THE DIGESTIVE FUNCTION OF *Pseudoplatystoma punctifer* EARLY JUVENILES IS DIFFERENTIALLY MODULATED BY THE DIETARY PROTEIN AND LIPID LEVELS AND THEIR RATIOS

Diana Castro Ruiz*, Karl B. Andree, Christian Fernández-Méndez, Carmen García-Dávila, Chantal Cahu, Enric Gisbert, Maria J. Darias

Instituto de Investigaciones de la Amazonía Peruana-IIAP
Laboratorio de Biología y Genética Molecular-LBGM
Ctra. Iquitos-Nauta km 4,5 – Iquitos, Perú
dcastro@iiap.gob.pe

The effect of different dietary protein and lipid levels in the expression of several digestive genes during the early development of *Pseudoplatystoma punctifer*, an Amazonian catfish with high aquaculture potential, was evaluated. Larvae were fed *Artemia* nauplii from 4 to 12 days post fertilization (dpf) and weaned from 13 dpf onto compound diets containing different protein:lipid levels (30:15, 30:10, 45:15 or 45:10). The expression of *trypsinogen-try*, *chymotrypsin-chy*, *amylase-amy*, *lipoprotein lipase-lpl*, *phospholipase-phl* and *pepsinogen-pep* was analyzed at the end of the *Artemia* (12 dpf) and compound diet (26 dpf) feeding periods in order to better understand the digestive function and nutritional needs of this species.

Except for *pep* expression, that was highest in 45:10 group, no differences were found in the expression of the analyzed digestive genes during the *Artemia* feeding period (12 dpf). However, digestive genes were differentially modulated by the different compound diets (26 dpf). *Tryp*, *amy*, *phl* and *pep* expressions were highest in 45:15 group, whereas *lpl* expression was highest in 45:10 group and lowest in 30:15 and 30:10 groups. Groups 30:15, 30:10 and 40:10 showed similar levels of *amy* and *phl* expression. *Try* expression was lowest in 30:10 group followed by 30:15 and 45:10 groups, whereas the lowest *pep* expression was observed in 30:15 and 30:10 groups followed by 45:10 group. No significant differences were found in *chy* expression among the four dietary treatments. *Try* and *lpl* expressions increased during development in all groups with the exception of groups 30:10 and 30:15, respectively. *Phl* expression increased during development in 45:15 and 45:10 groups while it remained stable in the others. *Chy* expression decreased during development in 45:10 group and *amy* expression increased during development in 45:15 group whereas their expression remained invariable in the rest of the groups. *Pep* expression increased during development in all dietary groups. In conclusion, the dietary protein and lipid content and their ratios modulated the digestive function in *P. punctier* early juveniles. Thus, the better growth and survival and the lower incidence of cannibalism observed in 45:15 group might be explained by the better digestive performance showed by these individuals.

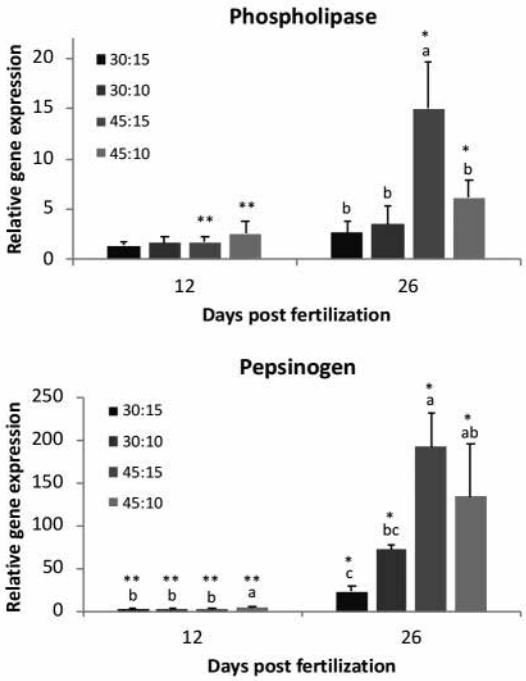

Fig. 1 Relative phospholipase and pepsinogen gene expression at 12 and 26 dpf in *Pseudoplatystoma punctifer* early juveniles fed four different dietary treatments. Results are expressed as mean ± standard deviation (n=3). Letters denote significant differences between dietary groups and asterisks indicate significant differences among age within a dietary group (One-way ANOVA, $P < 0.05$).

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