

Morphological Deformities in Mud Crab *Scylla serrata* Juveniles Exposed to Antibiotics during the Larval Stage

**Gaudioso S. Pates Jr.*^{1,2}, Emilia Quinitio¹, Gerald F. Quinitio²
and Fe D. Parado-Esteba¹**

¹*Aquaculture Department
Southeast Asian Fisheries Development Center
Tigbauan 5021, Iloilo
gphats24@yahoo.com

²*Institute of Marine Fisheries and Oceanology,
College of Fisheries and Ocean Sciences
University of the Philippines Visayas, Miag-ao, Iloilo*

Abstract

The effects of antibiotics on the survival, growth and external deformities of mud crab *Scylla serrata* larvae and juveniles were determined. Zoeae were exposed to 0, 3, 6, 9, 12 mgL⁻¹ oxytetracycline (OTC) and 0, 0.5, 1, 1.5, 2 mgL⁻¹ furazolidone (furan) until the late megalopa in the first and second experiments. The treatments that gave the best results in the first and second experiments were conducted simultaneously in the third experiment. The surviving crab instar from each replicate were grown in nursery tanks for one month.

Significantly higher survival and faster growth rate of Z5 were attained when 3 and 6 mgL⁻¹ OTC or 0.5 and 1 mgL⁻¹ furan were used. Morphological deformities observed in zoea 5 were bent dorsal, rostral and furcal spines. Percentage occurrence of morphological deformities was similar in all treatments. Significantly ($P < 0.05$) higher survival and faster growth were attained among Z5 in the treatments using 3 mgL⁻¹ OTC and 0.5 mL⁻¹ furan in the third experiment. Morphological deformities observed in juveniles were fused frontal and lateral spines, asymmetrical and depressed tip of abdominal flap and gap between sternites. High percentage of deformities was observed in juveniles that were previously exposed to 6 mgL⁻¹ OTC or 1.0 mgL⁻¹ furan. There was no significant difference ($P > 0.05$) observed in the survival of juveniles in both treatments of OTC and furan. However, growth was significantly ($P < 0.05$) faster in lower concentrations of the two antibiotics.

The study shows the apparent negative effects of antibiotics and highlights the need to eliminate or find alternatives, thereby preventing possible harm to the organisms and the environment.