



Five Sarsiellidae ostracods (Crustacea: Myodocopida) from the South Coast of Korea (East China Sea)

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Abstract

The East China Sea is part of the Warm Temperate Northwest Pacific zoogeographic province and, as such, has a high biodiversity and many tropical and subtropical biotic elements. Nevertheless, many invertebrate groups from this area remain poorly studied. Ostracods are one of them, especially those belonging to the subclass Myodocopa. In this paper we provide the first data on a diverse myodocopid family, Sarsiellidae, not only for the East China Sea, but also for Korea. Five species are reported in this paper from three Korean islands (Jeju, Chuja, and Maemul), and they are only a part of the ostracods collected during this study, indicating a high diversity of the group in this region. Three new species, *Eury pylus koreanus* sp. nov., *Eusarsiella hanguk* sp. nov., and *Sarsiella nereis* sp. nov., clearly stand apart from their respective congeners, mostly by prominent shell characters but also by details of the soft part morphology. Their affinity though clearly indicates a close connection of the region with the more southern zoogeographical realms, especially Central Indo Pacific and partly Temperate Australasia. Two species previously known from Japan (north part of the Sea of Japan and southeastern part of the Pacific Coast of Japan), *Sarsiella japonica* Hiruta, 1977 and *S. misakiensis* Kajiyama, 1912, are redescribed. Based on 11 newly obtained *COI* sequences we construct a preliminary phylogenetic tree, which supports previous hypotheses based on the morphological data, that *Eusarsiella* Cohen & Kornicker, 1975 is a polyphyletic taxon. With the maps of species distribution provided for each of the three genera, we give an overview of their current zoogeography, and clearly indicate areas that have no data, mostly due to the lack of investigation.

Key words: biodiversity, *COI*, Ostracoda, phylogeny, taxonomy, zoogeography

Introduction

The Korean Peninsula is surrounded by three marine ecosystems: the Japan/East Sea, the East China Sea, and the Yellow Sea. The name “East Sea” is often used instead of or in conjunction with the name “Sea of Japan”, but the International Hydrographic Organization recognizes only the latter, which is also used further in this paper. The North Korea Cold Current flows south along the Korean east coast, while the southern portion of the Sea of Japan is influenced by the warm, saline Tsushima Warm Current (a branch of the Kuroshio Current) flowing northeastward through the Korea (Tsushima) Strait from the East China Sea. The confluence of the two currents forms the Polar Front, which separates colder water to the north from warmer more saline water to the south, generally located south of 40° N (Hong & Cho 1983). The marine fauna and flora of the East China Sea consists mainly of warm-water elements, characterized by high biodiversity. Tropical and subtropical biotic elements transported by the Kuroshio and other warm currents from the south include many species common to the South China Sea, and some are endemic to the China seas (Bohai–South China Sea) having large populations with high economic value in local fisheries (see Liu 2013).

The currently known ostracod fauna of the East China Sea mostly consists of representatives of the subclass Podocopa. The two most important systematic studies of ostracods from this region were published by Ishizaki (1981) and Wang & Zhao (1985). The former author sampled 25 localities and reported 62 podocopid ostracods,

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