A new Typhlocharis (Coleoptera: Carabidae: Anillina) from Spain: combining adult and larval morphological data with DNA information

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Abstract

Adult and larva of Typhlocharis toletana n. sp. (Coleoptera: Carabidae: Anillini) are described from the province of Toledo, Central Spain. Identical mitochondrial cox1 gene haplotype suggested that the adults and larvae are conspecific. Typhlocharis toletana is the third species of the genus with an unguiform shape of gonocoxite 2 of the ovipositor, a character state that is considered as ancestral. However, T. toletana is not closely related to the other two species having a similarly shaped gonocoxite 2, as judged by their morphological characters and geographic distribution. It is concluded that this ancestral state has been kept in different lineages within Typhlocharis. Species relationships inferred from a preliminary molecular analysis of five Typhlocharis taxa are not congruent with putative morphological lineages. Finally, it was found that the larva of T. toletana is morphologically indistinguishable from that of Typhlocharis sp. described by Arndt et al. (1999).

Key words: Taxonomy, new species, Typhlocharis toletana, Iberian Peninsula, larval description, DNA identification, unguiform gonocoxite, lineages

Resumen

Se describe el adulto y la larva de Typhlocharis toletana n. sp. (Coleoptera: Carabidae: Anillini), procedente de la cuenca media del río Tajo (provincia de Toledo, España). La identidad conespecífica de ambos estadios se corrobora mediante el análisis de la secuencia del gen mitocondrial cox1. T. toletana es la tercera especie del género que presenta los gonocoxitos del ovipositor unguiformes, característica que se considera ancestral. Sin embargo, T. toletana no es parecida a las otras dos especies en relación a otros caracteres morfológicos y la distribución geográfica. Se concluye que dicha característica ancestral se ha conservado en diferentes linajes de Typhlocharis. Las relaciones derivadas de un estudio molecular de cinco especies de Typhlocharis no son congruentes con las que se derivan de los supuestos linajes basados en caracteres morfológicos. Finalmente, se halla que la larva de T. toletana es indistinguible morfológicamente de la de Typhlocharis sp. descrita por Arndt et al. (1999).

Palabras clave. Taxonomía, nueva especie, Typhlocharis toletana, Península Ibérica, larva, taxonomía molecular, gonocoxito unguiforme, linajes

Introduction

The genus Typhlocharis Dieck, 1869 is a member of the tribe Anillini characterised by a number of setae in the elytral umbilicate series between 4 + 4 and 4+1, instead of the 4+ 5 formula found in the rest of Anillini (Ortuño & Sendra 2007). Likewise, the humeral setal group is evenly distributed in Typhlocharis, whereas it is more irregular in the related genera. The genus is also distinct because of the tubular shape of gonocoxite 2 of