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Description of *Alpheus buckupi* spec. nov., a new amphi-Atlantic snapping shrimp (Caridea: Alpheidae), based on morphological and molecular data

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Abstract

A new amphi-Atlantic snapping shrimp of the genus *Alpheus* Fabricius, 1798, *Alpheus buckupi* spec. nov., is described and illustrated based on material collected from the western (Orinoco Delta, Venezuela to São Paulo, Brazil) and eastern Atlantic (São Tomé and Príncipe). The new species is morphologically similar to members of the *A. lobidens* De Haan, 1850 species complex, from the Indo-Pacific, including *A. inopinatus* Holthuis & Gottlieb, 1958 from the eastern Mediterranean, and the Red Sea to Pakistan, especially based on major and minor chelae configuration. We also characterized this new species in terms of DNA sequences of a ribosomal 16S subunit and compared it in a phylogenetic context. These analyses showed a clear separation of the specimens of *A. buckupi* spec. nov. from similar species of the *A. edwardsii* (Audouin, 1826) species group, including some morphologically close species such as *A. cf. lobidens*, *A. heterochaelis* Say, 1818, *A. pontederiae* de Rochebrune, 1883, *A. sp. aff. euprosyne* De Man, 1897, and *A. micro-rhynchus* De Man, 1897.

Key words: Crustacea, Decapoda, amphi-Atlantic distribution, new species, cryptic species

Introduction

The shrimp genus *Alpheus* Fabricius, 1798 presently includes 294 valid species worldwide (De Grave & Fransen 2011; Anker 2012; Anker & De Grave 2012). The true diversity of this genus remains largely unknown, with estimates of about 400 species, since empirical evidence points to the existence of many cryptic lineages (Knowlton 1986, 1993; Knowlton & Mills 1992; Anker 2001). In the Atlantic basin the genus contains 67 species, 51 of which occur in the western Atlantic, 24 in the eastern Atlantic, and one, so far, restricted to the Central Atlantic (Holthuis 1951; Crosnier & Forest 1966; Chace 1972; Christoffersen 1979; d'Udekem d'Acoz 1999; Anker *et al.* 2008a, 2008b, 2009; De Grave & Fransen 2011; Anker 2012; Anker & De Grave 2012). From this total of 67, nine (some of which are recognized as species complexes) are present on both sides of the Atlantic, and four are Lessepsian migrants, i.e., Indo-Pacific species that colonized the eastern and southern-central Mediterranean by means of the Suez Channel (d'Udekem d'Acoz 1999; Galil *et al.* 2002).

As part of a long-term investigation on the biology and taxonomy of the genus, analysis of material collected in estuaries and bays from Venezuela and Brazil in the western Atlantic and São Tomé and Príncipe in the eastern Atlantic, yielded the discovery of a new species of the genus *Alpheus*, represented on both sides of the Atlantic Ocean. The new species, described below, belongs to the heterogeneous *A. edwardsii* (Audouin, 1826) group, characterized mainly by unarmed orbital hoods and the presence of dorsal and ventral notches on