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Growth and Feed Conversion of the Grass Carp (*Ctenopharyngodon idella*) Fed on Fresh Plant Material under Laboratory Conditions in Viet Nam

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Abstract

In many Asian regions, the cyprinid grass carp (GC) play an important role in the livelihood of rural poor, e.g. in Sonla - a mountainous province in Viet Nam. Cyprinids are by far the largest group of cultured fish throughout the world. However, despite the high worldwide share and an enormous importance for the nutrition and income of rural poor, so far only few data have been published on the utilisation of plant leaves and different tropical grasses by GC. In the presented study, growth rates and feed conversion of GC fed on banana leaves (BL; *Musa* sp.), napier grass (NG; *Pennisetum purpureum*) and barnyard grass (BG; *Echinochloa crusgalli*), all being frequently used as fish feed in Viet Nam, are determined under controlled laboratory conditions.

60 fish ($\sim$22 g per fish) were divided into 3 feeding groups (4 fish per aquarium, 5 replicates). Pre-weighed BL, BG and NG were fed to fish *ad-libitum* for 8 weeks. Feed leftovers were removed, dried and subtracted from the feed applied (dry matter, DM). Proximate composition and gross energy (GE) of fish and feed were determined according to AOAC (2000) standards and by using a bomb calorimeter.

All feeds show a low crude protein ($\leq$15.4 % of DM) and crude lipid content ($\leq$5.9 % of DM) and have a high proportion of neutral ($\geq$ 48.8 % of DM) and acid ($\geq$ 28.8 % of DM) detergent fibre. In both grass-fed groups fish mortalities occurred and fish seemed to be weak. GC grew significantly better on BL with a weight gain of 89 % as compared to 36 % and 26 % in the BG and NG group. The specific growth rate in the BL fed group was 1.0$\pm$0.3, the feed conversion ratio 5.5$\pm$1.0. The content of crude lipid and GE was significantly higher in those fish fed on the leaves as compared to the grass-fed feeding groups.

It can be concluded that all feeds applied seem to be poor feeds for small GC when fed alone. However, BL showed a potential to be used as feed ingredient in formulated GC diets.

Keywords: Banana leave, barnyard grass, grass carp, napier grass

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