

Effects of different dietary organic acids on the survival, growth, and hepatopancreatic histopathology of the blue swimmer crab *Portunus pelagicus*

ABSTRACT

Organic acids are receiving increasing attention as a potential means to improve the growth as well as nutrient utilization of aquatic animals. A 20-day experiment was conducted to compare the effects of different dietary organic acid salts that included sodium acetate, sodium citrate, sodium butyrate, or sodium propionate at 2%, on the survival, growth, and hepatopancreatic histopathology of blue swimmer crab *Portunus pelagicus* early juveniles. All diets were isonitrogenous and were provided to apparent satiation twice daily. Crabs were kept individually within plastic containers, and there were 45 replicate crabs for each treatment. Results showed that, by the third molt, all the tested dietary organic acids significantly ($P < 0.05$) accelerated the molting (7.16–8.65 days) of the crabs compared with those in the control treatment (10.03 days). The specific growth rate (SGR) for width and length as well as the final dry weights were significantly higher ($P < 0.05$) in all the organic acid treatments, while SGR for weight was significantly higher ($P < 0.05$) in the sodium acetate and sodium propionate treatments, compared with the control. Hepatopancreatic histopathology revealed no structural differences in all treatments or staining intensity for glycogen. To our knowledge, this is the first reported study showing improvements to the survival and growth of crabs fed with inclusions of dietary organic acids.

Keyword: Organic acids; Hepatopancreatic histopathology; *Portunus pelagicus*; Glycogen