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The squat lobsters of the genus *Sadayoshia* Baba, 1969 (Crustacea: Decapoda: Anomura: Munididae): new records including six new species from the Pacific Ocean

ENRIQUE MACPHERSON¹ & KEIJI BABA²

¹Centro de Estudios Avanzados de Blanes (CEAB-CSIC), C. acc. Cala Sant Francesc 14, 17300 Blanes, Girona, Spain.

E-mail: macpherson@ceab.csic.es

²Kumamoto University, Faculty of Education, 2-40-1 Kurokami, Kumamoto 860-8555, Japan., E-mail: kbaba.kumamoto@gmail.com

Abstract

Careful examination of the morphology of recently obtained specimens as well as previously reported specimens of the genus *Sadayoshia*, initiated by unpublished molecular data that suggest the existence of several different species, led us to describe six new species. The species are very similar to one another and distinguished by very slight morphological differences. Some of the characters that were previously considered as intraspecifically variable in some species, proved to be valid for species discrimination. A dichotomous key to all species of the genus is provided.

Key words: Squat lobsters, cryptic species, *Sadayoshia*, new species, Pacific Ocean.

Introduction

The genus *Sadayoshia* Baba, 1969 (Family Munididae Ah Yong et al. 2010) contains eight species distributed in the Pacific and Indian Oceans (Macpherson & Baba 2010). The species are usually found in shallow waters (>100 m), but often range from shallow to deep waters, e.g. *S. latisternata* in 80–238 m, *S. lipkei* in 5–500 m, and *S. tenuirostris* in 1–217 m. The morphological differences among the known species are very slight but the colorations where available are largely different (Macpherson & Baba 2010).

During phylogenetic and phylogeographic studies of the genus (Macpherson, in preparation), molecular analyses of both recently obtained material and previously reported specimens by Macpherson & Baba (2010) support the validity of the color differences and subtle morphological differences that were previously used, but also suggest the existence of additional new species. At present, only a few papers, i. e. Ah Yong et al. (2009), Schnabel et al. (2011), contain a gene sequence of the genus *Sadayoshia* (as *Sadayoshia* sp. = *S. edwardsii*, unpublished data). It is well accepted that molecular data provide a complementary approach to discriminate species separated by subtle morphological characters (Knowlton 2000; Mathews et al. 2008). The squat lobsters of some genera also have benefited from molecular data to discriminate sibling or cryptic species, e. g. *Munida* (Macpherson & Machordom 2001, 2005), *Paramunida* and *Allogalathea* (Cabezas et al. 2010, 2011, 2012), *Agononida* and *Uroptychus* (Poore & Andreakis 2011, 2012), *Eumunida* (Puillandre et al. 2011), among others.

This study was thus initiated by the preliminary results of molecular analyses and led us to find six additional new species, resulting in validating subtle morphological characters that were previously considered individual variations.

The sizes of the specimens examined are indicated by the postorbital carapace length. Pereopod 1 was measured along the dorsal midline, and pereopods 2–4 along the lateral midline. The terminology follows Baba et al. (2011). The abbreviations used include: Mxp3 = third maxilliped, P1 = pereopod 1 (cheliped), P2–4 = pereopods 2–4 (walking legs 1–3); MNHN = Muséum national d'Histoire naturelle, and UF Florida Museum of Natural History, Gainesville.