

## Effects of different dietary lipid levels for hybrid lemon fin barb (*Barbonymus gonionotus* ♀ × *Hypsibarbus wetmorei* ♂) larvae

R. Weerasingha<sup>1,2</sup>, M.S. Kamarudin<sup>2,3\*</sup>, M.M.A. Karim<sup>2,3</sup> and M.F.S. Ismail<sup>2,3</sup>

<sup>1</sup>National Aquatic Resources Research and Development Agency (NARA), Crow Island, Colombo15, Sri Lanka

<sup>2</sup>Department of Aquaculture, Faculty of Agriculture, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

<sup>3</sup>International Institute of Aquaculture and Aquatic Sciences, University Putra Malaysia, Batu 7, Jalan Kemang 6, TelukKemang, Si Rusa, 71050 Port Dickson, Negeri Sembilan, Malaysia

Hybrid lemon fin barb is developed by crossing silver barb (*Barbonymus gonionotus*, ♀) and lemon fin barb (*Hypsibarbus wetmorei*, ♂) to increase local carp aquaculture production in Malaysia. To control the over-exploitation of tasty wild lemon fin barb, the wild fish was crossed with silver barb by the Malaysian Department of Fisheries. In the present study, the effects of increasing dietary lipid levels were investigated for the larval stage of this fast-growing and delicious carp species. Five micro diets were formulated to contain 0, 4, 8, 12, and 16% dietary lipid levels. Three days after hatching, hybrid larvae were randomly allocated in fifteen 9-L tanks at the rate of 10 larvae L<sup>-1</sup>. While the non-lipid diet lowered the survival and growth in hybrid larvae, weight gain, total length gain, specific growth rate and protein efficiency ratio of hybrid larvae fed with the 12% lipid diet increased ( $p < 0.05$ ) after 20 days. The survival of hybrid larvae improved ( $p < 0.05$ ) with 4 and 8% lipid diets. Increasing dietary lipid levels gradually increased the whole-body lipid content of hybrid larvae. The diet with 12% dietary lipid significantly improved ( $p < 0.05$ ) EPA, DHA and n-3 fatty acid contents of hybrid larvae. The non-lipid diet led to shrunken hepatocytes while excessive dietary lipid resulted in lipid droplets in enterocytes and swollen hepatocytes of hybrid larvae. In conclusion, the optimum dietary lipid requirement for hybrid lemon fin barb larvae regarding maximum growth is correlated with 13.5% dietary fish oil.

**Keywords:** dietary lipid, hybrid lemon fin barb, larval growth, local carps

\* Corresponding author – email: msalleh@upm.edu.my