

## CONTRIBUTIONS TO THE BIOLOGY OF MOLTING AND GROWTH OF THE LONGARM RIVER PRAWN *MACROBRACHIUM TENELLUM* (DECAPODA: PALEAMONIDAE) IN MEXICO

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**Abstract** - Studies on the molting cycle of *Macrobrachium tenellum* are not available, which limits the scope of studies of growth and reproduction. The duration of the molt cycle was determined under controlled experimental conditions. The prawns were divided into four groups according to weight: Group 1 (1.0–1.9 g), Group 2 (2.0–2.9 g), Group 3 (3.0–3.9 g), and Group 4 (4.0–9.0 g). The increase in total weight was higher in groups 2 (23.4%) and 3 (20.3%) than in group 1 (~18%) and 4 (~18%). The increase in size after molting among all groups was statistically different: in group 1 it increased 6.1% (highest) and in group 2 it increased 2.2% (lowest). The duration of a complete cycle was 8.9, 9.4, 10.4, and 15.1 days for groups 1, 2, 3, and 4, respectively. The lengths of the molting cycles were not significantly different between groups 1 and 2, but group 4 was different from group 1.

**Key words:** Prawn, ecdysis, development, exoskeleton, growth, molting cycle, *Macrobrachium tenellum*, Mexico

### INTRODUCTION

The life of crustaceans, including feeding, reproduction, mobilization of reserves, etc., is organized around and based on the molt cycle (Vega-Villasante et al., 2007; Vega-Villasante et al., 2000). According to Drach (1939, 1944), molting is not a physiological process of limited effects, but profoundly affects the life of decapods. This phenomenon is cyclical, alternating phases of relative external rest with others of intense activity (Petriella and Boschi, 1997; Ismael and New, 2000). Observed morphologic changes in the soft parts of the crustaceans allow characterization of the states of molting in diverse species. The study of the molt cy-

cle has focused mainly on biological aspects and the particular characteristics of each species during molting. However, it has also been widely studied from the standpoint of endocrinal basic and applied studies of digestive physiology and the assessment of toxicity of certain compounds (Vega-Villasante et al., 2000; Gaxiola et al., 2005). It has also been used to establish the stages of the cycle in bioassays as a physiological parameter of equality between individuals (Rosas et al., 1998). In *Palaemon serratus*, Drach (1939) defines four main stages, which are also found in other crustaceans: molt or ecdysis (E), postmolt (AB), intermolt (C1–C4), and premolt (D0–D4). With the profound metabolic changes associated with each stage, Petriella