Effect of Enriched Artemia urmiana on Growth, Survival and Composition of Larval Persian Sturgeon

ABSTRACT

Recently, the nutritional requirements of marine finfish larvae have received considerable attention, and studies have shown that docosahexaenoic acid (DHA) affects on the growth and survival of marine finfish larvae. We investigated the effects of different Artemia diets containing variable amounts of DHA on the growth and survival of larval Acipenser persicus. Four different commercial Artemia enrichment formulations were used: ICES30/4, Sturgeon Ovary Oil (SOO), Cod Liver Oil (CLO) and Linseed Oil (LO). The resultant Artemia contained a different 45 L concentration of DHA (0.00-5.99mg/g DW) and eicosapentaenoic acid EPA (0.69-4.97 mg/g DW). Seventy-five aquaria were used with three replicates per treatment. Larvae were fed with Artemia from 3 to 20 days after active feeding at 250 prey L-1. At the end of the experiment, total length and wet weight of fish larvae showed significant differences among treatments ($P<0.05$), but no dry weight ($P>0.05$). However, larvae reared on LO were of significantly higher dry weight than larvae reared with ICES30/4 and SOO. Survival in fish larvae fed with SOO Artemia enriched (93.3±1.6%) was significantly higher than ICES30/4 and LO ($P<0.05$), but not CLO ($P>0.05$). Protein/ lipid ratio in larvae enriched with CLO showed significant differences with other treatments($P>0.05$). DHA/EPA ratio in the larvae fed with ICES30/4 (1.11±0.00) was the highest among the treatments. This study resulted that the requirement of the Persian sturgeon larvae to dietary DHA and EPA; is high also, our results showed that there is a positive effect of Artemia DHA proportions on growth and survival rates.

Keyword: Acipenser persicus, HUFA, enrichments, Artemia urmiana