

## HISTOLOGICAL EVALUATION OF TAMBAQUI LIVER *Colossoma macropomum* (Cuvier, 1816) AFTER FEEDING WITH ALTERNATIVE DIETS

Rocha, R.M; Ferreira, M.A.P; Fonseca-Sizo, F.J.P, Paixão, L.F; Oba, E.T.; Meyer, G; Martins, H. Jr. and Corrêa, R.O.

Instituto de Ciências Biológicas  
Universidade Federal do Pará  
Belém-PA  
rmrocha@ufpa.br

The Amazon fish species tambaqui, *Colossoma macropomum* (Cuvier 1816), performs well in a culture system, however, the feeding management in fish farming represents about 70% of overall production costs. A strategy to reduce these costs is the use of alternative ingredients. Therefore, this study evaluates the metabolic activity of juvenile tambaqui livers fed five isoproteic and isoenergetic experimental diets, formulated to contain 20% of the following non-conventional ingredients: oil palm, tucumã (*Astrocaryum aculeatum*), sunflower and coconut. The study was conducted from December 2009 to March 2010 for 59 days, using 360 juvenile tambaquis ( $16.93 \text{ g} \pm 1.05 \text{ g}$ ), distributed in 250L tanks in a system of recirculation, filtration and continuous water aeration. The experiment was conducted with five treatments (T1-control diet, T2, 3, 4 and 5 - diets based on palm oil, tucumã, coconut and sunflower, respectively) and three replicates, representing a total of fifteen experimental units. For the histological analysis, 45 animals, 9 control animals and 36 alternative diet animals were used. At the end of the experiment, three animals were randomly taken from each treatment. The animals were anesthetized and underwent an abdominal incision to remove the liver, which was weighed to obtain the HSI (hepatosomatic index). Next, liver fragments were cut and immediately fixed in Bouin solution for 24 hours. After fixation, the material was dehydrated in increasing concentrations of ethanol, cleared in xylene and embedded in paraffin. 5 $\mu\text{m}$  thick sections were obtained, stained with Hematoxylin and Eosin solution. The IHS in the animals fed the control diet was of 2.22, fed coconut - 2.39, tucumã - 2.36, sunflower - 2.09, and showing the lowest rate was palm oil - 2.01. The histological analysis of tambaqui liver showed that 89% of the animals in the control diet remained healthy, with no histopathological changes, as they demonstrated integrity of the hepatic parenchyma and of the blood system. While 11% showed changes such as blood vessel congestion (veins and capillaries) and the presence of melanomacrophage centers, an indication of intense activity of the immune system, suggesting they were sick. Compared with the palm oil diet, 67% showed no pathological change and 33% showed blood vessel congestion. 100% of the animals that were fed tucumã, coconut and sunflower showed blood vessel congestion (capillaries and veins) and 44% of the animals fed tucumã also showed cell degeneration. Therefore, it is concluded that of the four alternative diets the animals were fed, the one exhibiting a satisfactory outcome or less harmful to the liver was the palm oil diet.