

Short Research Note

Ecological and biological notes on the brine shrimp *Artemia* (Crustacea: Branchiopoda: Anostraca) from Carmen Island, Baja California Sur, México

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Abstract

This study was carried out with a natural population of the brine shrimp *Artemia* from Bahía Salinas, in Carmen Island, Baja California Sur, México, with the purpose to determine different ecological and biological characteristics of this crustacean. The field work was performed in two periods in 1999: March to June and August to September. In both periods, the variation of temperature, pH, salinity and depth of 13 saline ponds was monitored. Brine shrimp were present in ponds with salinity between 115 and 195 g l⁻¹. Minimum and maximum values of water temperature were 15 and 35 °C. The pH ranged from 7 to 8. The average diameter of hydrated cysts and size of newly hatched nauplii was 201.3 µm (±12.8) and 473.5 µm (±73.9), respectively. The morphometric analysis of adults showed significant differences between sexes. The population density fluctuated from 6 to 55 specimens per liter. The monthly male:female ratio was dominated by the females. Females displayed different offspring output, with ovoviviparity being dominant over oviparity. The individual fecundity oscillated between 10 and 87 cysts. The effect of water temperature and salinity on biological parameters of the adults is discussed.

Introduction

In the New World, the genus *Artemia* is represented by the zygogenetic species, *A. persimilis* Piccinelli & Prosdocimi, 1968 (Argentina) and the *A. franciscana* Kellog, 1906 superspecies (Americas, Caribbean and Pacific Islands) (Browne & Bowen, 1991). In México, the genus *Artemia* is known to occur in at least 29 inland and coastal waters from 11 states (Van Stappen, 1996; Maeda-Martínez et al., 2002). However, according to the available literature on crossbreeding experiments, genetic data, and man-made introductions, only six Mexican populations can be determined as *Artemia franciscana* (Maeda-Martínez et al., 2002).

Field studies of the Mexican *Artemia* populations are very scarce (e.g. Castro, 1989; Del Castillo-Arias & Farfan, 1997). With respect to *Artemia* from Carmen Island, Baja California Sur, only studies on biometry of cysts and nauplii exist (Castro et al., 1987). Considering the lack of ecological and biological information relative to this brine shrimp strain, a field study was performed. The main objectives were (1) to study the physical and chemical characteristics of the habitat, such as depth, temperature, salinity, and pH, (2) to carry out a morphometric analysis on the diameter of cysts, size of instar-I nauplii, and standard morphological features of adults, and (3) to determine adult density, sexual ratio, fecundity and type of offspring output.