



## The genus *Aphelocheirus* Westwood, 1833 (Hemiptera: Aphelocheiridae) in the Iberian Peninsula

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### Abstract

This study updates current knowledge of the relationships and geographical distributions of the species from the genus *Aphelocheirus* in the Iberian Peninsula which, until now, have been involved in nomenclatural and taxonomic confusion. The morphological and molecular analyses presented in this study confirm the taxonomic validity of *A. murcius* and the absence of *A. aestivalis* in the Iberian Peninsula. The shape of the left paramere emerged as the only valid characteristic to differentiate both species. Specimens of *Aphelocheirus* from northern Spain, previously identified as *A. murcius*, formed an independent lineage genetically distinct to *A. murcius* and *A. aestivalis*, although morphologically indistinguishable from *A. murcius*.

**Key words:** morphology, DNA identification, taxonomic status, *Aphelocheirus*, Hemiptera, Iberian Peninsula

### Introduction

*Aphelocheirus* Westwood belongs to the order Hemiptera Linnaeus, 1758, suborder Prosorrhyncha Sorensen, Campbell, Gill & Steffen-Campbell, 1995, infraorder Gerromorpha Popov, 1971, superfamily Naucoroidea Leach, 1815 and family Aphelocheiridae Fieber, 1851. Aphelocheiridae is related to family Naucoridae Leach, 1815, but with some clear morphological differences: a thinner, longer rostrum and much less developed front femurs than in Naucoridae (Fig. 1). Its populations show wing polymorphism dominating micropteris form, at least in the south-east of Iberian Peninsula (Millán *et al.* 1988).

In the Iberian Peninsula, the main habitats of the genus *Aphelocheirus* are middle and upper reaches of streams and rivers (Fig. 2). The species of this genus seem to be nocturnal, hiding under rock substrates during the daytime (Andersen & Weir 2004). They are predacious, using their front legs and long rostrum to consume preys, usually mayfly and caddisfly larvae (Nieser *et al.* 1994). The life cycle of *A. aestivalis* (Fabricius 1794) was described by Larsen (1927, 1931) in Sweden, being three years long.

In the Palearctic Region there are nearly 60 species of *Aphelocheirus* (Aukema & Rieger 1995) inhabiting streams and lakes with a depth greater than 10 meters. Along the Western Palearctic Region four species of *Aphelocheirus* appear. In a large extent of Europe, only occur *A. aestivalis*, which is widely distributed in medium sections of well-oxygenated and conserved rivers. In the Iberian Peninsula, three species of *Aphelocheirus* have been cited: *A. murcius* Nieser & Millán, 1989 and *A. occidentalis* Nieser & Millán, 1989, both Iberian endemics, as well as an *A. aestivalis*, for which exist only old and unconfirmed records. The fourth species, *A. rottroui* Bergevin, 1925, is endemic of Morocco. This species is known by a male macropteris specimen from the National Park of Tazza, collected at night with a light-trap (Bergevin 1925), and unfortunately not available for our study.

The two Iberian endemic species described (Nieser & Millán 1989) have clear differences between them. Conversely, *A. aestivalis*, with a European distribution and the only species of this genus cited to the Iberian Peninsula until 1989, is very similar to *A. murcius* and some taxonomic specialists showed reasonable doubts about the valid-