LIPID SUPPLEMENTATION FOR NURSERY OF CLAM SPATS

Meretrix meretrix

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ABSTRACT

The feeding trial to study the effect of lipid supplementation in clam spats (Meretrix meretrix) was conducted at Petchburi Coastal Aquatic Feed Research Center. Clam spats with the initial shell length of 1 millimeter were fed on 9 dietary treatments each with 3 replications as follow, various algal diets (Isochrysis galbana (T-Iso), Chaetoceros calcitrans or Tetraselmis suecica) with and without the supplementation of a lipid emulsion (EM50D) rich in docosahexaenoic acid (DHA, 22:6n-3) at a concentration of 20% and 40% of the algal dry weight. Growth and survival rate of clam spats were compared to the control diet which was a mixture of Isochrysis galbana (T-Iso) and Chaetoceros calcitrans (1:1 on dry weight basis) and starvation. Feeding ration was adjusted daily according to growth rate of clam spats which were reared in down welling system at the stocking density of 0.75 grams per silo containing 5 liters seawater. The nutritional value of micro algal diet and the efficiency of the essential fatty acid (EFA) supply through a lipid emulsion were evaluated by observation of growth of clam spats during 4 weeks rearing period. It appeared that growth rate of algal mixed diet (Iso+Chaeto) and 3 single diets (Iso, Chaeto and Tetra) were not significantly different in statistic (p>0.05). The supplementation of lipid emulsion rich in essential fatty acid (DHA) in C. calcitrans and T. suecica slightly improved growth of clam spats according to degree of lipid concentration (p>0.05). Clam spats fed singly on C. calcitrans obtained daily growth rate of 10.5% per day.
which were increased to 11.3% and 12.6% per day by adding of 20% and 40% lipid emulsion, respectively and those of spats fed on T.suecica without and with 20% and 40% lipid supplementation were 9%, 11.3% and 12% per day, respectively. The 40% lipid supplementation diets largely improved growth of spats compared to the control algal mixed diet (p<0.01). Growth rate of clam spats fed I. galbana (T-Iso) was poorer than both lipid emulsion levels (p<0.01).

All algal diets in the current work, therefore, are valuable as food for clam spats (M. meretrix) and can be fed either as a single or combine species, particularly C. calcitrans and T.suecica which were of equal nutritional value. Lipid emulsion rich in DHA with DHA/EPA ratio not less than 2 is a useful tool to supply essential fatty acid to improve growth of clam spats according to degree of supplementation. The best diet was 40% lipid supplemented to either C. calcitrans or T.suecica which could enhanced growth of clam spat by 1.7 and 1.6 time of algal mixed diet, respectively.

**Key words:** M. meretrix, clam spats, lipid supplementation

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