Fatty Liver Disease in Juvenile *Sciaenops ocellatus* Caused by Dietary Lipid and Protein Levels

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**Abstract**

An experiment was conducted to study fatty liver disease caused by different lipid levels in diets of juvenile *Sciaenops ocellatus*. Juvenile *S. ocellatus* (2.73 g) were divided into treatment groups, stocked in tanks with recirculated filtered water for eight weeks, and fed one of nine diets containing different levels of protein (38%, 42%, 46%) and lipid (5%, 8%, 12%). Growth and survival of fish fed medium (8%) or high (12%) lipid diets were significantly lower than those of fish fed low (5%) lipid diets (*p*<0.05). There was a close positive correlation between ether extract contents in the hepatopancreas and dietary lipid content. A large number of fish fed the medium and high lipid diets died, beginning in the third test week; mortality was highest in the fifth week. Ill juveniles showed the following symptoms: loss of appetite, lack of movement, black skin, weight loss, and eventual death. The main pathological change in ill and dead fish was fatty liver disease. The hepatopancreas was swollen and pale, accompanied by fatty degeneration, fatty necrosis of hepatocytes, and atrophy of the pancreas. Results indicate that diets with 8% and 12% lipid can cause serious nutritional fatty liver disease in juvenile *S. ocellatus*. The degree of fatty liver disease in fish positively correlated with lipid content and the ratio of 3-PUFA in the hepatopancreas. Increased lipids reduced the rate of 3-PUFA in the hepatopancreas, possibly causing the illness or death.

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