

A revision of the Orthocentrinae of Bulgaria (Hymenoptera, Ichneumonidae)

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Abstract — Faunistic data of 53 *Orthocentrinae* species are given. One new genus: *Batakomacrus* gen. n., and 5 new species: *Stenomacrus brevicubitus* sp. n., *S. tuberculatus* sp. n., *S. zaykovi* sp. n., *Batakomacrus crassicaudatus* sp. n. and *Leipaulus raduilus* sp. n. are described. Three new combinations are given. Some variations from the typical and some details, mainly for the males, are added. With 18 figures.

Until recently the identification of the species from the subfamily *Orthocentrinae*, among the smallest of the *Ichneumonidae*, was thought to be impossible without comparing them with type specimens. The types of the first species described by GRAVENHORST (1829) were destroyed during the Second World War. There were a large number of synonyms, among most of the species described by HOLMGREN (1856, 1869 and 1893) and THOMSON (1897) and some of these types have also been lost. The revision of this complicated group by AUBERT (1978, 1981) became possible after the lectotypes were designated. This led to the possibility of the Bulgarian *Orthocentrinae* being studied.

Not so long ago only 7 species of *Orthocentrinae* were known in the Bulgarian fauna and some of these were incorrectly identified. Fifty-three species including those described only recently were established after the material in the author's collection and that preserved in the "P. Hilendarski" University of Plovdiv, were examined. One genus and 5 species are described as new. For one species a host has been established. The material reported by GREGOR (1933) has not been examined. For each species the date and locality of collection and altitude (in metres) are given. The general distribution is mainly according to MEIER (1936) and AUBERT (1978 and 1981). For some species variations different from the typical forms are indicated, or mainly for the males some details are added.

I wish to express my thanks to Prof. Dr. P. Angelov for providing me with the opportunity to use the material in the "P. Hilendarski" University of Plovdiv for my research.

Orthocentrus GRAVENHORST, 1829

Orthocentrus ambiguus HOLMGREN, 1856 — Material: Silistra (30 m), 12. 07. 1980, 1 ♀. — Distribution: Sweden.

Orthocentrus asper (GRAVENHORST, 1829) — Material: Rhodopi Mountains; Shiroka polyana, (450 m), 11. 06. 1976, 1 ♂; Oreshets, (600 m), 25. 07. 1967, 1 ♂; Hrabrino, (450 m), 7. 11. 1977, 1 ♀. Popovo, (200 m), 6. 10. 1984, 1 ♂. — Distribution: Sweden, Finland, England, France and the USSR (Zelenogorsk).

Orthocentrus castellanus CEBALLOS, 1963 — Material: Rhodopi Mts; Petelovo, 400 m, 4. 04. 1977, 1 ♀; Ivaylovgrad, (400 m), 14. 04. 1977, 3 ♂; 28. 08. 1976, 1 ♀; Tankovo, (400 m), 28. 04. 1977, 2 ♂; 12. 07. 1976, 1 ♀; Fotinovo, (600 m), 14. 05. 1976, 2 ♂ and 1 ♀; Popsko, (800 m), 21. 05. 1977, 1 ♂; Zabardo (1000 m), 17. 07. 1980, 1 ♂; Oreshets, (600 m), 10. 07. 1968, 1 ♂. — Distribution: Spain and South of France.

Orthocentrus frontator (ZETTERSTEDT, 1838). — Material: Rhodopi Mts; Tankovo (400 m), 14. 04. 1977, 1 ♂; 28. 04. 1977, 1 ♀; 19. 05. 1977, 2 ♂; Boyno (600 m), 30. 04. 1977, 1 ♂; Tschudnite mostove (1600 m), 21. 09. 1977, 1 ♀; Hrabrino (450 m), 13. 10. 1963, 1 ♂; 07. 11. 1977, 1 ♀; Stara Zagora (160 m), 17. 04. 1977, 1 ♂. Vitosha Mts., Kopitoto (1200 m), 30. 06. 1982, 2 ♀. Rila Mts., Samokov (1100 m), 31. 07. 1983, 1 ♂. — Distribution: Sweden, Finland, England, France, Italy, Germany, Greece and USSR (Permsk).

Orthocentrus fulvipes GRAVENHORST, 1829. — Material: Rhodopi Mts., Ivaylovgrad (400 m), 14. 04. 1977, 1 ♂; Dolno Lukovo (150 m), 15. 04. 1977, 1 ♂; Tankovo (400 m), 28. 04. 1977, 1 ♀; 30. 05. 1976, 1 ♀; 19. 06. 1976, 1 ♀; Fotinovo (600 m), 14. 05. 1976, 2 ♂; Avren (250 m), 21. 05. 1977, 1 ♂; Arda (200 m), 23. 05. 1976, 1 ♀; Dospat (1200 m), 21. 06. 1981, 1 ♂; Ptschelarovo (450 m), 26. 06. 1976, 1 ♂; Sveta Marina (600 m), 12. 07. 1977, 1 ♂; Mandritsa (150 m), 14. 07. 1976, 1 ♀; Velingrad (800 m), 19–20. 08. 1977, 5 ♂ and 1 ♀; Mineralni bani (300 m), 23. 08. 1983, 1 ♂; Padalo (600 m), 27. 08. 1976, 1 ♂; Nikolovo (400 m), 14. 09. 1976, 1 ♂; Haskovo, Kenana (350 m), 29. 09. 1976, 1 ♀. Rila Mts., Samokov (1100 m), 31. 07. 1983, 1 ♂. Trakia; Plovdiv (160 m), 14. 07. 1967, 1 ♀; 3–7. 10. 1984, 1 ♂ and 1 ♀; Krumovo (160 m), 22. 11. 1979, 1 ♀. Veliko Tarnovo (350 m), 16. 10. 1984, 1 ♂; Popovo (200 m), 4. 10. 1984, 2 ♀. — Distribution: Europe.

Orthocentrus hirsutor AUBERT, 1968 — Material: Rhodopi Mts., Zdravets (1200 m), 29. 09. 1977, 1 ♀. — Distribution: France and Switzerland.

Orthocentrus marginatus HOLMGREN, 1856 — Material: Rhodopi Mts; Ivaylovgrad (400 m), 14. 04. 1977, 1 ♀; Hrabrino (450 m), 13. 10. 1968, 1 ♀. Popovo (200 m), 4. 10. 1984, 1 ♀. — Distribution: Western Europe and USSR (Yakutsk).

Orthocentrus petiolaris THOMSON, 1897 (*Orthocentrus spurius* GRAVENHORST, 1829 sensu GERMANOV, 1980) — Material: Rhodopi Mts., Oreshets (600 m), 10. 07. 1968, 8 ♂; Plovdiv (160 m), 13. 08. 1967, 1 ♀; Sadovo (140 m), 26. 09. 1967, 1 ♀. — Distribution: Western Europe.

Orthocentrus protervus HOLMGREN, 1856 — Material: Rhodopi Mts; Hrabrino (450 m), 23. 04. 1978, 1 ♀; Popsko (800 m), 25. 04. 1977, 1 ♀. Sredna gora Mts., Panagjurski koloni (900 m), 7. 07. 1982, 1 ♀; Rozovets (600 m), 19. 08. 1982, 1 ♀. Silistra (30 m), 12. 07. 1980, 1 ♀. — Distribution: Sweden, Finland, England, France and Switzerland.

Orthocentrus radialis THOMSON, 1897 — Material: Malko Tarnovo (350 m), 26. 06. 1980, 1 ♂; Trakia; Pesnopoy (250 m), 10. 06. 1967, 1 ♂; Plovdiv (160 m), 7. 10. 1984, 1 ♀. — Distribution: Sweden and England.

Orthocentrus sannio HOLMGREN, 1856 — Material: Rhodopi Mts; Batak (1300 m), 26. 08. 1969, 1 ♂; Izgrev (1800 m), 12. 07. 1977, 1 ♂. Rila Mts., Raduil (900 m), 24. 07. 1982, 1 ♂. — Distribution: Western Europe and USSR (Permsk and Yakutsk).

Orthocentrus spurius GRAVENHORST, 1829 — Material: Plovdiv (160 m), 10. 04. 1983, 1 ♂ Rhodopi Mts; Pesteria (560 m), 2. 05. 1977, 1 ♀; Velingrad (800 m), 20. 08. 1977, 1 ♀; Zabardo (1000 m), 21. 09. 1977, 1 ♀; Hrabrino (450 m), 7. 11. 1977, 1 ♀. Sredna gora Mts., Bratan (1600 m), 18. 08. 1982, 1 ♀. — Distribution: Holarctic region.

Orthocentrus stigmaticus HOLMGREN, 1856 — Material: Rhodopi Mts; Hrabrino (450 m), 9. 04. 1983, 1 ♂; 10. 04. 1977, 1 ♂; 13. 10. 1968, 2 ♂; 7. 11. 1977, 1 ♂ and 1 ♀; Markovo (350 m), 10. 04. 1977, 2 ♂; Ivaylovgrad (400 m), 14. 04. 1977, 2 ♂; Dolno Lukovo (150 m), 15 and 29. 04. 1977, 2 ♂; Ablanitsa (500 m), 1. 05. 1977, 1 ♀; Varbina (600 m), 30. 04. 1977, 1 ♂; Boyno (600 m), 22. 05. 1977, 1 ♂; Manastir (1500 m), 5. 06. 1978, 1 ♀; Petelovo (400 m), 15. 06. 1976, 1 ♂; Tankovo (400 m), 12. 07. 1976, 1 ♂; Garvanovo (250 m), 16. 07. 1976, 1 ♂; Bezovo (1200 m), 2. 08. 1968, 1 ♀; Velingrad (800 m), 20. 08. 1977, 1 ♂ and 1 ♀; Tschudnite mostove (1600 m), 21. 09. 1977, 1 ♂; Stoykite (1100 m), 23. 09. 1977, 1 ♀. Trakia: Sadovo (140 m), 8. 05. 1984, 1 ♂; 25. 05. 1969, 1 ♂; Parvomay (130 m), 18. 09. 1981, 1 ♂; 23. 09. 1981, 1 ♂; Plovdiv (160 m), 24. 04. 1968, 1 ♂; 7. 10. 1984, 1 ♀; Ognyanovo (250 m), 28. 04. 1969, 1 ♀; Stara planina Mts., Barzia (400 m), 26. 06. 1984, 2 ♂ and 1 ♀, ex larva of *Sciophila rufa* MG. (unpublished data of D. Betshev). Rila Mts; Raduil (900 m), 24. 07. 1982, 1 ♂; Samokov (1100 m), 28. 07. 1983, 1 ♂. — Distribution: North and Western Europe and USSR (Irkutsk, Minusinsk, Vologda and Yakutsk).

Picrostigeus FOERSTER, 1868

Picrostigeus pumilus (HOLMGREN, 1856) — Material: Stara Zagora (160 m), 16. 04. 1984, 1 ♀; Rhodopi Mts., Bratsigovo (500 m), 21. 04. 1968, 1 ♀; Markovo (350 m), 1. 05. 1978, 1 ♀; Hrabrino (450 m), 24. 10. 1977, 1 ♀; Kostinbrod (500 m), 7. 05. 1980, 1 ♀. — Distribution: Sweden.

Picrostigeus debilis (GRAVENHORST, 1829) — Material: The Rhodopi Mts.; Ivaylovgrad (400 m), 14. 04. 1977, 1 ♂; Dolno Lukovo (150 m), 15. 04. 1977, 2 ♂; Hrabrino (450 m), 12. 06. 1978, 1 ♂; 13. 10. 1968, 5 ♂; 7. 11. 1977, 1 ♂; Dospat (1200 m), 9. 08. 1978, 1 ♂; Malka Siutka (2000 m), 10. 08. 1978, 1 ♂; Zabardo (1000 m), 21. 09. 1977, 1 ♀; Shiroka laka (1100 m), 23. 09. 1977, 1 ♂. Strandja Mts., Grudovo (400 m), 6. 07. 1983, 1 ♂. Sredna gora Mts., Bratan (1600 m), 17–18. 08. 1982, 3 ♂. — Distribution: Sweden.

Picrostigeus antennalis ROMAN, 1909 — Material: Rhodopi Mts., Hrabrino (450 m), 13. 10. 1968, 3 ♀. — Distribution: Sweden and Finland.

Picrostigeus recticauda (THOMSON, 1897) — Material: Rhodopi Mts., Dospat (1200 m), 20. 06. 1981, 1 ♂; Martsiganitsa (1400 m), 24. 06. 1978, 1 ♂; Pashaliitsa (1600 m), 10. 08. 1978, 1 ♂; Malka Siutka (2000 m), 10. 08. 1978, 1 ♂ and 1 ♀; Tschudnite mostove (1600 m), 21. 09. 1977, 1 ♀; Hrabrino (450 m), 13. 10. 1968, 1 ♀. Rila Mts., Samokov (1100 m), 22. 07. 1982, 1 ♀. — Distribution: Northern and Western Europe.

Stenomacrus FOERSTER, 1868

Stenomacrus affinitor AUBERT, 1981. — Material: Rhodopi Mts., Fatovo (800 m), 30. 04. 1977, 1 ♂; Bijaga (300 m), 4. 05. 1978, 1 ♂; Tschudnite mostove (1600 m), 7. 06. 1978, 1 ♀; Batak, (1350 m), 26. 08. 1969, 1 ♀; Hrabrino (450 m), 13. 10. 1968, 12 ♀. Strandja Mts., Malko Tarnovo (350 m), 26. 06. 1980, 3 ♀. Trakian lowland, Tsarimir (200 m), 27. 06. 1982, 3 ♀. Sredna gora Mts., Bratan (1600 m), 17. 08. 1982, 1 ♀. Blagoevgrad (400 m), 6. 07. 1968, 1 ♂. — Distribution: North and Western Europe.

Stenomacrus binotatus HOLMGREN, 1856 — Material: Rhodopi Mts., Hrabrino (450 m), 23. 04. 1978, 1 ♂. — Distribution: Sweden and England.

Stenomacrus brevicubitus sp. n. ♀ (Figs 1-3)

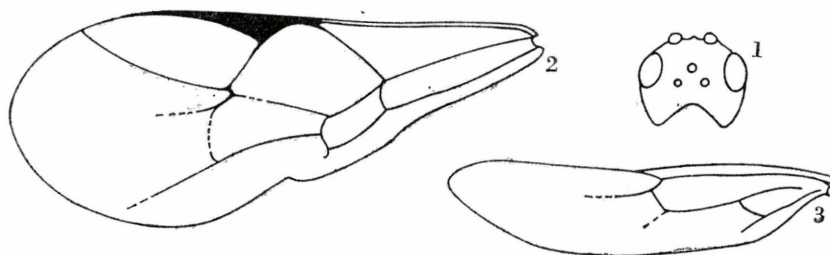
♀. Front wing 2.1 mm long. Head swollen, weakly narrowing backward (Fig. 1). Temple widened downwards. Distance between eye and lateral ocelli twice as long as ocellus diameter. Antenna short, flagellum 17 — jointed, last joints thickened, first joint thrice as long as wide. Cheek 2.5 times as long as basal width of mandible. Face finely striated transversally.

Mesosoma 0.77 times as wide as head, mesonotum evenly covered with long hairs, almost quadratish. Pleurae smooth and polished. Pterostigma in front wing long and narrow. Radius arising from basal third, basal part 0.33 times as long as apical one. First intercubitus very short, almost point-shaped (Fig. 2), second one absent entirely. Second cubitus over twice as long as intercubitus. Second recurrent vein depigmented almost entirely. Nervulus weakly postfurcal. Parallel vein reaching postnervulus slightly above middle. Nervellus strongly reclival (Fig. 3). Propodeum fully areolated, front third part of lateral carinae indistinct. Propodeal spiracle of equal distance between lateral and pleural carinae. Legs slender, correlation between length of hind tarsal points 18:10:8:5:8. Pulvillae as long as claws.

First tergite little longer than wide, longitudinally striated, with dorsal median carinae only on basal third part. Postpetiolus concave longitudinally. Second tergite transverse, smooth and shining, shagreened in base. Third and all remaining tergites compressed. Ovipositor sheath beyond apex of abdomen as long as postannellus.

Colouration brown; base of antennae, palpi and tegulae yellow, pterostigma pale, legs, yellow brown.

♂ unknown.



Figs 1–3. *Stenomacrus brevicubitus* sp. n.: 1 = head in dorsal view, 2 = front wing, 3 = hind wing

It is distinguished from *Stenomacrus vafer* HOLMGREN by its swollen head, longer cheek, front wing nervature, narrow pterostigma and longer ovipositor.

H o l o t y p e ♀: Bulgaria, Rhodopi Mts., Varchovrach 1550 m, 18. 08. 1977. leg. A. Zaykov. In the author's collection.

Stenomacrus carbonariae ROMAN, 1939 — **M a t e r i a l**: Rhodopi Mts: Malko Gradishte (220 m), 10. 04. 1977, 1 ♂ an 1 ♀; Dolno Lukovo (150 m), 15. 04. 1977, 2 ♂; Tankovo (400 m), 28. 04. 1977, 1 ♂; Zabardo (1000 m), 22. 09. 1977, 1 ♂. Popovo (200 m), 4-6. 10. 1984. 3 ♂ — **D i s t r i b u t i o n**: England and France.

Stenomacrus caudatus (HOLMGREN, 1856) — **M a t e r i a l**: Rhodopi Mts: Dolno Lukovo (150 m), 15. 04. 1977, 1 ♂; Petelovo (400 m), 26. 05. 1976, 1 ♂. — **D i s t r i b u t i o n**: Northern and Western Europe.

Stenomacrus celer (HOLMGREN, 1856) — **M a t e r i a l**: Rhodopi Mts: Popsko (800 m), 17. 05. 1978, 1 ♀; Izgrev (1800 m), 13. 07. 1977, 1 ♀; Batak (1350 m), 26. 08. 1969, 1 ♂. — **D i s t r i b u t i o n**: Northern Europe.

Stenomacrus cubiceps THOMSON, 1897 — **M a t e r i a l**: Rhodopi Mts.: Rhodopski partizanin (600 m), 26. 05. 1978, 1 ♂. Rila Mts.: Maljovitsa (1900 m), 22. 07. 1982, 1 ♂. — **D i s t r i b u t i o n**: Scandinavian countries and England.

Stenomacrus curvicaudatus (BRISCHKE, 1871) — **M a t e r i a l**: Rhodopi Mts.: Tankovo (400 m), 14. 04. 1977, 1 ♀. — **D i s t r i b u t i o n**: Northern and Western Europe.

Stenomacrus curvulus THOMSON, 1897 — **M a t e r i a l**: Rhodopi Mts: Boykovo (1200 m), 22. 04. 1977, 1 ♀; Fatovo (800 m), 30. 04. 1977, 1 ♀. Rila Mts.: Jastrebits (2230 m), 23. 07. 1982. 1 ♀. — There is some variation from the typical form: second intercubitus depigmented, indistinct, in one specimen entirely absent, nervellus weakly intercepted below middle. The last character is unusual for the genus. — **D i s t r i b u t i o n**: Northern and Western Europe.

Stenomacrus deletus THOMSON, 1897 — **M a t e r i a l**: Rhodopi Mts: Dospat (1200 m), 12. 05. 1969, 1 ♀; Zdravets (1200 m), 18. 05. 1968. 1 ♂; Byala Tscherkva (1600 m), 4. 06. 1982, 1 ♀; Malka Siutka (2000 m), 10. 08. 1978. 1 ♂. — **D i s t r i b u t i o n**: Northern and Western Europe.

Stenomacrus exserens THOMSON, 1897 (= *Stenomacrus molestus* HOLMGREN, 1856 sensu ANGELOV and GERMANOV, 1969) — **M a t e r i a l**: Rhodopi Mts: Tankovo (400 m), 14. 04. 1977, 1 ♀; Haskovo, park Kenana (350 m), 20. 04. 1977, 1 ♀; Bratisgovo (500 m), 21. 04. 1968, 1 ♀; Smolyanski ezera (1200 m), 2. 07. 1968, 1 ♀; Kostenets (600 m), 9. 09. 1968, 1 ♂. Trakian lowland: Krumovo (160 m), 18. 04. 1980, 1 ♀; Plovdiv (160 m), 24. 04. 1968, 1 ♀. — **D i s t r i b u t i o n**: Northern and Western Europe.

Stenomacrus femoralis (HOLMGREN, 1856) (= *Stenomacrus falcatus* THOMSON, 1897 sensu GERMANOV 1981) — **M a t e r i a l**: Trakian lowland, Bryagovo (200 m), 26. 04. 1968. 1 ♀. Vitosha Mts., Kopitoto (1200 m), 30. 06. 1982, 1 ♂. Rhodopi Mts., Hrabrino (450 m), 13. 10. 1968, 2 ♀. — **D i s t r i b u t i o n**: Northern and Western Europe.

Stenomacrus flaviceps (GRAVENHORST, 1829) (= *Orthocentrus corrugatus* HOLMGREN, 1856 sensu GERMANOV 1980) — **M a t e r i a l**: Rhodopi Mts: Konush (250 m), 18. 04. 1977, 1 ♂: in this specimen the yellow colouration on the frons is particularly absent and the vertex is with indistinct rust-coloured spots against lateral ocelli; Zdravets (1200 m) 18. 05. 1968, 1 ♂; 26. 05. 1967, 1 ♂; 31. 05. 1981, 1 ♂; Oreshets (500 m), 10. 07. 1968, 3 ♂; Shiroka laka (1100 m), 23. 09. 1977., 1 ♀. — **D i s t r i b u t i o n**: Northern and Western Europe.

Stenomacrus intermedius (HOLMGREN, 1856) — **M a t e r i a l**: Rhodopi Mts: Shiroka polyana (450 m), 13. 04. 1977, 2 ♂; 27. 04. 1977, 1 ♂; Tankovo (400 m), 14. 04. 1977, 1 ♂; 28. 04. 1977, 2 ♂; Petelovo (400 m), 23. 04. 1977. 1 ♂; Gornoslav (300 m) 24. 04. 1978, 1 ♀; Fatovo (800 m), 30. 04. 1977, 2 ♂; Rudozem (300 m), 30. 04. 1977. 1 ♂; Varvara (300 m). 5. 05. 1978, 1 ♂; Gorata, Sveta Marina (600 m), 10. 05. 1977, 1 ♀. — TOWNES (1971) noted that the flagellum in male *Stenomacrus* is furnished with tyloids. So far no one has pointed out the concrete development of this character in the various species. In the material I studied there are some species in which the male has tyloids. In general the tyloids occupied the whole length of the joints thus they are hardly visible. In most cases the joints with tyloids are quadratish. In this species 8-15 flagellar joints with tyloids. — **D i s t r i b u t i o n**: Europe.

Stenomacrus inferior AUBERT, 1981 — Male 4.3 mm long, flagellum 28-jointed, 7-11 joints with tyloids. — **M a t e r i a l**: Rila Mts., Maljovitsa (1900 m), 22. 07. 1982, 1 ♂. — **D i s t r i b u t i o n**: France and Switzerland.

Stenomacrus innotatus THOMSON, 1897 — Material: Rhodopi Mts; Petelovo (400 m) 23. 03. 1977, 1 ♂; 4. 04. 1977, 1 ♂; Hrabrino (450 m), 31. 03. 1978, 1 ♂; 23. 04. 1978, 1 ♂. — Distribution: Sweden.

Stenomacrus loricis (HALIDAY, 1839) — Tyloids on 6–19 joints. — Material: Trakian lowland: Sadovo (150 m), 25. 05. 1969, 3 ♂ and 5 ♀; Skobelevo (140 m), 3. 07. 1967, 1 ♀; Topoli dol (250 m), 19. 05. 1967, 1 ♀. Rhodopi Mts; Tankovo (400 m), 19. 05. 1977, 1 ♀; Popsko (800 m), 21. 05. 1977, 2 ♀; Zdravets (1200 m), 31. 05. 1981, 1 ♀; 3. 06. 1982, 1 ♀; Oreshets (600 m), 10. 07. 1968, 2 ♀; Hrabrino (450 m), 8. 07. 1978, 1 ♂; 13–10. 1968, 2 ♀; Batak, (1350 m), 26. 08. 1969, 1 ♀. — Distribution: Northern and Western Europe.

Stenomacrus laticollis (HOLMGREN, 1883) — Material: Rhodopi Mts.: Golyama Siutka (2180 m), 10. 08. 1978, 1 ♂. — Distribution: North Europe and Alpes.

Stenomacrus merula (GRAVENHORST, 1829) — Tyloids on joints 7–13. — Material: Rhodopi Mts; Tankovo (400 m), 14. 04. 1977, 2 ♀; Hrabrino (450 m), 13. 10. 1968, 1 ♂. Stara planina Mts.: Etropole (500 m), 24. 04. 1969, 1 ♀. Trankian lowland: Sadovo (150 m), 25. 05. 1969, 1 ♀; Tsarimir (200 m) 27. 06. 1982, 1 ♀. — Distribution: Europe and USSR (as far eastwards as Yakutsk).

Stenomacrus minutissimus (ZETTERSTEDT, 1838) — Material: Rhodopi Mts., Dolno Dryanovo (900 m), 1. 05. 1977, 1 ♂. Varna (30 m), 14. 05. 1983, 1 ♀. — Distribution: Northern and Western Europe.

Stenomacrus minor AUBERT, 1981 (= *Stenomacrus cubiceps* THOMSON, 1897 sensu GERMANOV 1981) — Material: Rhodopi Mts; Bratsigovo (500 m), 21. 04. 1968, 1 ♂; Tankovo (400 m), 28. 04. 1977, 1 ♀; Zdravets (1200 m) 18. 05. 1968, 4 ♀; Komsomolska (1300 m), 6. 06. 1982, 1 ♀; Jundola (1350 m), 4. 05. 1978, 1 ♂; Hrabrino (450 m), 13. 10. 1968, 1 ♂. Trakian lowland; Bryagovo (200 m), 26. 04. 1968, 1 ♂; Starosel (250 m), 8. 05. 1968, 2 ♂; Krasnovo (250 m), 21. 05. 1967, 1 ♂; Tsarimir (200 m), 26. 07. 1982, 1 ♂; Plovdiv (160 m), 20. 07. 1965, 1 ♂. Rila Mts.: Belitsa (800 m), 12. 05. 1968, 1 ♂. Stara Planina: Jamna (500 m), 24. 06. 1968, 1 ♂. — Distribution: France.

Stenomacrus pallipes (HOLMGREN, 1856) — Material: Sadovo, Plovdiv district (150 m), 15. 09. 1968, 1 ♂. — Distribution: Northern Europe and the Alpes.

Stenomacrus palustris (HOLMGREN, 1856) — Material: Rhodopi Mts: Boykovo (1200 m), 22. 04. 1977, 1 ♂; Nikolovo (400 m), 30. 06. 1976, 1 ♂. — Distribution: Sweden, Finland and USSR (Leningrad, Penza, Pskov).

Stenomacrus pusillator AUBERT, 1981. — Material: Sredna gora Mts., Bratan (1600 m), 18. 08. 1982, 1 ♂. — Distribution: Sweden and Finland.

Stenomacrus pusillus (ZETTERSTEDT, 1838) — Tyloids on flagellar joints 7–13. — Material: Rhodopi Mts., Tankovo (400 m) 14. 04. 1977, 1 ♀; Gornoslav (300 m) 24. 04. 1978, 1 ♂; Boyno (600 m), 30. 04. 1977, 1 ♂; Panitschkovo (600 m), 3. 05. 1977, 1 ♀; Pashalijsa (1600 m), 2. 07. 1978, 1 ♂; 2. 08. 1978, 4 ♂ and 3 ♀; Izgrev (1800 m), 13. 07. 1977, 1 ♀; Tschudnite mostove (1600 m), 15. 07. 1978, 1 ♂; 2. 08. 1978, 1 ♀; Rila Mts.: Maljovitsa (1900 m), 22. 07. 1982, 1 ♀. — Distribution: Sweden.

Stenomacrus tuberculatus sp. n. ♂ (Figs 4-6)

♂. Front wing 3.7 mm long. Head swollen, weakly narrowing backwards (Fig. 4). Flagellum 28-jointed thickened basally, tapering apically. First joint 1.66 times as long as wide. Tyloids situated on joints 5–11(–13). Face strongly convex, roughly punctured and striated transversally. Cheek with groove, 1.57 times as long as basal width of mandible. Diameter of ocellus longer than distance between eyes and lateral ocelli. Eyes covered with thin hairs.

Mesonotum clearly punctured in front half, almost smooth and polished in front of scutellum. Pleurae polished, not punctured. Hind part of pronotum and mesopleuron below tegulae striated. Front wing with narrow pterostigma. Radius arising from its proximal third. Basal part of radius 0.5 times as long as apical one. Second recurrent vein depigmented more than half. Distance between second recurrent vein and intercubitus longer than intercubitus itself. Areolet open. Nervulus interstitial to slightly postfurcal. Parallel vein reaching postnervulus below its middle (Fig. 5). Nervulus almost vertical. Propodeum rarely punctured, shining with median longitudinal, lateral, pleural and apical carinae. — Legs stout (Fig. 6). Hind femur punctured on outer lateral surface, thrice as long as maximal width. Hind tibia narrowing basally, widening apically. Correlation between length of hind tarsal joints 39:21:16:13:15. Pulvillae longer than claws in hind legs.

First tergite 1.75 times as long as wide apically, striated longitudinally, with short median dorsal carinae. Second tergite slightly transverse (7:6), weakly striated in basal half, with two lateral tubercles before middle. Tubercles on third tergite weaker.

Black; face without cheeks, scapus from below and laterally, flagellum from below, tyloids, labrum, mandibulae, palpi, front and middle legs with exception of base of coxae, second trochanters of hind legs, tegulae, hind tibiae and tarsal segments yellowish orange-coloured, stigma brown.
♀ unknown.

It is distinguished from *Stenomacrus inferior* AUBERT by the location of tyloids, front wing venation, presence of tubercles on tergites 2-3 and body colouration.

Holotype ♂: Bulgaria, Rhodopi Mts., Ivaylovgrad (400 m), 14. 04. 1977, leg. J. Kolarov. In the author's collection. — **Paratypes**: same locality, 29. 04. 1977, 1 ♂; Rhodopi Mts., Ablanitsa (600 m), 1. 05. 1977, 1 ♂; Rhodopi Mts., Pestera (560 m), 2. 05. 1977, 3 ♂, one of them deposited in the Hungarian National History Museum (Budapest), the rest in the author's collection.

***Stenomacrus ungula* THOMSON, 1897** — **Material**: Rhodopi Mts., Tankovo (400 m), 28. 04. 1977, 1 ♀. — **Distribution**: Sweden.

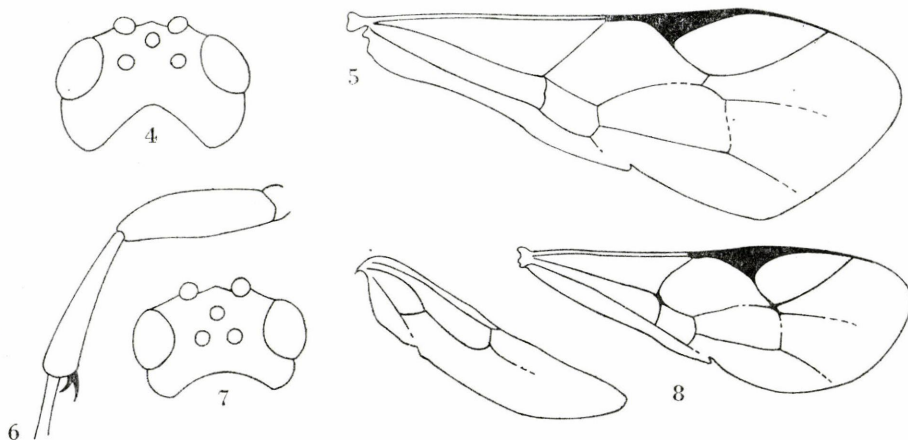
***Stenomacrus vafer* (HOLMGREN, 1856)** — **Material**: Rhodopi Mts.; Hrabrino (450 m), 8. 05. 1977, 1 ♂ and 1 ♀; Nikolovo (400 m), 14. 08. 1975, 1 ♂. — **Distribution**: Sweden, Norway, the Alps and USSR (Irkutsk and Minusinsk).

***Stenomacrus zaykovi* sp. n. ♀ (Figs 7-8)**

♀. Front wing 2.7 mm long. Head transversal, narrowing backwards (Fig. 7), 1.34 times as wide as maximal width of mesonotum. Distance between eyes and lateral ocelli longer than ocellus diameter. Antennae short, flagellum 19-jointed, first joint twice as long as wide, second and following joints shorter. Temple and combined frons and face widening downwards. Face wide, with scattered punctation and weakly striated transversally. Cheek with groove, 2.8 times as long as basal width of mandible.

Pleurae shining. Front wing with large pterostigma and short radial cell. Two sections of radial vein concluding at almost right angle (Fig. 8.) Basal part of radius arising from middle of pterostigma, apical part arcuated. First intercubitus point-shaped, second entirely absent. Basal vein curved, nervulus postfurcal, parallel vein reaching postnervulus in the middle. Nervellus reclival.

Propodeum fully areolated, areola slightly widening backward, wrinkled. Pleural area mat in front half. Propodeal spiracle nearer to lateral carina. First tergite 1.4 times as long as wide apically, strongly striated longitudinally, with semicircular concavity on apical third. Median dorsal carinae weak, second tergite quadratic, smooth and polished, following ones compressed. Ovipositor sheath not projecting beyond apex of metasoma.



Figs 4-6. *Stenomacrus tuberculatus* sp. n.: 4 = head, dorsal view, 5 = front wing, 6 = hind femur and tibia. — Figs 7-8. *Stenomacrus zaykovi* sp. n.: 7 = head, dorsal view, 8 = front and hind wings

Legs slender, hind femur 3.4 times as long as wide. Correlation between length of hind tarsal segments 28:15:11:7:11. Pulvillae of hind legs slightly longer than claws.

Black, with dark red-brown nuance on antennae, pleurae and middle abdominal tergites; face and base of coxae rusty; base of antennae from below, two spots lateral of antennal sockets and legs orange, tegulae yellow, pterostigma brown.

♂ unknown.

It is distinguished from *Stenomacrus intermedius* HOLMGREN by its wider head, shorter antennae, front wing nervature and colouration of the body.

H o l o t y p e ♀: Bulgaria, Rhodopi Mts., Tsigov Tschark (1200 m), 23. 08. 1977, leg. A. Zaykov. In the author's collection.

Batakomacrus gen. n. (Figs. 9-12)

Front wing 3.5 mm long. Clypeus not separated, in the same curve as face. Labrum exposed. Lower tooth of mandible much shorter than upper one, but almost in the same plane as the upper tooth, so both visible when mandibles closed. Scape cylindric, twice as long as wide. Cheek with distinct groove.

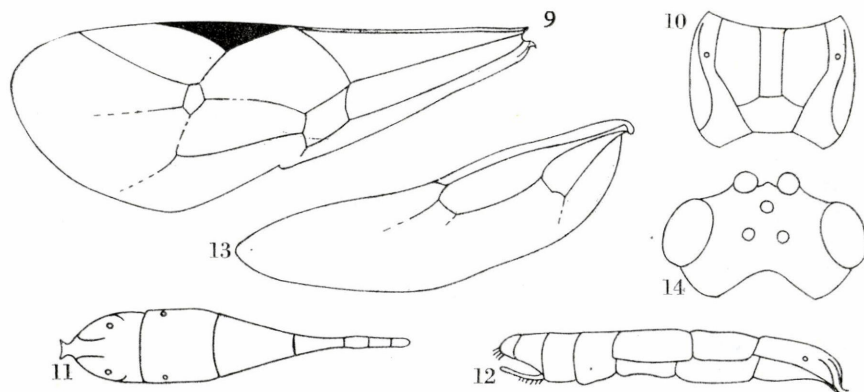
Mesoscutal hairs evenly distributed, dense. Epomia and notaulix shallow. Prepectal carina complete laterally, reaching front ridge of mesopleuron slightly below the middle. Sternaulix indistinct. Areolet present, irregularly pentagonal, second intercubitus depigmented. Second recurrent vein with two bullae (Fig. 9).

Propodeum well areolated (Fig. 10), all carinae strong. First tergite stout laterally with weak postmedian oblique impression. Second tergite transverse, following tergites compressed (Fig. 11). Metasoma moderately long, the apex of hind femur reaching apical one-fifth of abdomen. Ovipositor sheath not projecting beyond apex of metasoma, with long hairs on basal half (Fig. 12). Ovipositor stout, without subapical dorsal notch. Legs moderately stout, with strong claws.

Generally like *Stenomacrus* FOERSTER, differing in the situation of mandibular teeth stout first tergite, structure of the ovipositor and its sheath.

The generic name is combined from geographical name of the collecting locality (Batak) and (-macrus) from the similar *Stenomacrus*.

G e n o t y p e: *Batakomacrus crassicaudatus* sp. n., which is described below.



Figs 9-14. *Batakomacrus crassicaudatus* gen. and sp. n.: 9 = front wing, 10 = propodeum, dorsal view, 11 = metasoma, dorsal view, 12 = metasoma, lateral view, 13 = hind wing, 14 = head, dorsal view

Batakomacrus crassicaudatus sp. n. ♀ (Figs 9-14)

♀. Head clearly restricted behind (Fig. 13), wider than mesoscutum. Distance between eyes and lateral ocelli almost twice as long as ocellar diameter. Flagellum 21-24-jointed, first joint thrice as long as wide, tenth joint quadratic. Face transversely striated and punctured. Cheek twice as long as basal width of mandible.

Front wing with moderately wide pterostigma, radius arising from its middle. Nervulus postfurcal, parallel vein reaching postnervulus little below middle. Nervellus almost vertical, indistinctly intercepted, discoidella absent (Fig. 14). Pleurae smooth and shining.

Propodeum polished, lateral area covered with moderately long hairs. Propodeal spiracle of equal distance between pleural and lateral carinae. First tergite mat, shagreened, 1.1 times as long as wide. Median dorsal carinae not reaching middle of tergite. Second tergite finely shagreened, shining, following tergites smooth.

Hind femur punctured laterally. Correlation between hind tarsal segments 28:16:13:10:14. Pulvillae slightly longer than claws. Other structures as in the generic description.

Black; clypeus, mandibulae, cheek, palpi, two spots lateral of antennal sockets, tegulae, hind corner of pronotum, front and middle coxae and trochanters yellow orange, legs orangered. Sometimes tergites I-III and pronotum reddish brown, pterostigma brown.

♂ unknown.

Holotype ♀: Bulgaria, Rhodopi Mts., Hydroelectric dam "Batak" (1350 m), 26. 08. 1969. leg. A. Germanov; in the author's collection. — **Paratypes**: 1 ♀, same date and locality as holotype; Rhodopi Mts., Hrabrino (450 m), 13. 10. 1968. 2 ♀; Asenovgrad (250 m), 15. 04. 1967, 1 ♀; Rhodopi Mts., Zdravets (1200 m), 18. 05. 1968. 1 ♀; Rhodopi Mts., Parvenets (200 m), 22. 09. 1968. 1 ♀; Rhodopi Mts., Stoykite (1100 m), 23. 09. 1977, 1 ♀. All types in the author's collection, except one paratype deposited in the Hungarian Natural History Museum, Budapest.

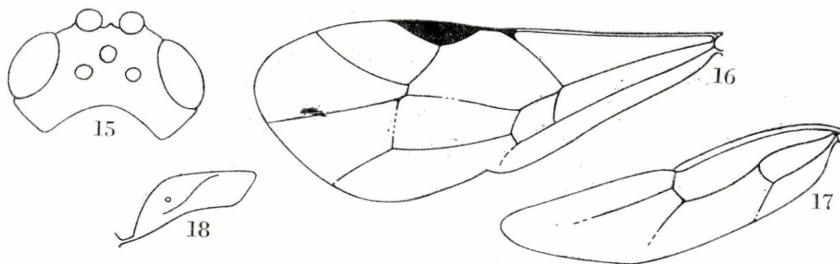
Leipaulus TOWNES, 1945

In his generic classification TOWNES (1971) only one European species placed in this genus. The present investigation has shown that three other species belong this genus and are new combinations.

Leipaulus agilis (HOLMGREN, 1856) comb. n. — **Material**: Rhodopi Mts., Nikolovo (400 m), 16. 06. 1976, 1 ♂. — **Distribution**: Northern and Western Europe and USSR (Vjatsk, Leningrad and Jaroslavl'sk).

Leipaulus callidulus (HOLMGREN, 1856) comb. n. — **Material**: Rhodopi Mts., Lilkovo (1200 m), 18. 06. 1978, 1 ♀; Seliste (1200 m), 9. 08. 1978, 1 ♀. — **Distribution**: Northern Europe.

Leipaulus exilis (HOLMGREN, 1856) comb. n. — **Material**: Sadovo, Plovdiv district (150 m), 25. 05. 1968, 1 ♀. — **Distribution**: North Europe.



Figs 15-18. *Leipaulus raduilus* sp. n.: 15 = head, dorsal view, 16 = front wing, 17 = hind wing, 18 = first tergite, lateral view

Leipaulus raduilus sp. n. ♀ (Figs 15-18)

♀. Body 3.5 mm long. Head transversal, clearly narrowing backwards (Fig. 15), 1.22 times as wide as mesonotum. Antennae long, flagellum 21-jointed, thickening to apex. First joint four times as long as wide. Ocellar diameter almost as long as distance between eyes and lateral ocelli. Cheek with groove, twice as long as basal width of mandible.

Mesonotum evenly hairless and fine-punctured, pleurae smooth and shining. Front wing 3.1 mm long. Radius arising from middle of pterostigma, its two sections concluding at almost right angle. Apical section of radius more than 3 times longer than basal section (Fig. 16). Intercubitus as long as distance between it and second recurrent vein. Nervulus postfurcal, inclivous. Parallel vein reaching postnervulus slightly below middle. Nervellus slightly reclinous (Fig. 17).

Propodeum without median longitudinal carinae, longitudinally concave in front half. Lateral carinae indistinct in front third part. Propodeal spiracle small, oval, equally distad from pleural and lateral carinae. Abdomen 0.62 times as long as front wing. First tergite in lateral view strongly curved (Fig. 18) 1.4 times as long as wide. Median dorsal carinae reaching almost apical edge. Second tergite 0.9 times as long as wide. Both first and second tergites strongly striated longitudinally. Apical half of metasoma slightly compressed. Ovipositor sheath projecting beyond apex of metasoma, ovipositor weakly curved upward. Metasoma covered with long and dense light hairs.

Legs moderately slender, tarsal segments elongated, correlation between hind segments 31:15:12:8:12. Pulvillae not longer than claws.

Black, with brownish nuance; mandibulae, cheek apically, tegulae, front and middle coxae and front sternites yellow. Base of antennae and legs yellow-orange; face and lower half of pronotum light brown; abdominal tergites with exception of first tergite rusty; stigma pale yellow.

♂ unknown.

It is distinguished from the similar *Plectiscus minutus* HOLMGREN by its size and colouration of the body, number of flagellar joints, front wing venation and areolation of the propodeum.

Holotype ♀: Bulgaria, Rila Mts., Raduil (900 m), 24. 07. 1982, leg. J. Kolarov; in the author's collection. — **Paratype**: 1 ♀, Rhodopi Mts., Hydro-electric dam "Batak" (1350 m), 26. 08. 1969; in the author's collection.

Leipaulus ridibundus (GRAVENHORST, 1829). — **Material**: Rhodopi Mts; Hydro-electric dam "Batak" (1350 m), 26. 08. 1969, 1 ♂; Markovo (350 m), 1. 10. 1977, 1 ♀. — **Distribution**: Europe.

Plectiscus GRAVENHORST, 1829

Plectiscus impurator GRAVENHORST, 1829 — **Material**: Rhodopi Mts; Pestera (560 m), 1. 05. 1977, 1 ♀; Nikolovo (400 m), 30. 06. 1976, 1 ♀; Pamporovo (1600 m), 3. 08. 1978, 1 ♂; 21. 09. 1978, 1 ♀; Shiroka laka (1100 m), 23. 09. 1977, 1 ♀. Kostinbrod near Sofia (500 m), 6. 06. 1980, 1 ♀. — **Distribution**: Europe.

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