

Effects of dietary peppermint (*Mentha piperita*) essential oil on survival, growth, cannibalism and hepatopancreatic histopathology of *Portunus pelagicus* juveniles

ABSTRACT

A two-part experiment was performed to determine whether dietary peppermint oil could improve the growth and/or decrease aggression among blue swimmer crab, *Portunus pelagicus* early juveniles. A total of five isonitrogenous diets were made that contained increasing peppermint oil levels of 0.00, 0.05, 0.10, 0.50 or 1.00%. These diets were fed to 45 replicate crabs in each treatment (total of 225 crabs) for 12 days, the final sizes and weights were measured, and then placed in 3 replicate containers (30 in total/treatment) to allow the opportunity for cannibalism over 10 days. After 10 days, the remaining crabs were examined for any histopathological changes in gills or hepatopancreas. Results showed dietary peppermint oil, at the tested levels, had no effect on the growth or cannibalism, in either experiments ($p > 0.05$). However, there were substantial changes in the hepatopancreatic histopathology that included thinner tubules and significantly less B- and R-cells from 0.10% dietary peppermint oil and above. The unaffected growth or cannibalism indicate that the levels of dietary peppermint oil used were insufficient and further investigations are required, particularly on the implications to the hepatopancreatic changes.

Keyword: Cannibalism; Crabs; Essential oil; Histopathology; *Mentha*; Pulegone