



Conference Abstract

The genus *Protopholeuon* (Coleoptera, Leptodirini): distribution, morphological, ultratructural and genetic details

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Abstract

Protopholeuon is a monospecific genus of Leptodirini, endemic to Romania, represented by *Protopholeuon hungaricum*, described incompletely by Csiki in 1904. In 1923, René Jeannel published a more comprehensive morphological description of the species, along with the first drawing of male genitalia.

The type locality of the species is Lucia Cave, in the Metaliferi Mountains (Apuseni Mountains). This was the only locality where the species was found and collected. In the last decade, representatives of the genus *Protopholeuon* were found in other caves of the Metaliferi Mountains. These caves are: Grohot, Izbucul Topliței, Ponor, Rusești, Hodobana, Cizmei, Urșilor Bulzești. The aerial distance between Lucia Cave and the newly explored caves is about 20 km. The patchy geology and hydrology of the area can act as natural barriers that shape the species' geographic distribution and enhance the speciation process.

We provide morphometric information for *Protopholeuon* specimens obtained from 80 individuals. We also present the pictures of *Protopholeuon* with morphological and

ultrastructural details (SEM microscopy) for head, mandibles, antennae, elytra surface and aedeagus. All this completes the morphological description made in 1923 by Jeannel.

We present the first data on the molecular analysis of a mitochondrial COI fragment on *Protopholeuon* all the mentioned caves. For every cave, we analyzed 2-3 specimens. Our working hypothesis was that considering the distribution of caves, *P. hungaricum* from Lucia Cave represents a distinct phylogenetic unit from the other sampled caves of the Metaliferi Mountains. As an outgroup for rooting the phylogenetic tree, we used sequences from *Pholeuon*, another genus of endemic Romanian Leptodirini.

The molecular analysis revealed a unique clade for all samples from Metaliferi Mountains. Moreover, a single clade is built by all Metaliferi haplotypes, except Lucia Cave, with a high bootstrap value (85%). The genetic distance between ingroup and outgroup samples is 7-8%, while between the Lucia haplotype and the other haplotypes from Metaliferi Mountain the range is 3-4%, which agrees with other results from the group of Romanian Leptodirini. The distances between Metaliferi Mountain haplotypes (except Lucia Cave) are 0.1-2.8%, grouping in two distinct clades, with high statistical values. Still, the taxonomic status of samples from the Metaliferi Mountains should be further investigated by corroborating morphologic and genetic data.

Keywords

Protopholeuon, morphology, SEM, molecular analysis, COI, Metaliferi Mountains (Apuseni Mountains), Romania

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Conflicts of interest

None.