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## ***Microchelonus* SZÉPLIGETI (Hymenoptera, Braconidae) from central-European peat-bogs with redescription of *M. basalis* (CURTIS)**

A. LOZAN & V. TOBIAS

**Abstract:** The eight species of *Microchelonus* SZÉPL. are recorded from montane peatlands of the Czech Republic (Bohemian Forest=Šumava Mountains): *Microchelonus denticulatus* TOBIAS, *M. elachistae* TOBIAS, *M. karadagi* TOBIAS, *M. koponeni* TOBIAS, *M. subpedator* TOBIAS, *M. pedator* (DAHLBOM), *M. temporalis* TOBIAS; and *M. basalis* (CURTIS) that is redescribed from the Mrtvý luh (740m) peat bog.

**Key words:** Taxonomy & ecology, Hymenoptera, Braconidae, *Microchelonus*, central-European peat bogs, species redescription

### **Introduction**

The Central European oligotrophic bogs originating from Holocene ecological succession are isolated ecosystems that are similar to subarctic wet forest tundra. During 2001-2002 the fauna of genus *Microchelonus* SZÉPLIGETI (1909) of four peatlands - Mrtvý luh bog (near Volary, 740m, 300 ha), Chalupská slat' bog (near Borová Lada, 900m, 40ha), Rokytická slat' raised peat bogs (Modrava environments, 1100m, 300ha) and Hraniční slat' in the Šumava National Park (Czech Republic, Bohemian Forest=Šumava Mountains) was investigated.

Eight species of *Microchelonus* are recorded from the central-European bogs for the first time. The species *M. elachistae* TOBIAS, *M. karadagi* TOBIAS, *M. koponeni* TOBIAS, *M. TOBIAS*, *M. pedator* (DAHLBOM) and *M. subpedator* TOBIAS belong to subgenus *Stylochelonus* HELLÉN (1958), that among the all *Microchelonus* species assemble a stitch of them. A disproportional prevalence of *Stylochelonus* species among the all species of genus *Microchelonus* in investigated peatlands indicates on similar ecological affinities to such biotopes. Seemingly that the other species of subgenus *Stylochelonus* display a tendency to relatively humid habitats as contrasted with overwhelming species of subgenus *Microchelonus* s. str., which in Palearctic are mostly associated with arid habitats.

The other species - *Microchelonus basalis* (CURTIS), *M. denticulatus* TOBIAS and *M. temporalis* TOBIAS pertain to subgenus *Microchelonus* s. str. SZÉPL. (1909).

The species *Microchelonus basalis* is redescribed from the Mrtvý luh (740m) peat bogs. MARSHALL (1889), indicating on small apical abdominal aperture and a lack of a yellow

belt (in comparison to females), first described the male of this species. THOMSON (1891) gave a description "rima anali sublunare" of apical abdominal aperture (most likely a half-moon formed aperture) of male to posing small dimensions ("minima"). Further, TELENGA (1941) recorded a male of this species, indicating on basal yellow spot and transversal apical aperture of carapace (probably conducted by Thomson's description, interpreting "rima anali sublunare" as a more or less transversal aperture). Unfortunately, the material from Telenga's collection is missing and, a fortiori, a dimension of 2-3mm in his description casts doubts on species validity. Following on Telenga's data, in the key of insect of European part of USSR (TOBIAS 1986), the male of *M. basalis* was included among species with big, at least 0.5 times as broad as carapace (in posterior end), abdominal aperture. Finally, based on the coincidence of recently collected material (female and series of males) we suggest that the issue on true aspect of *M. basalis* is resolved and, possible, a male mentioned by Telenga represents only a dark-leg variety of *M. flavipalpis* (SZÉPL.).

### ***Microchelonus basalis* (CURTIS 1837) (Figs 1-7)**

CURTIS 1837; MARSHAL 1885, 1889; THOMSON 1891; FAHRINGER 1934; TELENGA 1941; TOBIAS 1986, 2001.

**Material examined:** ♀, CZ Bohemia South, Šumava Mts., 740m, Mrtvý luh peat bogs (central part), 3.VII.2002 (lgt. Lozan); ♂, CZ Bohemia South, Šumava Mts., Mrtvý luh 740m, peat bogs (central part) sweeping, 27.VII.2001 (lgt. Lozan); ♂, CZ Bohemia South, Šumava Mts., 740m, Mrtvý luh peat bogs (margins), 12.VI.2002 (lgt. Lozan); ♂, CZ Bohemia South, Šumava Mts., 740m, Mrtvý luh peat bogs (interm. zone), 12.VI.2002 (lgt. Lozan); ♂, CZ Bohemia South, Šumava Mts., 740m, Mrtvý luh peat bogs (intermediate zone), 3.VII.2002 (lgt. Lozan);

**Description:** Female. Body length 1.8 mm.

**Head:** Scarcely widened and rounded behind eyes, about temples narrower than about eyes; in dorsal view 1.6 times as broad as long, in frontal view 1.1 times as broad as high; 1.2 times as wide as mesosoma. Ocellar triangle as long as OOL. POL 3 times longer than diameter of a posterior ocellus. Temples in dorsal view 1.4 times longer than transverse diameter of eye. In frontal view eye 2.5 times longer as transverse diameter, 1.5 times as long as malar space. Face almost twice as broad as high and 1.4 as broad as longitudinal diameter of eye, twice higher than clypeus. Maxillary palpi short, as long as height of face. Antennae shorter than body, 16-segmented. Scape widened, twice as wide as 1-4<sup>th</sup> segments of flagellum. Basal segments of flagellum narrowed, 5-12<sup>th</sup> segments of flagellum a little enlarged (1.5 times as wide as the first one and a little narrowed than scape); first flagellum segment 3 times as long as wide, apical segments 1.5-1.7 times as long as wide.

**Mesosoma:** 1.6 times as long as high. Propodeum centrally with two clear longitudinal carinas, with well developed transverse carina and lateral tubercles. Length of radial cell along metacarp 0.7 times as long as length of pterostigma. Radial cell 1.5 times greater than radio-medial cell. Second sector of radial vein 1.5 times as long as first one, 3 times shorter than the third one. Distance from nervulus to basal vein shorter than nervulus length. Hind femur 3.5 times as long as broad. External spur slightly longer than internal, almost reaching a half of metatarsal joint. Fifth metatarsal joint as long as third, 1.3 times shorter than second one and 1.3 times longer than forth one.

**Metasoma:** Carapace elongate-oviform with more or less parallel sides, twice as

long as broad as long, basally slightly incurved (on its 1/7 length). In lateral view almost parallel sided. Ovipositor hidden.

**Sculpture:** Head dense and finely pointed. Face without any strigosity. Frons finely pointed. Vertex behind ocelli unclear transversally striate. Temple very finely longitudinally striate, about eyes without. Clypeus finely punctate, more or less shining. Mesonotum punctate rugose, pre-scutellar depression sculptured and area before it with some coarser sculpture. Sides of mesonotum punctate rugose. Scutellum punctate. Propodeum softly rugulose punctate, without longitudinal elements; keel between two longitudinal carinas smoother. Carapace with a few fine winding longitudinal rugulae at its 1/3 part; other 2/3 parts without any longitudinal sculpture.

**Colour:** Body black. Palpi brown. Legs dark: coxae black; fore femora black with brown apex, tibiae brown with brown-yellowish basal part, tarsi brownish; hind femora black, tibiae brown with brown-yellowish basal part, tarsi brown. Wings very faintly infusate (almost non-infusate). Pterostigma and veins brownish, somewhat brown-yellowish. Carapace with yellow belt covering almost 1/2 of its length, laterally reaching almost 2/3 of its length.

**Description:** Male. Body length 1.9mm.

**Head:** Obviously widened and rounded behind eyes. Antennae shorter than body, 19-segmented: scape narrower than female, 1.5 times as wide as segments of flagellum; segments of flagellum not enlarged; first segment of flagellum 3 times as long as wide, apical segments 1.7-2.0 times as long as wide.

**Mesosoma:** Longer than female, 1.8 times as long as high; laterally almost equals as carapace's length. Propodeum centrally with two more or less pronounced longitudinal carinas, with well developed transverse carina and small lateral tubercles. Radial cell 1.5 times greater than radio-medial cell. Second sector of radial vein 1.2 times as long as first one, 3.5 times shorter than the third one. Distance from nervulus to basal vein equals to nervulus length.

**Metasoma:** Carapace elongate-oviform with more or less parallel sides, 2.1 times as broad as long, slightly incurved on its 1/7 length. In lateral view almost parallel sided. Apical abdominal aperture small, oval [bean]-formed, 0.2 times as broad as carapace.

**Sculpture:** Almost like female. Propodeum without longitudinal elements. Carapace basally with a few fine winding longitudinal rugulae, somewhat continuing till its 1/3 part.

**Colour:** Body black. Palpi brown. Legs darker than female: coxae black; fore femora black with brown apex, tibiae and tarsi dark brown; hind femora and tibiae black, tarsi dark. Wings infusate, mainly on basal part. Pterostigma and veins brown.

**Variability of males:** Dimensions – 1.6-1.9mm. Mesosoma 1.7-1.8 times as long as high. Propodeum with more or less pronounced longitudinal carinas, almost smooth carinas. Carapace twice or even more (2-2.2 times) as broad as long, basally with more or less developed longitudinal windings; apical abdominal aperture oval or bean-formed. Wings more or less infusate.

**Habitat description:** The Mrtvý Luh peat bog (740m) is more or less closed by the forest and isolated by the mountains. The predominance of "forest tundra climate" is obvious: the strong variation of temperature during night and day, cold winters and wet and more or less warm summers (cold/warm and wet/dry montane climatic factors similar to the transitory zone near alpine timberline) (SPITZER 1996). All specimens were collected in the unforested parts of bog which represent an opened treeless

area of bog vegetation *Sphagnum* spp., *Vaccinium uliginosum* L., *Eriophorum vaginatum* L. etc. with a gradual transition to dwarf forest of *Pinus mugo* s.lat. around.

**D i a g n o s i s :** This species is clearly defined from other species by small body (less than 2mm), rather widened head behind eyes and fine sculpture (almost without rugosity). Female possesses a little enlarged 5-12 segments of flagellum and yellow belt on basal half of carapace. Males are almost black with infusate wings and a little longer carapace (2-2.2 times as broad as long), apical abdominal aperture small and oval or bean-formed.

**D i s t r i b u t i o n :** Central and northern Europe (Sweden, Denmark, and Czech Republic).

### The other species recorded from investigated peatlands

*Microchelonus (Stylochelonus) elachistae* TOBIAS 1995. ♀ - CZ Bohemia South, Šumava Mts., Chalupská slat' bogs near Borová Lada, 900m, peat bogs, shore-grass sweeping, 23.VII.2001 (lgt. Lozan).

*Microchelonus (Stylochelonus) karadagi* TOBIAS 1995. ♀, ♂ - CZ Bohemia South, Šumava Mts., Modrava env., Rokytská slat' 1100m, raised peat bogs (community *Betula nana* & *Carex limosa*), sweeping, 1.VIII.2001 (lgt. Lozan).

*Microchelonus (Stylochelonus) koponeni* TOBIAS 1995. ♀ - CZ Bohemia South, Šumava Mts., Chalupská slat' bog near Borová Lada, 900m, peat bogs, shore-grass sweeping, 23.VII.2001 (lgt. Lozan).

*Microchelonus (Stylochelonus) subpedator* TOBIAS 1995. ♂ - CZ Bohemia South, Šumava Mts., 740m, Mrtvý luh near Volary, peatbogs (margins), 13.VII.2001 (lgt. Lozan); ♂ - CZ Bohemia South, Šumava Mts., Mrtvý luh 740m, peat bogs (margins), 6.VIII.2001 (lgt. Lozan); 3 ♀, 4 ♂ - CZ Bohemia South, Šumava Mts., Modrava env., Rokytská slat' 1100m, raised peat bogs (community *Betula nana* & *Carex limosa*), sweeping, 1.VIII.2001 (lgt. Lozan).

*Microchelonus (Stylochelonus) pedator* (DAHLBOM 1832). ♀ - CZ Bohemia South, Šumava Mts., Mrtvý luh 740m, peat bogs (meadows), 23.VII.2001 (lgt. Lozan); ♀ - CZ Bohemia South, Šumava Mts., Mrtvý luh 740m, peat bogs (margins), 6.VIII.2001 (lgt. Lozan); 2 ♀ - CZ Bohemia South, Šumava Mts., Mrtvý luh 740m, peat bogs (margins), 20.VIII.2001 (lgt. Lozan); ♂ - CZ Bohemia South, Šumava Mts., Mrtvý luh 740m, peat bogs (meadows), 23.VII.2001 (lgt. Lozan); ♀, ♂ - CZ Bohemia South, Šumava Mts., Mrtvý luh 740m, peat bogs (margins), 12.VII.2002 (lgt. Lozan); 3 ♂ - CZ Bohemia South, Šumava Mts., Modrava env., Rokytská slat' 1100m, raised peat bogs (community *Betula nana* & *Carex limosa*), sweeping, 1.VIII.2001 (lgt. Lozan); ♀ - CZ Bohemia South, Šumava Mts., Hraniční slat' raised peat bogs 1000m, 10.VII.2002 (lgt. Lozan).

*Microchelonus (Microchelonus) denticulatus* TOBIAS 1986. ♂ - CZ Bohemia South, Šumava Mts., 740m, Mrtvý luh near Volary, peatbogs (margins), 13.VII.2001 (lgt. Lozan).

*Microchelonus (Microchelonus) temporalis* TOBIAS 1986. ♂ - CZ Bohemia South, Šumava Mts., Mrtvý luh 740m, peat bogs (meadows), 12.VII.2002 (lgt. Lozan).

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### Zusammenfassung

Folgende acht Arten der Gattung *Microchelonus* SZÉPL. aus einem montanen Torfmoor in den Šumava Bergen der Tschechischen Republik werden nachgewiesen: *Microchelonus denticulatus*

TOBIAS, *M. elachistae* TOBIAS, *M. karadagi* TOBIAS, *M. koponeni* TOBIAS, *M. subpedator* TOBIAS, *M. pedator* (DAHLBOM), *M. temporalis* TOBIAS, für *M. basalis* (CURTIS) wird eine Redeskription vorgestellt.

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Addresses of the authors: Aurel LOZAN  
Institute of Entomology, Academy of Sciences of the Czech Republic  
Branišovská 31  
CZ-370 05 České Budějovice, CZECH REPUBLIC.  
and Institute of Zoology, Academy of Sciences of the Republic of  
Moldova  
Academiei str., 1. MD-2028 Kishinau, MOLDOVA.  
lozan@entu.cas.cz

Vladimir TOBIAS  
Zoological Institute, Russian Academy of Sciences  
Universitetskaya nab., 1. St.Petersburg 199034. RUSSIA.  
hymenopt@zin.ru

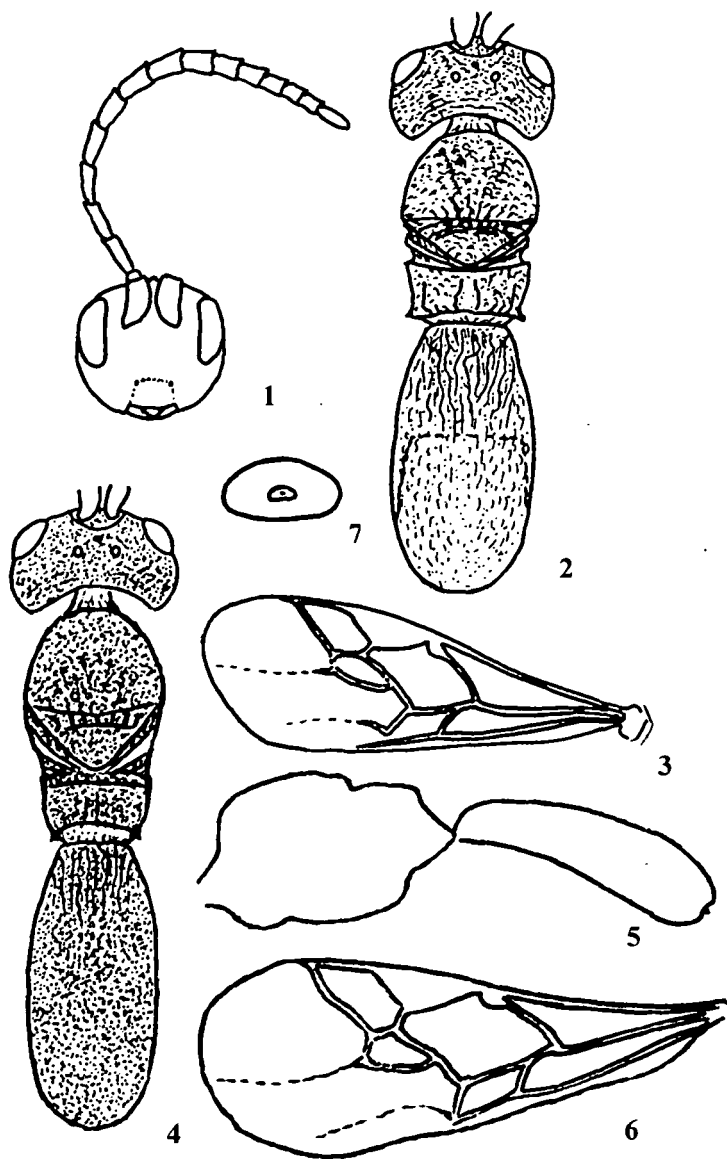


Fig. 1-7: *Microchelonus basalis*, female (1-3): 1 – head and antenna in frontal view, 2 – body in dorsal view (with sculpture), 3 – fore wing. *Microchelonus basalis*, male (4-7): 4 – body in dorsal view (with sculpture), 5 – thorax and carapace in lateral view, 6 – fore wing, 7 – posterior end.

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