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Enrichment of Adult *Artemia* Biomass and Squid Mantle Muscle, *Dosidicus gigas*, with Different Ascorbic Acid (L-Ascorbyl-2-Monophosphate-Na/Ca) Concentrations

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Abstract

L-ascorbyl-2-monophosphate-Na/Ca (AMP-Na/Ca) was used as a vitamin C source to investigate its ascorbic acid (L-AA) enrichment and retention in boosted *Artemia* biomass (AB) and squid mantle muscle (SM). Different doses of AMP-Na/Ca (500, 1000, and 1500 AMP-Na/Ca mg/kg) were gradually dissolved into the culture tanks at time 0 (T_0) and at each hour until Hour 6 (T_6). Samples of AB and SM were taken for AMP-Na/Ca and L-AA analysis at T_0 , T_1 , T_2 , T_3 , T_4 , T_5 , T_6 , T_{12} , and T_{24} . There were no significant differences ($P > 0.05$) among the AB groups at T_1 . The T_6 enrichment analysis for AB resulted in significant differences ($P < 0.05$) in the AMP-Na/Ca content for the 1500 mg/kg treatment, in which the initial concentration (0.001 ± 0.002 mg/kg) increased by more than 16-fold. For all AB enrichment treatments, the AMP-Na/Ca content demonstrated a decrease (32–11%) for the T_6 , T_{12} and T_{24} analysis. The T_1 analysis for SM at the higher AMP-Na/Ca enrichment concentration registered 30 mg/kg of L-AA and decreased (27.6%) at T_6 . This study demonstrated that AB and SM can be boosted with AMP-Na/Ca.

The importance of vitamin C has been demonstrated for the development and reproductive processes of aquatic animals. It has been

suggested that vitamin C is an essential nutrient for the reproductive physiology of crustacean species (Nguyen et al. 2012). For example, ascorbic acid (L-AA)-supplemented diets improve survival, body weight gain, feed

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