



Two new species of the deep-sea squat lobster genus *Munida* Leach, 1820 (Crustacea: Decapoda: Munididae) from Taiwan: morphological and molecular evidence

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Abstract

The genus *Munida* Leach, 1820 is the most diverse group within the squat lobsters, with approximately 250 described species. The extreme morphological similarity among certain species makes very difficult to identify diagnostic characters, and the real diversity of the group is probably underestimated. Here, two new species of the genus *Munida* from Taiwan previously identified as *M. distiza* Macpherson, 1994 and *M. militaris* Henderson, 1885, respectively, are described and illustrated. The two species are identified by subtle and constant morphological differences, which match clear molecular divergences in the 16S and COI genes. These results confirm the taxonomic value of slight morphological differences, and emphasize the need for more detailed analysis to clarify the phylogenetic relationships within the genus.

Key words: taxonomy, phylogeny, Munididae, morphology, mitochondrial genes

Introduction

Squat lobsters have been the focus of intense taxonomic and systematic research during the last decade, with the description of many new species and genera, and the reorganization of its high level classification (Baba 2005; Baba *et al.* 2008; Ahyong *et al.* 2010). This progress has been made possible thanks to the renaissance of large scale deep-sea expeditions in the Indo-West Pacific, primarily led by French programmes (i.e., Richer de Forges & Justine 2006; Bouchet *et al.* 2008). These efforts have been particularly fruitful in Taiwanese waters. The eastern and southern coasts of Taiwan are characterized by a narrow and steep continental slope, and surrounded by deep-water basins (Yu & Hong 1992). Since the mid 1980s, squat lobster specimens collected by deep-sea commercial trawlers have been actively deposited in the National Taiwan Ocean University (NTOU). This collection was greatly expanded with material collected during the recent intensive “TAIWAN” deep-sea expeditions since 2000. The rich collection in the NTOU enabled the publication of a monograph of the squat lobster fauna of Taiwan (Baba *et al.* 2009). In total, 19 genera and 116 species belonging to the superfamilies Galatheoidea and Chirostyloidea have been cited in the region, with the highest species richness concentrated in the genera *Munida* Leach, 1820 and *Munidopsis* Whiteaves, 1874. Nevertheless, the real diversity of squat lobsters is probably underestimated and two new species of *Munidopsis* have been recently described from Taiwanese material (Lin & Chan 2011). On the other hand, the first morphological study of Taiwanese material, originally identified as *M. distiza* Macpherson, 1994 and *M. militaris* Henderson, 1885, revealed subtle morphological differences compared with the type material, and further analysis was recommended in order to determine whether these differences reflected intraspecific variability or the presence of undescribed species (Baba *et al.* 2009).