A new species of cavernicolous *Tychobythinus* Ganglbauer, 1896 from Turkey
(Coleoptera, Staphylinidae, Pselaphinae)

**Peter Hlaváč & Arnaud Faille**

**Abstract**

*Tychobythinus loebli* n. sp., a new cavernicolous species of the tribe Bythinini from Ahari Mağarasi Cave near Trabzon in Turkey, is described.

**Key words:** Bythinini, biospeleology, taxonomy

**Introduction**

*Tychobythinus* Ganglbauer, 1896 is a large, predominantly Western Palaearctic genus (85 species and 4 subspecies) of the tribe Bythinini, additionally with one species from Taiwan, one from China (Sichuan) and one from Japan, and with five species from the Nearctic region (Kurbatov 1993, Löbl & Kurbatov 1995, Löbl & Löbl 2015). *Tychobythinus* is poorly represented in the eastern part of the Western Palaearctic. Only four species have been described so far, *T. clermonti* (Jeannel, 1950) and *T. repens* Kurbatov, 2006 from the Russian Caucasus, *T. caviceps* (Reitter, 1881) known from Azerbaijan and Iran, and one cavernicolous species, *T. vignai* Besuchet, 1978 from Turkey. The aim of this paper is to describe another cavernicolous species collected by one of us (A.F.) in Trabzon area, Turkey.

**Material and Methods**

Specimens prepared for morphological study were examined with a Leica S8APO stereoscopic microscope with diffuse lighting at magnifications up to 128×.

The aedeagus was studied using a Zeiss transmitted-light microscope at magnifications up to 500×. The aedeagus was dissected and preserved in Euparal on a plastic card pinned together with the specimen. All drawings were made using a drawing tube.

The head length was measured from the occipital constriction to the anterior margin of the frontal rostrum; the elytral length was measured along the suture; width means the maximum width of the head, pronotum, elytra, etc. The body length is the combined length of the head, pronotum, elytra, and abdomen. The length of basal and apical parts of the median lobe was measured in dorsal view.

The terminology applied here follows Chandler (2001), except that we use ‘ventrite’ instead of ‘sternite’ when discussing ventral thoracic structures.

Label data are cited verbatim. All labels of the studied material are printed; ‘/’ separates different labels.

The holotype of the described species is deposited in the collection of the National Museum, Prague, Czech Republic (NMPC).

**Molecular Preparation:** Non-destructive DNA extraction of the holotype was carried out using the DNeasy Tissue Kit (Qiagen GmbH, Hilden, Germany). A partial fragment of the cox1 gene was PCR-amplified and sequenced. The primers used were Pat and Jerry, a pair frequently used in beetles (Simon et al. 1994).

**Taxonomy**

*Tychobythinus loebli* n. sp.

Figs 1-3

Etymology. Named after Ivan Löbl, eminent “Czechoslovak” coleopterologist living in Geneva (Switzerland), in recognition of his unique contribution to systematic entomology.

Type material. HOLOTYPE, 1♂: TR-Trabzon, Köprüyani, Ahari Mağarasi, 513 m, N 40°45′53.2″ E 39°33′45.8″, 15.VI.2011, Faille, Fresneda & Ribera leg. / DNA extraction code IBE_M252 / HOLOTYPE *Tychobythinus loebli* sp. n. P. Hlaváč & A. Faille det., 2018. (NMPC).
**Description.** Body (Fig. 1) shiny, reddish-brown, with golden, sparse setation, antennae, legs and maxillary palpi lighter, length 1.43 mm, maximal width of elytra 0.66 mm.

Head rhombic, with well-developed antennal tubercles, at maximum width 1.05 times as long as wide and about 1.65 as wide as width of rostrum, eyes absent, vertex foveae well-defined, frontal sulci deep, in shape of V and terminating in vertex foveae, frons between antennal tubercles with deep depression; surface of head with unevenly located small craters, maxillary palpi short, palpomere I minuscule, palpomere II granulate, about 5.5 times as long as III, palpomere IV (0.25 mm) pedunculated at base, about as long as II and 4.4 times as long as wide; antennae about 0.86 mm long, when turned backward not reaching half of elytral length, scape pedunculated, slightly expanded apically, at base, about 3.65 as long as wide and 3.65 as long as pedicel, pedicel elongate, 1.2 times as long as wide, antennomere III as long as pedicel and twice slender than pedicel, expanded from base to apex, antennomere IV slightly shorter than III and 1.25 times as long as V, V about 1.30 times as long as wide.

*Fig. 1.* *Tychobythinus loebli*, habitus.

*Fig. 2.* *Tychobythinus loebli*, left elytron.

*Fig. 3.* *Tychobythinus loebli*, aedeagus, dorsal view.
A new species of cavernicolous Tychobythinus Ganglbauer

as VI, antennomeres VI-VIII transverse and about same length, IX about 1.30 times as long as VIII and 1.50 times as long as wide, X transverse, 1.23 times as wide as long and 1.63 times as long as IX, terminal antennomere twice as long as wide, and 0.72 times as long as scape, pointed at apex. Relative length of antennomeres: 1 : 0.28 : 0.28 : 0.23 : 0.18 : 0.14 : 0.14 : 0.14 : 0.18 : 0.30 : 0.73.

Pronotum slightly transverse, 1.10 times as wide as long and 1.15 times as wide as head, widest in apical third, lateral antebasal foveae well-defined joint by well-defined antebasal sulcus.

Elytra (Fig. 2) 1.33 times as wide as long, widest in apical third, 1.57 times as long (at suture) as pronotum, two basal and one humeral fovea present on each elytron, sutural stria well-defined through whole length of elytra.

Abdomen with first visible tergite 1.55 times as long as second and twice as long as third visible tergite.

Legs slender, protibiae sinuate in apical half, with inner dense brush of setae in apical third, mesotibiae simple, metatibiae slightly curved before apex with inner, preapical dense brush of setae.

Aedeagus (Fig. 3) elongate, 0.43 mm long, 1.93 times as long as wide, symmetrical, parameres pointed, free at apices, with two pseudoapical setae of different length, endophallothallus with three apical, pointed projections, internal sac with three asymmetrical structures, dorsal diaphragm present.

Sexual dimorphism. Female unknown.

Differential diagnosis. T. loebli n. sp. can be distinguished from all other species of the genus by the shape of the palpomeres, antennomeres, protibia and the unique structure of the aedeagus.

Molecular data. The cox1 partial sequence of the holotype is deposited in GenBank under the accession number: MH256658.

Distribution and biology. The unique specimen of T. loebli n. sp. was collected in Ahari Mağarasi Cave (Fig. 4) located on the side of the E97 road, between Maçka and Bağışlı, Trabzon, Turkey. The type locality is threatened and may be already destroyed by the enlargement of the motorway, as already happened to a small cave near Kulak in Aybastı valley, the unique locality for the cave Trechini Pontodytes cavazzutii Casale & Giachino, 1989 (Carabidae) (Fig. 5).

Ahari Mağarasi Cave is not very deep; the species was found together with other invertebrates: Isopoda, Gastropoda and spiders.

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References


Author’s addresses

Peter Hlaváč *
Department of Entomology
National Museum, Natural History Museum
Cirkusová 1740
CZ-193 00 Praha 9 - Horní Počernice
Czech Republic
Email: peterhlavac@gmail.com
* corresponding author

Arnaud Faille
Institut de Biologia Evolutiva (CSIC-UPF)
Passeig Marítim de la Barceloneta 37-49
E-08003 Barcelona
Spain

and:
MECADEV - UMR 7179 MNHN/CNRS
Muséum national d’histoire naturelle
CP50 - 57 rue Cuvier
F-75005 Paris
France
E-mail: arnaud1140@yahoo.fr