listed 78 species of Braconinae from Mediterranean and Marmara regions of Turkey. Among them 6 species were new to science.

The definitions, ratios and abbreviations follow that of ACHTERBERG (1988b, 1990) and QUICKE (1991). The following abbreviations are used in the text: OOL = ocular - ocellar line, POL = postocellar line. Length of ovipositor sheath is the part extending beyond apex of metasoma in dorsal view.

Figures were drawn and measurements taken using a camera lucida attached to a stereomicroscope.

## Descriptions

### *Bracon (Glabrobracon) baseflavus* sp. nov. (Figs 1-3)

Female (holotype). Length of body 4.5 mm, of fore wing 4.4 mm, of mesosoma 1.6 mm, of metasoma 2.5 mm, of ovipositor sheath 3.2 mm.

Head. Antennal segments 31, length of third segment 1.1 times fourth segment, length third, fourth and penultimate segments 1.41, 1.25 and 1.0 times their width, respectively; apex of antenna with long spine; hypoclypeal depression small, 0.4 times longitudinal diameter of eye and 1.2 times malar space; length of maxillary palp 0.5 times height of head; width of face 1.4 times its height, face finely punctulate and with long setae; vertex and frons smooth medially, with long setae laterally; length of eye 1.4 times temple in dorsal view; OOL : diameter of ocellus : POL = 70 : 22 : 35; clypeus punctate and with a row long hair marginally; mandible microsculptured; temple smooth; length of malar space 0.85 times basal width of mandible and 0.35 times longitudinal diameter of eye.

Mesosoma. Length of mesosoma 1.4 times its height, side of pronotum smooth laterally, anteriorly with some crenulae, posterio-dorsally microsculptured, glabrous; mesoscutum smooth medially, very fine punctate and with sparse, long setae laterally; notauli indistinct; scutellar sulcus smooth, scutellum weakly convex and with long, grey setae posteriorly; metapleuron smooth and with sparsely, long grey setae, its flange comparatively large and distinctly protruding anteriorly; metanotum convex, smooth; propodeum convex, its surface smooth, glabrous medially, with long, grey setae laterally.

Wings. Fore wing (fig. 1): r : 3-SR : SR1 = 7 : 21 : 28; length of CU1b 0.2 times 3-CU1; 2-SR : 3-SR : r-m = 12 : 21 : 6; length of pterostigma 2.5 times its maximal width, vein 1-SR+M very straight, vein cu-a nearly postfurcal. Hind wing (fig. 2): 1r-m 0.58

times SC+R1, apex of vein C+SC+R of hind wing with long setae.

Legs. Hind coxa smooth and with long, grey setae; femur and tibia distinctly compressed; ratio of femur : tibia : basitarsus of hind leg = 32 : 48 : 18; length of femur, tibia and basitarsus of hind leg 3.5, 7.9 and 4.5 times their maximum width, respectively; length of hind tibial spurs 0.35 and 0.30 times hind basitarsus, length of fore tibial spur 0.5 times fore basitarsus, tibia and tarsus densely setose.

Metasoma (fig. 3). Length of first tergite 0.66 times its apical width; its median area smooth and glabrous, laterally microsculptured and with long setae; second sutur deep and sinuate medially; other tergites smooth and with sparse, grey setae; basal width of second tergite 3 times its median length; apical width of second tergite 4 times its median length; median length of second and third tergite equal; basal width of third tergite 2.9 times its median length; length of ovipositor sheath 1.28 times metasoma and 0.72 times fore wing.

Colour. Head and mesosoma black; malar space, orbit of eye, sulcus of notauli, mesoscutum posteriorly, propodeum, posterior half of fore femur, fore tibia, basal half of middle tibia, posterior half of hind tibia, metasoma orange-yellow; basal half of wing membrane brownish-black, remainder part light brown, pterostigma bichromatic: basally yellow and apically dark brown.

Male (allotype). Similar to female. Differences: Length of body 3 mm, of fore wing 3.45 mm, of mesosoma 1.35 mm, of metasoma 1.86 mm. Mesoscutum and propodeum entirely black.

*Bracon (Glabrobracon) baseflavus* sp. nov. is related to *B. (G.) hemiflavus* SZEPLIGETI, 1904; the two species are distinguishable as follows:

1 Length of malar space 0.35 times longitudinal diameter of eye; antenna with 31 segments; 3-SR as long as SR1 (fig. 1); ovipositor sheath 0.72 times fore wing; length of body 4.5 mm ..... *B. (G.) baseflavus* sp. nov.
- Length of malar space 0.25 times longitudinal diameter of eye; antenna with 32-36 segments; 3-SR one-third as long as SR1; ovipositor sheath 0.92 times fore wing; length of body 2.5 – 3.0 mm ..... *B. (G.) hemiflavus* SZEPLIGETI

Etymology. The name refers to the yellow base of pterostigma.

Material examined. Holotype female: Turkey, Tekirdağ, Isıklar Köyü, 9.IX.1999, 400 m, leg. M. YURTCAN. - Paratype male (Allotype): Turkey, İzmir, Oğlananasi, 24.vi.1998, 160 m, leg. A. BEYARSLAN. (Types are in the Zoological Museum of Department of Biology, Trakya University).

### *Bracon (Habrobracon) didemie* sp. nov. (Figs 4-6)

Female holotype. Length of body 2.81 mm, of fore wing 2.85 mm, of antenna 1.36 mm, of mesosoma 1.1 mm, of metasoma 1.36 mm, of ovipositor sheath 0.66 mm.

Head. Antennal segments 20, length of third segment 1.2 times fourth segment; length third, fourth, fifth and penultimate segments 1.71, 1.4, 1.1 and 1.3 times their width, respectively; apex of antenna without long spine; hypoclypeal depression small, its width 0.58 times longitudinal diameter of eye and 1.42 times malar space; length of maxillary palp 0.48 times height of head; width of face 1.72 times its height; face, vertex and frons

finely sculptured, face with long setae; vertex and frons glabrous; length of eye 1.62 times temple in dorsal view; OOL : diameter of ocellus : POL = 4 : 2 : 6; clypeus and mandible microsculptured and with long grey hairs; temple sculptured; length of malar space 1.4 times basal width of mandible and 0.41 times longitudinal diameter of eye.

Mesosoma. Length of mesosoma 1.35 times its height; pronotum and propleuron microsculptured, glabrous; mesonotum sculptured, glabrous; notauli indistinct; scutellar sulcus weakly crenulated; mesopleuron finely sculptured and with sparse, long setae; mesoscutellar appendage sculptured, convex and with long, grey setae posteriorly; metanotum smooth and concave laterally; metapleuron very weakly sculptured and with sparse, long grey setae, its flange comparatively small; propodeum convex, its surface sculptured, glabrous medially, with long, grey setae laterally.

Wings. Fore wing (fig. 4): r : 3-SR : SR1 = 5 : 6 : 17; length of CU1b 0.8 times 3-CU1; 2-SR : 3-SR : r-m = 80 : 60 : 65; length of pterostigma 3 times its maximal width, vein 1-SR+M very straight, vein cu-a interstitial. Hind wing (fig. 5): 1r-m 0.8 times SC+R1, apex of vein C+SC+R of hind wing with long setae.

Legs. Hind coxa sculptured and with long, grey setae; femur distinctly compressed; ratio of femur : tibia : basitarsus of hind leg = 23 : 31 : 11; length of femur, tibia and basitarsus of hind leg 3.83, 6.88 and 3.66 times their maximum width, respectively; length of hind tibial spurs 0.27 and 0.22 times hind basitarsus; length of fore tibial spur 0.44 times fore basitarsus; tibia and tarsus densely setose.

Metasoma (fig. 6). Length of first tergite 0.48 times its apical width; its median area concave and entirely microsculptured; second tergite sculptured very coarsely, its basal width 1.4 times median length; apical width of second tergite 2.2 times its median length; other tergites sculptured finer and identical from second tergite; second sutur deep and straight; median length of second tergite 1.5 times third tergite; basal width of third tergite 3.3 times its median length; length of ovipositor sheath 0.48 times metasoma and 0.23 times fore wing.

Colour. Black; mandible, orbit of eye, apex of femur, tibia, tarsus, sides of tergites red-brown, wing membrane light brown, pterostigma and veins dark brown.

Male. Unknown.

*Bracon (Habrobracon) didemie* sp. nov. is related to *B. (H.) radialis* TELENGA, 1936. The two species are distinguishable as follows:

1 Mesonotum sculptured identical; Second tergite sculptured very coarsely; antenna with 20 segments; 3-SR 1.33 times r; length of pterostigma as long as anterior margin of marginal cell of fore wing (fig. 4); length of body 2.81 mm *B. (H.) didemie* sp. nov.

- Middle part of mesonotum uniformly granulosely punctate; metasomal tergites sculptured finely and identical; antenna with 18 segments; 3-SR 2.5 times r; length of pterostigma 2 times anterior margin of marginal cell of fore wing; length of body 1.7 - 3.3 mm ..... *B. (H.) radialis* TELENGA

Etymology. Named in honour of its collector, Didem B. ULUKENT.

Material examined. Holotype female: Turkey, Kırklareli, Kayalıköy, 18.viii.1986, 300 m., leg. D. ULUKENT. (Holotype is in the Zoological Museum of Department of Biology, Trakya University).

***Bracon (Lucobracon) isiklericus* sp. nov.** (Figs 7-9)

Female holotype. Length of body 4 mm, of fore wing 3.5 mm, of mesosoma 1.5 mm, of metasoma 2 mm, of ovipositor sheath 1.7 mm.

Head. Antenna 2.4 mm and with 32 flagellomeres, length of third segment 1.1 times fourth segment, length third, fourth and penultimate segments 1.5, 1.1 and 1.5. times their width, respectivelly; hypoclypeal depression very large, its width as long as longitudinal diameter of eye, 4.7 times length of malar space and 1.5 times basal width of mandible; length of maxillary palp 0.4 times height of head, length of 2., 3., 4. and 5. segment of maxillary palpus = 2 : 5 : 7 : 8, respectivelly; width of face 2 times its height; frons glabrous, weakly, broadly impressed, with middlongitudinal sulcus; vertex smooth, glabrous; eye as long as temple in dorsal view; OOL : diameter of ocellus : POL = 10 : 3 : 3; length of malar space 0.8 times basal width of mandible and 0.4 times longitudinal diameter of eye; temple smooth; clypeus coarsely sculptured.

Mesosoma. Length of mesosoma 1.75 times its height, pronotum totally smooth; mesoscutum smooth, notauli indistinct; scutellar sulcus smooth, scutellum indistinctly convex, smooth; metapleuron smooth and ventrally sculptured; propodeum smooth, glabrous medially, with sparse setae laterally.

Wings. Fore wing (fig. 7): r : 3-SR : SR1 = 3 : 10 : 21; length of CU1b 0.4 times 3-CU1; 2-SR : 3-SR : r-m = 12 : 17 : 8; length of pterostigma 3.2 times its maximal width; vein 1-SR+M very straight, vein cu-a interstitial, vein 3-CU1 not expanded posteriorly. Hind wing (fig. 8): 1rm 0.3 times SC+R1, apex of vein C+SC+R of hind wing with a row of long setae.

Legs. Hind coxa smooth, femur and tibia distinctly compressed; femur : tibia : metatarsus of hind leg = 40 : 59 : 21; length of femur, tibia and basitarsus of hind leg 2.8, 7.5 and 4.2 times their maximum width, respectively; length of hind tibial spurs 0.4 and 0.3 times hind basitarsus; length of fore tibial spur 0.6 times fore basitarsus, tibia and tarsus densely setose.

Metasoma (fig. 9). Length of first metasomal tergite as long as its apical width; second tergite 3 times wider than its medially length; second suture straight and narrower medially; all tergites smooth; basal width of third tergite 1.75 times its median length; median length of third tergite 2 times median length of second tergite; length of ovipositor sheath 0.85 times metasoma and 0.48 times fore wing.

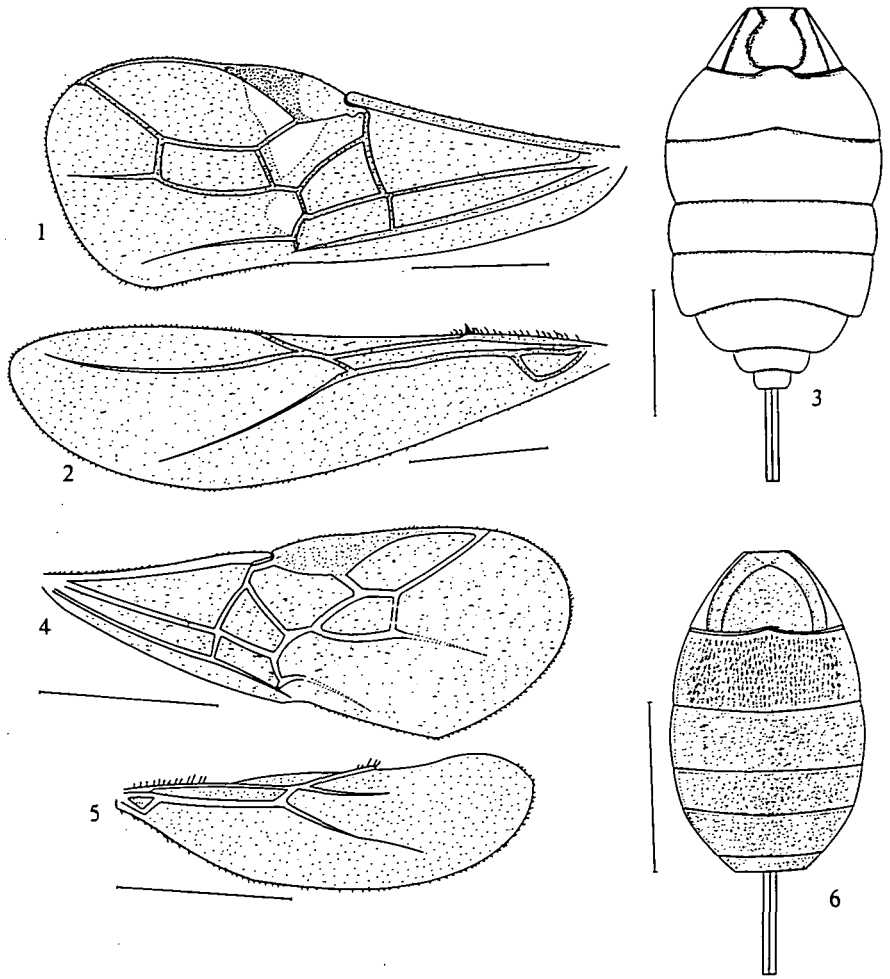
Colour. Black; hind tibia and mandible dark brown. Wing ligth brown, veins and pterostigma dark brown.

Male. Unknown.

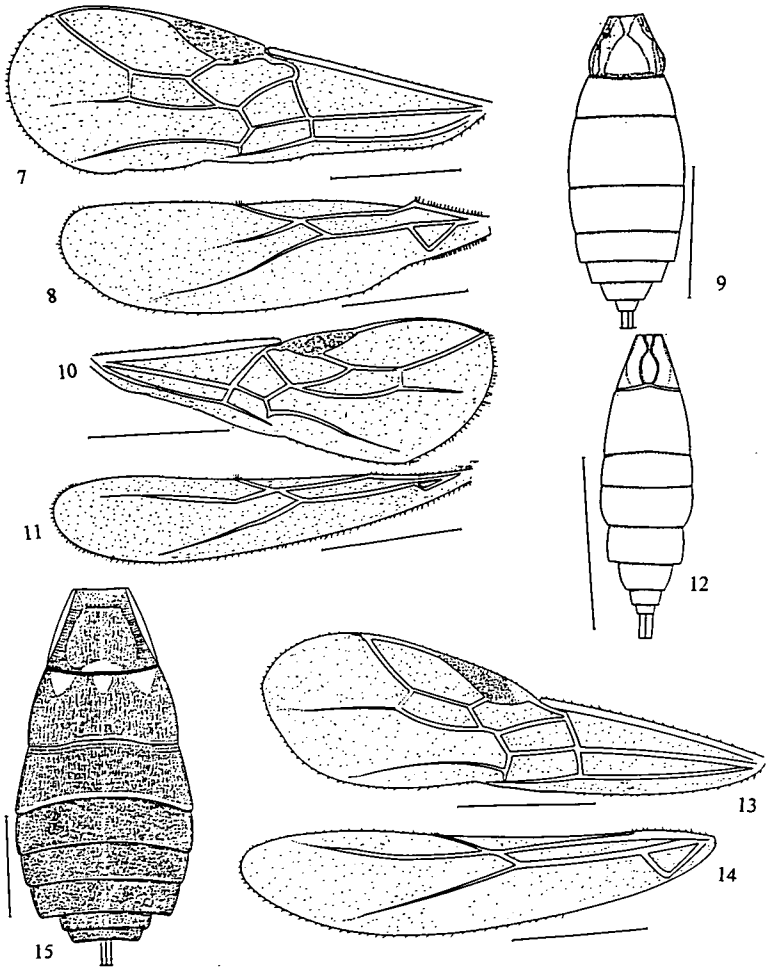
*Bracon (Lucobracon) isiklericus* sp. nov. is related to *B. (L.) suchorukovi* TELENGA, 1936. The two species are distinguishable as follows:

1 Median length of second tergite 0.5 times third tergite; all metasomal tergites smooth (fig. 9); length of mesosma 1.75 times its height; length of body 4 mm. . . . . *B. (L.) isiklericus* sp. nov.

\- Median length of second tergite as long as third tergite; first and second metasomal tergites sculptured; length of mesosma 2.25 times its height; length of body 2.4 - 2.7. . . . . *B. (L.) suchorukovi* TELENGA




Figs 1-3 *Bracon (Glabrobracon) baseflavus* sp. nov.: 1 Forewing, 2 Hindwing, 3 Metasoma. - (Scale: 1 mm)
Figs 4-6 *Bracon (Habrobracon) didemie* sp. nov.: 4 Forewing, 5 Hindwing, 6 Metasoma.




Figs 7-9 *Bracon (Lucobracon) isiklericus* sp. nov.: 7 Forewing, 8 Hindwing, 9 Metasoma.
Figs 10-12 *B. (L.) surucicus* sp. nov.: 10 Forewing, 11 Hindwing, 12 Metasoma.
Figs 13-15 *Vipio alpi* sp. nov.: 13 Forewing, 14 Hindwing, 15 Metasoma. - (Scale: 1 mm)

Etymology. The name "isiklericus" indicates the town Işıklar from where the type specimen of the new species originates.

Material examened. Holotype female: Tekirdağ, Işıklar, 6.viii.1991, 350 m., leg. A. BEYARSLAN. (Holotype in Zool. Museum of Department of Biology, Trakya University).

***Bracon (Lucobracon) surucicus* sp. nov.** (Figs 10-12)

Female holotype. Length of body 2.7 mm, of fore wing 2.8 mm, of mesosoma 0.97 mm, of metasoma 1.3 mm, of ovipositor sheath 0.6 mm.

Head. Antenna largely missing and remaining part with 16 segments, length of third segment 1.2 times fourth segment, length of third and fourth segments 1.6 and 1.3 times their width, respectively; scapus and pedicel with long setae; width of hypoclypeal depression small, 0.36 times longitudinal diameter of eye and as long as length of malar space; length of maxillary palp 0.3 times height of head; width of face 1.4 times its hight, face distinctly rugose, with long setae; vertex smooth and glabrous medially, with grey setae laterally; frons smooth; length of eye 2 times temple in dorsal view; OOL : diameter of ocellus : POL = 3 : 1 : 2; clypeus punctate; mandible microsculptured; temple smooth; length of malar space 1.3 times basal width of mandible and 0.36 times longitudinal diameter of eye.

Mesosoma. Length of mesosoma 1.7 times its height; side of pronotum largely smooth laterally, only anteriorly with shallow groove, posterio-dorsally microsculptured, glabrous; mesoscutum smooth and glabrous; notauli distinct and deep; scutellar sulcus smooth; scutellum weakly convex and with sparsely long, grey setae posteriorly; metapleuron punctate and with sparsely, long, grey setae, its flange weakly developed; metanotum convex, smooth; propodeum weakly convex, its surface smooth, glabrous medially, with long, grey setae laterally.

Wings. Fore wing (fig. 10): r : 3-SR : SR1 = 3 : 7 : 14; length of CU1b 0.7 times 3-CU1; 2-SR : 3-SR : r-m = 25 : 40 : 11; length of pterostigma 2.2 times its maximal width, vein 1-SR+M very straight; vein cu-a interstitial. Hind wing (fig. 11): 1r-m 0.3 times SC+R1.

Legs. Hind coxa punctulate finely and with long, grey setae; femur and tibia distinctly compressed; ratio of femur : tibia : basitarsus of hind leg = 12 : 19 : 7; length of femur, tibia and basitarsus of hind leg 3.4, 9.5 and 7.0 times their maximum width, respectively; length of hind tibial spurs 0.5 and 0.4 times hind basitarsus; length of fore tibial spur 0.5 times fore basitarsus; tibia and tarsus densely setose.

Metasoma (fig. 12). Length of first tergite 0.7 times its apical width; its median area convex and smooth; further smooth; second sutur very weak and straigth; medial length of second tergite 1.8 times third tergite; basal width of second tergite 2.2 times its median length; apical width of second tergite 2.6 times its median length; basal width of third tergite 5.2 times its median length; length of ovipositor sheath 0.46 times metasoma and 0.21 times fore wing.

Colour. Black; fore coxa and tarsus, basal half of hind tibia, metasoma (except first tergite, medial part of second tergite and seventh tergite, which is black) redish brown; wing membrane brown; veins and pterostigma dark brown.

Male. Unknown.

*Bracon (Lucobracon) surucicus* sp. nov. is nearest to *B. (L.) hedwigae* SCHMIEDEKNECHT, 1896. The two species are distinguishable as follows:

1 Notauli very well developed; mesoscutum black; propodeum smooth; Second metasomal tergite 2 times third (fig. 12); length of body 2.7 mm. . . . . *Bracon (Lucobracon) surucicus* sp. nov.
- Notauli weackly developed; mesoscutum red; propodeum sculptured; Second metasomal tergite 0.5 times third; length of body 3.2 - 5.0 mm. . . . . *B. (L.) h edwigae* SCHMIEDEKNECHT

Etymology. The name "surucicus" indicates the town Suruc from where the type specimen of the new species originates.

Material examined. Holotype female: Şanlıurfa, Suruc, 8.v.1985, 600 m., leg. A. BEYARSLAN. (Holotype is in the Zoological Museum of Department of Biology, Trakya University).

### *Vipio alpi* sp. nov. (Figs 13-15)

Female holotype. Length of body 4.7 mm, of antenna 2.9 mm, of fore wing 3.8 mm, of mesosoma 1.6 mm, of metasoma 2.5 mm, of ovipositor sheath 2.0 mm.

Head. Antennal segments 34; length of third segment 1.3 times fourth segment; length of third, fourth and penltimate segments 2.0, 1.5 and 1.7 times their width, respectively; apex of antenna conic; length of hypoclypeal depression 0.7 times longitudinal diameter of eye and 2.3 times malar space; length of maxillary palp 0.6 times height of head; apex of maxillary palp with long spine and its length 0.4 times last segment of maxillary palp; width of face 1.8 times its height; face distinctly punctulate, glabrous; vertex smooth; frons smooth; length of eye 1.3 times temple in dorsal view; OOL : diameter of ocellus : POL = 35 : 21 : 30; clypeus microsculptured; temple smooth; length of malar space 1.1 times basal width of mandible and 0.36 times longitudinal diameter of eye; mandible coarsely punctate and with long bristle.

Mesosoma. Length of mesosoma 1.9 times its height, side of pronotum punctulate lateraly, smooth medially; mesoscutum smooth, glabrous, sparsely setose; notauli distinct, deep; scutellar sulcus microsculptured; scutellum entirely smooth; metapleuron densely punctate, with short setae; metanotum convex, smooth, shiny; surface of propodeum coarsely rugose, medially with carina, laterally with long setae.

Wings. Fore wing (fig. 13): r : 3-SR : SR1 = 5 : 21: 26; length of CU1b 2.0 times 3-CU1; 2-SR : 3-SR : r-m = 6 : 21 : 9; length of pterostigma 3.6 times its maximal width; vein 1-SR+M straight; vein cu-a interstitial. Hind wing (fig. 14): 1r-m 038 times SC+R1.

Legs. Hind coxa smooth, with long, wihte setae; femur and tibia distinctly compressed; ratio of femur : tibia : basitarsus of hind leg = 26 : 41 : 17; length of femur, tibia and basitarsus of hind leg 2.3, 6.8 and 4.2 times their maximum width, respectively; length of hind tibial spurs 0.35 and 0.29 times hind basitarsus; length of fore tibial spur 0.5 times fore basitarsus, tibia and tarsus with densely setae.

Metasoma (fig. 15). Length of first tergite 1.1 times its apical width; second sutur sculptured, deep and sinuate; medial length of second tergite 1.76 times third tergite; basal

width of second tergite as long as its median length; apical width of second tergite 1.08 times its median length; basal width of third tergite 1.9 times its median length; First tergite very coarsely striato-rugulose medially; other tergites roughly sculptured; length of ovipositor sheath 0.80 times metasoma and 0.52 times fore wing.

Colour. Orange-redish; antennae, eyes, a spot (arrow shaped) in frons and vertex, three spots on mesoscutum, mesopleuron ventro-laterally, propodeum, hind coxa ventro-laterally, trochanter and ovipositor sheaths black; hind femur medially, apical half of hind tibia, first tergite medially and antennae brownish-black; labiomaxillary complex, apical tersomeres of fore and middle legs, hind tarsi, dark brown; wing membrane brown, veins dark brown; pterostigma bichromatic, anteriorly brown and posteriorly brownish-black.

Male. Unknown.

*Vipio alpi* sp. nov. is related to *Vipio tentator* ROSSI, 1790. The two species are distinguishable as follows:

1 Metasoma entirely rugose-punctate sculptured; suture between second and third tergites smooth (fig. 15); length of ovipositor sheath 0.8 times metasoma; antenna with 34 segments; length of body 4.7 mm ..... *Vipio alpi* sp. nov.

\- Third and fourth metasomal tergites fan-shaped sculptured;subsequent tergites smooth; suture between second and third tergites crenulate. Ovipositor sheath as long as metasoma; antenna with 42 segments; length of body 5.5 - 8.0 mm ... *V. tentator* ROSSI

Etymology. Named in honour of its collector, Alp BEYARSLAN.

Material examined. Holotype female: Denizli, Kale, Ulucam, 30.vii.1997, 500 m, leg. A. BEYARSLAN. (Holotype is in the Zoological Museum of Department of Biology, Trakya University).

**Acknowledgements**

I am grateful to Dr. V.I. TOBIAS who provided me facilities of the Zoological Institute of the Russian Academy of Sciences (St. Petersburg) and Mr. Erich DILLER (Zoologische Staatssammlung München) for comments on this paper.

## REFERENCES

ACHTERBERG, C. van - 1983a. Three new Palaearctic genera of Braconinae (Hymenoptera: Braconidae). - Ent. Scand. 14: 69-76, figs 1-37.

ACHTERBERG, C. van - 1983b. Six new genera of Braconinae from Afrotropical Region (Hymenoptera: Braconidae). - Tijdschr. Ent. 126: 175-202, Gig. 1-147.

ACHTERBERG, C. van, - 1985. *Pigeria* gen. nov., a new Palaearctic genus of Braconinae (Hymenoptera: Braconidae). - Zool. Med. Leiden 59: 168-174, figs 1-22.

ACHTERBERG, C. van - 1988a. *Bracon lineifer* gen. nov., a peculiar new species from the Netherlands (Hymenoptera: Braconidae). - Ent. Ber., Amst. 49: 191-194, figs 1-12.

ACHTERBERG, C. van - 1988b. Revision of the subfamily Blacinae FOERSTER (Hymenoptera, Braconidae). - Zoologische Verhandelingen 249: 1-324.

ACHTERBERG, C. van - 1990. Ilustrated key to the subfamilies of the Holarctic Braconidae

(Hymenoptera: Ichneumonoidea). - Zool. Med. Leiden 64 (1): 1-20, 15 v.

ACHTERBERG, C. van & QUICKE, D.L.J. - 1991. A new genus of Braconinae with depressed ovipositor-tip from Oriental region (Hymenoptera: Braconidae). - Zool. Med. Leiden 65: 199-202, figs 1-14.

BEYARSLAN, A. - 1986a. Türkiye'nin Akdeniz Bölgesinde saptanan *Bracon* F. (Hym.: Braconidae: Braconinae) türleri üzerinde araştırmalar I. - Doğa (A2), 10 (1): 39-52.

BEYARSLAN, A. - 1986b. Türkiye'nin Akdeniz Bölgesinde saptanan *Bracon* F. (Hym.: Braconidae: Braconinae) türleri üzerinde araştırmalar II. - VIII. Ulusal Biyoloji Kongresi İzmir: 387-402.

BEYARSLAN, A. - 1987a. Eine neue Art *Ceratobracon adaniensis* BEYARS. (Hym.: Braconidae: Braconinae) aus der Türkei. - Türk. entomol. derg. 11 (2): 111-115.

BEYARSLAN, A. - 1987b. Trakya Bögesinde Braconinae (Hym.: Braconidae) faunası üzeride sistematik araştırmalar. - Türkiye I. Entomoloji Kongresi, 13-16 Ekim 1987, İzmir. Entomoloji Dernegi yayınları 3: 595-604.

BEYARSLAN, A. - 1988. Zwei neue Arten der Familie Braconidae (Hym.) aus der Türkei. - Z. Arb. Gem. österr. Ent. 39 (3-4): 71-76.

BEYARSLAN, A. - 1991. Die Arten der Tribus Vipionini TELENGA aus der Türkei (Hym.: Braconidae: Braconinae). - Linzer biol. Beitr. 2372: 495-519.

BEYARSLAN, A. - 1992. *Isomecus lalapasaensis* sp. nov. und *Vipiomorpha fischeri* sp. nov., zwei neue Arten der Tribus Vipionini (Hym.: Braconidae: Braconinae). - Entomofauna. 13 (15): 253-260.

BEYARSLAN, A. - 1996. Vier neue Arten der Tribus Braconini (Hymenoptera, Braconidae, Braconinae). - Entomofauna. 17 (21): 345-352.

BEYARSLAN, A. - 1999. Liste der Braconinae-Arten der Mittelmeer- und Marmara Region der Türkei (Hymenoptera, Braconidae). - Entomofauna 20 (5): 93-120.

BEYARSLAN, A. & FISCHER, M. - 1990. Bestimmungsschlüssel zur Identifikation der palaarktischen Bracon-Arten des Subgenus *Glabrobracon* TOBIAS (Hym.: Braconidae: Braconinae). - Ann. Naturhist. Mus. Wien. 91/B: 137-145.

CHISHTI, M.J.K. & QUICKE, D.L.J. - 1995. A new genus and phylogenetic analysis of the Bathyloaulacini and Glyptomorphini (Hymenoptera: Braconidae: Braconinae). - Syst. Ent. 20: 73-84.

FAHRINGER, J. - 1922. Hymenopterologische Ergebnisse einer Studienreise nach der Türkei und Kleinasien. - Arch. Naturgesch. (A) 88 (3): 149-222.

FAHRINGER, J. & FRIESE, D. - 1921. Eine Hymenopteren-Ausbeute aus dem Amanusgebirge (Kleinasien und Nordsyrien). - Arch. Naturgesch. (A) 87 (3): 150-180.

KOHL, F. - 1905. Hymenopteren. In: Ergebnisse einer naturwissenschaftlichen Reise zum Erdschiasdag (Kleinasien). - Annl. Naturh. Mus. Wien. 20: 220-246.

PAPP, J. - 1997. Braconidae (Hymenoptera) from Korea, XIX. - Acta zool. Hung. 43 (2): 93-110.

PAPP, J. - 1999a. A revision of the *Bracon* species described by O. SCHMIEDEKNECHT (Insecta: Hymenoptera: Braconidae: Braconinae). - Ent. Abh. Mus. Tierkd. Dresden 58 (16): 299-308.

PAPP, J. - 1999b. Braconidae (Hymenoptera) from Greece, 4. - Ann. Musei Goulandris 10: 223-247.

PAPP, J. - 1999c. *Bracon (Glabrobracon) dilatus* sp. n. from Iran and Iraq with taxono-

mical remarks on several related species (Hymenoptera: Braconidae: Braconinae). - Folia ent. Hung. 60: 269-282.

QUICKE, D.L.J. - 1987. The Old World genera of braconinae wasps (Hym.: Braconidae). - J. Nat. Hist. 21: 43-157.

QUICKE, D.L.J. - 1991. A Revision of the Australian Species of *Iphiaulax* FOERSTER and *Chaoilta* CAMERON (Insecta: Hymenoptera: Braconidae). - Records Australian Museum, Vol. 43: 63-84.

SHENEFELT, R.D. - 1978. Hymenopterum Catologus, Pars 15, 1872 pp.

TOBIAS, V.I. - 1976. Braconidi Kavkaza Leningradskoe otdeleniye. - Nauk. 285 pp.

TOBIAS, V.I. - 1986. Translation: Keys to the Insects of European Part of the USSR. 3 (4) (Hymenoptera, Braconidae). - Science Publishers, Inc. 52 Labombard Road North Lebanon, NH 03766, USA: 94-149.

Anschrift des Verfassers:
Dr. Ahmet Beyarslan
Department of Biology (Biyoloji Bölümü)
Faculty of Arts & Sciences (Fen-Edebiyat Fakültesi)
University of Thrace (Trakya Üniversitesi)
TR-22030 Edirne
Turkey

Fax : 0090-284-2137053
Tel: 0090-284-2352824/1209
e-mail: abeyars@trakya.edu.tr

Druck, Eigentümer, Herausgeber, Verleger und für den Inhalt verantwortlich:
Maximilian SCHWARZ, Konsulent für Wissenschaft der O.Ö. Landesregierung,
Eibenweg 6, A-4052 Ansfelden
Redaktion: Erich DILLER (ZSM), Münchhausenstrasse 21, D-81247 München, Tel.(089)8107-159
Fritz GUSENLEITNER, Lungitzerstrasse 51, A-4222 St. Georgen / Gusen
Wolfgang SCHACHT, Scherrerstrasse 8, D-82296 Schöngeising, Tel. (089) 8107-146
Erika SCHARNHOP, Himbeerschlag 2, D-80935 München, Tel. (089) 8107-102
Johannes SCHUBERTH, Bauschingerstrasse 7, D-80997 München, Tel. (089) 8107-160
Emma SCHWARZ, Eibenweg 6, A-4052 Ansfelden
Thomas WITT, Tengstrasse 33, D-80796 München
Postadresse: Entomofauna (ZSM), Münchhausenstrasse 21, D-81247 München, Tel.(089) 8107-0, Fax (089) 8107-300, e-mail: Erich.Diller@zsm.mwn.de