Effects of Different Dietary Lipid Sources on Spawning Performance, Egg and Larval Quality, and Egg Fatty Acid Composition in Tongue Sole Cynoglossus semilaevis

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Abstract

A 60-day feeding experiment was conducted to investigate the effects of dietary lipid sources on reproduction of Cynoglossus semilaevis. Experimental diets were formulated with similar proximate compositions but different lipid sources (6.5%): fish oil (FO), soybean oil (SO) and olive oil (OO). The results showed that the relative fecundity in group FO and OO was significantly higher than that in group SO. Group OO showed a significantly higher buoyant egg rate than group FO and SO. The hatching rate and larval survival rate at 7 days post hatching were the highest in group FO, followed by group OO, and group SO recorded the lowest values. Group FO showed significantly higher egg diameter and larval survival activity index (SAI) and significantly lower larval deformity rate compared to group SO and OO. Fatty acid compositions of eggs reflected closely those of the diets. These results showed that the olive oil supplement in diets for tongue sole positively influenced the broodstock fecundity and buoyant egg rate though fish oil resulted in the highest hatching rate and best larval quality among the tested oils. The dietary soybean oil supplement reduced the spawning performance, and egg and larval quality.

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