

Fatty acid compositional changes during the embryonic development of the blue swimmer crab, *Portunus pelagicus* (Portunidae: Decapoda)

ABSTRACT

The fatty acid composition, moisture, and total lipid of the eggs from the swimming crab, *Portunus pelagicus*, at three different embryonic stages (within 24 h, during the eye placode stage and the final heart beat stage), were measured. Results showed that the moisture and lipid content significantly increased and decreased ($p < 0.05$), respectively, as the stages progressed. The most prevalent fatty acids that were initially deposited included C16:0, C18:1n-9, and C18:0, while the most consumed fatty acids were C22:5n-6, C22:5n-3, and C20:1n-7. Among the major fatty acid groups, polyunsaturated fatty acids (PUFA) and long-chain PUFA (LC-PUFA) were consumed more than saturated fatty acids and significantly more ($p < 0.05$) than monounsaturated fatty acids ($p < 0.05$). Meanwhile, n-3 PUFA was deposited in significantly higher amounts ($p < 0.05$) than n-6 PUFA, but both were consumed at similar amounts at 43.4% and 41.3%, respectively. The relatively low amount of C20:5n-3 and C22:6n-3 consumption may indicate these fatty acids were conserved, while the essential fatty acids C18:3n-3 and C18:3n-6 were consumed at high amounts. These findings may have implications for broodstock nutrition in order to formulate a well-balanced diet.

Keyword: Fatigue life; Natural fiber reinforced composite; Non-destructive technique