Two new species of Cardiodectes Wilson, 1917 (Copepoda: Siphonostomatoida: Pennellidae) from gobiid fishes (Actinopterygii: Perciformes) in the western Pacific Ocean

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Abstract

Two new species of the genus Cardiodectes Wilson, 1917 (Siphonostomatoida: Pennellidae) are described based on females from gobiid fishes (Actinopterygii: Perciformes) in coastal waters of the Pacific Ocean. Both new species belong to the ‘rubosus’ group sharing a trunk without an abdomen. Cardiodectes bellwoodi n. sp. parasitizes Istigobius nigrocellatus (Günther) in Australian waters and differs from members of the ‘rubosus’ group by having a trunk length less than twice its width, and a pair of large anterior lobes with branched processes. Cardiodectes shini n. sp. is similar to C. asper Uyeno & Nagasawa but is distinguishable by the presence of a well-developed, bilobed process between the bases of the maxillae, and by the cephalothorax bearing only two pairs of lobes.

Key words: parasitic copepods, pennellid, mesoparasite, goby, Ryukyu Islands, Cardiodectes bellwoodi n. sp., Cardiodectes shini n. sp.

Introduction

The pennellid genus Cardiodectes Wilson, 1917 is known to be a mesoparasite on marine fishes (e.g. Bellwood 1981; Perkins 1983; Uyeno & Nagasawa 2010). Two species, C. bellottii (Richiardi) and C. medusaeus (Wilson), were originally described as members of the genus Peroderma Heller and Lernaeenicus Le Sueur, respectively. Wilson (1917) established the genus Cardiodectes based on the former, and 12 species (C. anchorellae Brian & Gray; C. asper Uyeno & Nagasawa, 2010; C. bertrandi Uyeno & Nagasawa; C. boxshalli Bellwood; C. cristatus Shiino; C. frondosus Schuurmans Stekhoven; C. hardenbergi Markevich; C. krishnai Sebastian; C. longicervicus Shiino; C. rotundicaudatus Izawa; C. rubosus Leigh-Sharpe; C. spiralis Bellwood) have been subsequently described (Brian & Gray 1928; Markevich 1936; Schuurmans Stekhoven 1937; Shiino 1958; Sebastian 1968; Izawa, 1970; Bellwood 1981; Uyeno & Nagasawa 2010). Boxshall (2000), however, subsequently implied that C. bellottii is a senior synonym of C. medusaeus. The life cycle of the genus has been described for C. medusaeus that utilizes pelagic gastropods as intermediate hosts and lanternfishes as definitive hosts, respectively (Perkins 1983). Recently, increased attention has been paid to pennellid copepods, including many Cardiodectes species, because of the expansion of macro-photography by SCUBA divers. This increased awareness has resulted in the discovery of numerous undescribed species. In this study, two new species are described based on females collected from gobiid fishes (Actinopterygii: Perciformes) in the coastal waters of the Pacific Ocean, off North Australia and Japan.

Material and methods

All of the gobiid fishes examined in this study were collected while SCUBA diving. Parasitic copepods (Fig. 1)