

Effects of Artemia enriched with eicosapentaenoic and docosahexaenoic acid on survival and occurrence of molting failure in megalop larvae of the mud crab *Scylla serrata*

M. Agus SUPRAYUDI ^{1 a}, Toshio TAKEUCHI ^{1*} AND Katsuyuki HAMASAKI ²

¹ Department of Marine Biosciences, Faculty of Marine Science, Tokyo University of Marine Science and Technology, Minato, Tokyo 108-8477 and

² Yaeyama Station, National Center for Stock Enhancement, Fisheries Research Agency, Ishigaki, Okinawa 907-0451, Japan

Correspondence to *Tel: 81-3-546-0545. Fax: 81-3-5463-0545. Email: take@s.kaiyodai.ac.jp

^a Present address: Department of Agriculture, Faculty of Fisheries and Marine Science, Bogor Agricultural University, Bogor, 16680, West Java, Indonesia. Email: kikit01@yahoo.com

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Abstract

The present study was conducted to investigate the effect of eicosapentaenoic acid (20:5n-3, EPA) and docosahexaenoic acid (22:6n-3, DHA) on the survival and the occurrence of molting failure to megalops of mud crab *Scylla serrata* larvae fed enriched Artemia. Survival rate, intermolt period, carapace width at the first crab stage, ratio of chela to carapace length at the fifth zoeal stage and the occurrence of molting failure to megalops were observed. Mud crab larvae were reared in 1-L plastic beakers and fed with Artemia enriched at five different levels of EPA (0.31% to 1.36% EPA; referred to as E25, E50, E75 and E100) or four different levels of DHA (0.75–0.95% EPA and 0.49–1.38% DHA; referred to as D25, D50, D75 and D100). As a negative control, larvae were fed Artemia enriched with oleic acid (OA). Mud crab larvae fed Artemia containing low (0.41–0.45% EPA and trace DHA) or high (1.36% and 0.95% EPA and 0.16% and 1.38% DHA) amounts of EPA and DHA showed a significantly lower survival rate and prolonged intermolt period ($P < 0.05$). Moreover, a high frequency of molting failure to the megalops stage (34 and 33%) occurs coincident with a high chela to carapace length ratio (43 and 44%) in mud crab larvae fed high amounts of EPA and DHA (E100 and D100), suggesting that both of these treatments contain EPA and DHA in excess. These results indicate that during Artemia feeding, EPA and DHA content should be adjusted to 0.71–0.87% and 0.49–0.72% for maintaining a high survival, accelerating the intermolt period, and producing larger carapace width in the first crab stage.

Keywords : Artemia • docosahexaenoic acid (DHA) • eicosapentaenoic acid (EPA) • molting failure • *Scylla serrata* • survival

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