Two new species of Clavella (Copepoda, Siphonostomatoidea, Lernaepodidae) and a new species of Lophoura (Copepoda, Siphonostomatoidea, Sphyriidae): parasites on the deep-water fish, Nezumia pulchella from the northern Chilean coast

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Abstract

Three new species of parasitic copepods were isolated from the macrourid fish, Nezumia pulchella (Pequeño, 1971), caught along the northern Chilean coast, and are described and illustrated herein. Clavella singularis n. sp. is characterized by the shape and armature of the second antenna, and, by a combination of characteristics, can be distinguished from all other congeneric species bearing a genital process. Clavella fortis n. sp. is characterized by a strong cephalosome and by a combination of characteristics that also differentiates it from its congeners with a genital process. The new species, Lophoura unilobulata is characterized by the presence of a simple holdfast, with one lobe on each side of the neck. With this report, the number of reported Clavella species parasitizing fish from the Chilean coast increases to nine. In addition, the L. unilobulata reported herein represents the third record of a Lophoura species parasitizing a species of the genus Nezumia and represents the first record of the genus in the southeastern Pacific ocean; it is also the third record of a species of the family Sphyriidae occurring along the Chilean coast.

Resumen

Tres nuevas especies de copépodos parásitos sobre un macrourido, Nezumia pulchella desde la costa norte de Chile son descritas e ilustradas. Clavella singularis n. sp. se caracteriza por la forma y armadura de la segunda antena y puede ser distinguida de todas sus congéneres, con proceso genital, por una combinación de caracteres. Clavella fortis n. sp. se caracteriza por su fuerte cephalosome, es también diferenciada de sus congéneres con proceso genital, por una combinación de características. La nueva especie Lophoura unilobulata se caracteriza por la presencia de una estructura de anclaje simple, con sólo un lóbulo sobre cada lado de su cuello. Con este reporte el número de especies de

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Clavella en la costa de Chile se incrementa a nueve. *L. unilobulata* es el tercer registro de una especie de *Lophoura* parasitando a especies de *Nezumia*. Adicionalmente, este descubrimiento representa el primer registro del género en el Pacífico Sur Este, y es la tercera especie de Sphyriidae habitando la costa de Chile.

**INTRODUCTION**

The members of the genus *Clavella* (Oken, 1815) are ectoparasites on teleost fishes ranging from those living in the neritic zone (the primary hosts) to the deep-sea species of the family Macrouridae (Pisces, Teleostei). *Clavella* species can live on the fin base, fin rays, opercular inner surface, gills, or branchial arches. This genus contains a total of 34 species, of which only nine have been reported from deep-sea fishes. *Clavella* spp. parasitizing deep-sea fishes are known from the studies of Nunes-Ruivo (1962), Kabata (1963, 1979, 1992), Kazatchenko & Avdeev (1977), Ho (1993), and Castro (1994). *Clavella convergentis* isolated from *Nezumia convergens* (Garman, 1899) residing in northern Chile was reported and described by Castro (1994). Thus, the present study represents the third report of a species of *Clavella* parasitizing *Nezumia* spp.

The family Sphyriidae includes nine genera: *Driocephalus* Raibaut, 1999 (also known as *Thamnocephalus* Diebakate, Raibaut & Kabata, 1997), *Opinia* C. B. Wilson, 1908, *Paenocanthus* Kabata, 1965, *Tripaphyllus* Richaridi, 1878, *Paeon* C. B. Wilson, 1919, *Norkus* Dojiri & Deets, 1988, *Periplexis* C. B. Wilson, 1919, *Sphyron* Cuvier, 1830, and *Lophoura* Kölliker, 1853 (see also Diebakate et al., 1997; Benz et al., 2006). Species of *Lophoura* are mesoparasites (a parasitic copepod that lives partly embedded in its host) on deep-sea fishes. These species live on the flank musculature of the fish, with the cephalosome buried in the host body penetrating to near the internal organs or, in some cases, close to the vertebral column. This genus belongs to the *Sphyron* clade in the cladogram of sphyriids (Dojiri & Deets, 1988). Sphyriids comprise 18 nominal species including the oldest *Lophoura* species, those described by Ho (1989), and one most recently described by Boxshall (2000). All of them are parasites on deep-sea fishes belonging to the orders Gadiformes (Macrouridae: *Coryphaenoides*, *Coelorhynchus*, *Nezumia*, and *Ventrifossa*) and Anguilliformes (Synaptobranchids: *Synaptobranchus*, *Histobranchus*). Species of *Lophoura* exhibit a relatively high degree of host specificity, each species having been reported parasitizing only one or two host species (Boxshall, 1988).

The body of *Lophoura* species comprises a cephalosome with small distal lobes (head region), a long and cylindrical neck, and a trunk region of variable shape. The joint between the cephalosome and neck is indicated by the presence of a holdfast of variable shape. In some species the holdfast is a simple lobe,