

ENRICHMENT OF THE LIVE FEED FOR BETTER GROWTH
OF CATFISH LARVAE (*CLARIAS GARIEPINUS*)

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THIS PROJECT REPORT IS SUBMITTED IN PARTIAL
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FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
UNIVERSITY MALAYSIA TERENGGANU

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ABSTRACTS

One of the approaches to improve the aquaculture production is through the enrichment of the live food for the better growth of fish larvae (early life stage). The nutrition uptake of the fish larvae is very important to determine the quality of the adult fish. Hence, this study was conducted to investigate the effects of enriched *Artemia* nauplii on the better growth of the freshwater fish larvae (African catfish, *Clarias gariepinus*). Besides, measure the water quality in the different culture media and evaluated the survival and growth rate of African catfish larvae. Larvae of *Clarias gariepinus*, were fed with *Artemia* enriched fish oil, palm oil and corn oil formulated feed with one control (just the *Artemia* without enrichment). Feeding protocol was 5 times daily with 15 days intervals. There were three replicates for each treatment, 12 plastics aquarium (20 liter freshwater capacity). The culture site was 2000 of *Artemia* nauplii per one fish larvae. The weight of the fish larvae was measured after feed with the enriched *Artemia* and this method was applied every day before the juvenile stage. The fish oil treatment showed the best growth at the end of experiment (0.48 g and 15.70 mm). The reasons should be due to the quality of fish oil and its unsaturated fatty acid (Gonzalez-Felix *et al.*, 2002). Vegetable oil (corn oil: 0.22 g and 13.12 mm and palm oil: 0.30 g and 14.21 g) showed the lower growth because of the trypsin inhibitor (Venou *et al.*, 2003). There were significant difference of growth rate among the four treatments ($P < 0.05$). Environmental factors and the food quality influenced the growth of the catfish larvae.

ABSTRACT

Salah satu pendekatan untuk meningkatkan produktiviti akuakultur adalah melalui memperkayakan kualiti makanan hidup demi pertumbuhan ikan yang lebih baik. Hal ini kerana nutrient yang diambil oleh larva akan menentukan mutu dan kualiti ikan kelak. Oleh itu, tujuan kajian ini adalah untuk meninjau keperluan memperkayakan kandungan nutrient dalam makanan hidup yang akan diberikan kepada larva ikan untuk pertumbuhan yang lebih baik. Larva ikan air tawar (*Clarias gariepinus*) diberikan empat rawatan yang berlainan iaitu *Artemia* diperkayakan dengan minyak ikan (“menhaden oil”), minyak kelapa sawit, minyak bijian dan kawalan (tanpa diperkayakan) 5 kali sehari selama 15 hari iaitu tempoh larva ikan keli sebelum mencapai peringkat juvenile. Setiap rawatan mempunyai tiga replika termasuk kawalan. Setiap replika atau eksperimen unit mengandungi satu akuarium yang berisipadu 20 liter air tawar dengan 2000 nauplii *Artemia* per larvae ikan. Kadar pertumbuhan dikira selepas 24 jam selepas diberikan makanan hidup dan kaedah yang sama diulang selama 20 hari sebelum larval ikan memasuki peringkat juvenil. Minyak ikan memberikan kadar tumbesaran yang lebih tinggi daripada rawatan yang lain (0.48 g berat dan 15.70 mm panjang). Hal ini kerana, minyak ikan mengandungi lipid yang tidak tepu (Gonzalez-Felix *et al.*, 2002) manakala minyak tumbuhan (minyak jagung: 0.22 g dan 13.12 mm dan minyak kelapa sawit: 0.30 g dan 14.21 mm) memberikan kadar tumbesaran yang lebih rendah disebabkan enzim tripsin (Venour *et al.*, 2003) pada akhir experiment ini. Keempat-empat rawatan menunjukkan perbezaan yang nyata pada kadar tumbesaran ($P < 0.05$). Faktor persekitaran dan quality makanan menentukan kadar tumbesaran larvae ikan.