

## **Effects of a total dietary fish oil replacement with vegetable oils to the survival, growth and development of the blue swimming crab *portunus pelagicus* early juveniles**

### **ABSTRACT**

The feasibility of different vegetable based lipids as a complete replacement to dietary fish oil (FO) to blue swimmer crab *Portunus pelagicus* juveniles was assessed. A total of five iso-nitrogenous and iso-lipidic diets were formulated to contain FO, soybean oil (SBO), linseed oil (LSO), canola oil (CO), or palm oil (PO) as the main lipid source. The diets were fed to first staged juvenile crabs (total of 45 replicate crabs/treatment) over at least four molts. After 35 days, final sizes and weights were determined, and then measured for wholebody cholesterol. Crabs fed the FO, SBO, LSO, or CO-based diets showed similar specific growth rates (SGR) ( $p > 0.05$ ) for carapace length and width, which was significantly higher ( $p < 0.05$ ) compared to crabs in the dietary PO treatment. Whole-body cholesterol content was significantly lower for crabs fed the PO-based diets, which may have contributed to their poorer performance, compared to those fed the FO, LSO or CO-based diets. Results indicate SBO, LSO or CO can totally replace FO, which may improve cost-effective and sustainable diets for portunid crabs. Further research into the use of dietary PO blends with other vegetable oils should be conducted.

**Keyword:** Fatty acid; Lipid replacement; Cholesterol; Portunids