



Parasitic copepods reported from Mexico

F. NEPTALÍ MORALES-SERNA¹, SAMUEL GÓMEZ² & GERARDO PÉREZ-PONCE DE LEÓN¹

¹Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México, Ap. Postal 70-153, C.P. 04510, México D.F., México. E-mail: neptali@ola.icmyl.unam.mx; neptalims@hotmail.com

²Instituto de Ciencias del Mar y Limnología, Unidad Académica Mazatlán, Universidad Nacional Autónoma de México, Joel Montes Camarena s/n, Mazatlán 82040, Sinaloa, México

Abstract

One hundred and forty identified and 26 unidentified species of copepods reported from 120 fish species, two turtle species, one manatee species, four crab species, four mollusk species, two polychaete species, four ascidian species, and 21 from plankton samples from Mexico are listed. The list contains information about the site of infection, host habitat, localities and references. In addition, a host-parasite list is also provided. Most reports (97%) are from marine or brackish habitats infecting fish hosts (71% of all reports). This information shows that knowledge about the biodiversity of parasitic copepods in Mexico is in its infancy.

Key words: crustaceans, symbiosis, parasites, invertebrate and vertebrate hosts, tropical systems

Introduction

Copepods are small aquatic crustaceans that exhibit free-living or parasitic lifestyles and inhabit all salinity and temperature regimes, from the deep sea to the high lands (Huys & Boxshall 1991). The subclass Copepoda comprises 15,603 valid species distributed in over 2,600 genera, 250 families and 10 orders (Walter & Boxshall 2008). Of these, members of the orders Monstrilloida and Siphonostomatoida are all parasitic, while most representatives of the Poecilostomatoida are parasitic. The orders Cyclopoida, Calanoida and Harpacticoida contain some parasitic forms, whereas the orders Platycopioida, Misophrioida, Mormonilloida and Gelyelloida (with only a few species) are exclusively free-living (Huys & Boxshall 1991; Ho 2001; Boxshall 2005). To our knowledge there is not an updated figure of the species of parasitic copepods described worldwide, but 12 years ago it was estimated in 4,224 species representing more than one third of known copepods at that time (Ho 2001).

Copepods illustrate the fact that parasitism evolved several times during the evolutionary history of life on earth, and at least 10 transitions were estimated from free-living to parasitism along their evolutionary history. This was recognized upon a detailed phylogenetic reconstruction of the group (Poulin 1995; Poulin and Morand 2004). Certainly, new insights from morphological and molecular data are contributing to a better understanding of the relationships of the Copepoda. For instance, a recent analysis placed the monstrilloid taxa in the Siphonostomatoida, as the sistergroup to the caligiform families, suggesting a divergence of the monstrilloids from an ectoparasitic, vertebrate-associated ancestor (Huys *et al.* 2007). According to Luque & Poulin (2007) copepods are the second and third largest parasitic group on marine and freshwater fishes, respectively, in the Neotropics. Thus, parasites are an important component of global biodiversity and copepods in particular are highly abundant and prevalent mainly as fish parasites. However, in many cases, information about the reported biodiversity in particular geographical locations is scattered among all kinds of bibliographic sources and difficult to access. Therefore, attempts to generate inventories and compile information are highly valuable (e.g. Ramdane & Trilles 2007; Luque & Tavares 2007).

The host range of parasitic copepods includes most of the aquatic groups in Animalia (Huys & Boxshall 1991). Therefore, study efforts on parasitic copepods should be increased and even more so because of their high diversity, presence in all major orders of Copepoda and unusual biological phenomena (Ho 2001).