

# Low water pH depressed growth and early development of giant freshwater prawn *Macrobrachium rosenbergii* larvae

## ABSTRACT

*Macrobrachium rosenbergii* is one of the shellfish species with high aquaculture value due to its increasing market demand. However, the comparatively low production volume compared to demand coupled with the rapid decline of the natural environment, consequently, drives the potential depletion of the wild population. The decrease in water pH related to anthropogenic pollution is one of the most critical factors affecting the early life performances of *M. rosenbergii*. Therefore, this study was designed to examine the effect of low water pH on feeding, growth and development of *M. rosenbergii* early life stages. Experimental water pH was set as neutral ( $7.7 \pm 0.4$ ); mild-acidic ( $6.4 \pm 0.5$ ) and acidic ( $5.4 \pm 0.2$ ) with triplication at a stocking density of 2 larvae/L for 30 days. As expected, *M. rosenbergii* larvae were highly sensitive to acidic pH with no larvae survived beyond 48 h of exposure. Feeding, survival and growth of larvae were adversely affected by mild-acidic pH exposure as compared to neutral pH. Larvae exposed to mild-acidic water pH experienced a prolonged larval period and only metamorphosed to the post-larval stage at day-30. Whilst under neutral water pH, larval that metamorphosed to post-larval was first observed on day-23. The negative impact of decreased pH, even in mild-acidic pH exposure, on the feeding, survival, growth and development of *M. rosenbergii* larvae highlights the urgency of periodic pH monitoring during *M. rosenbergii* larviculture.