THE DEVELOPMENTAL STAGES (COPEPODIDS I TO VI) OF ACARTIA TONSA DANA, 1849 (COPEPODA, CALANOIDA)*

BY

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INTRODUCTION


According to Steuer’s classification (Steuer, 1923, referred to by Ramirez, 1970) A. tonsa belongs to the subgenus Acanthacartia, Rostratae group. During this work the adults of both sexes were found to agree with var. cryophila described by Björnberg (1963) for South Brazilian waters.

Acartia tonsa is a dominating summer form in the zooplankton of estuaries and warm coastal areas (Uye & Fleminger, 1976). The present work constitutes part of a general study, comprising its annual cycle, population structure and trophic relations (Sabatini, 1988) at the inner area of Blanca Bay (38°30’-39°25’S and 61°15’-63°00’W, Argentina), where this copepod is the most important holoplanktonic component (Hoffmeyer, 1983).

In spite of its worldwide distribution and ecological importance, a detailed morphological description of the developmental stages is not available in literature. A comparative study of A. clausi and A. tonsa was performed by Conover (1956), though only referring to general characters for practical recognition, including complete drawings of all the naupliar stages but dorsal and lateral views of copepodids with only few details. Detailed descriptions of

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nauplii and copepodid stages of other species of the genus have been published (see Grandori, 1912; Vilela, 1972; Trijilo-Ortiz, 1986 on A. clausi Giesbrecht, 1889, A. grani Sars, 1904 and A. californiensis Trinast, 1976, respectively).

In the present paper the copepodid stages of Acartia tonsa are described. Adults (Ramirez, 1966) and mouth-parts of developmental stages of both sexes (Hoffmeyer, 1986) have been described before after specimens from Argentine waters.

MATERIAL AND METHODS

Sampling was performed between August 1982 and September 1983 at Puerto Cuatreros—innermost area of the Blanca Bay—and the collections were kept in 5% formalin.

A camera lucida was used for the drawings of the swimming legs and abdomina.

The total length of each copepodid stage was measured on the dorsal side, from the anterior edge of the cephalosome to the end of the furca.

The symbols used to describe the setation of the swimming legs (taken from Bjornberg, 1972) are: numbers alone = number of setae, s = spine, + indicates separate groups of setae; : separates setae belonging to different segments, term = terminal, () = variation in number.

RESULTS

Copepodid stage I (figs. 1-3)

Body, 480-500 μm. Cephalosome occupying more than half the length of the prosome (cephalosome plus metasome or thorax). Rostrum rounded, rostral filaments lacking. Metasome three-segmented and urosome two-segmented. Two pairs of swimming legs present: both endopods and exopods have only one joint. Setation as follow: leg I, endopod (6), exopod (4 + 1s + 1 serrate term + 3); leg II, endopod (6), exopod (2s + 1 serrate term + 4). Caudal rami bear five setae, the outer one very small.

Copepodid stage II (figs. 4-7)

Body, 600-650 μm. In this and subsequent stages the cephalosome occupies almost half the length of the prosome. Rostral filaments present. Metasome four-segmented and urosome two-segmented. There are three pairs of swimming legs: both rami of the first pair two-jointed; in the second pair, the endopod and the exopod have two and one joint respectively; in the third pair, both rami have a single joint. Setation as follows: leg I, endopod (1:6), exopod (1: 4 + 4 + 1s + 1 serrate term + 4); leg II, endopod (2 + 4 + 1), exopod (1s: 1s + 1 serrate term + 4); leg III, endopod (2 + 4 + 1); exopod (2s + 1 serrate term + 4). In this and in subsequent stages, caudal rami bear six setae each.