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Hematological changes in pacu (*Piaractus mesopotamicus*) in response to different levels of fish silage as fish feed

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The use of fish silage in fish feed is an important alternative to utilize fish waste with potential source of minerals, fatty acids and high quality protein in aquaculture diets. This study investigated the effect of levels of fish silage in experimental diets on the erythrogram, leukogram and hematimetrics index of the pacu, during 60 days. 120 juveniles of pacu (*Piaractus mesopotamicus*) were randomly distributed in 15 experimental glass aquaria, in a closed recirculation system, with constant temperature and aeration. Fish were divided into 5 experimental groups: 0% control (G0), 25% (G25), 50% (G50), 75% (G75) and 100% (G100) of fish silage, 3 aquaria per treatment, and fed twice daily to apparent satiation. The water quality parameters in the aquarium were daily measured. At the end of the experimental period, after 24 hours fasting, fish were anesthetized with benzocaine and blood was collected from caudal puncture with heparinized syringe, for hematological analysis. Data were undergoing analysis of variance (ANOVA), with application of Tukey's test ($P<0.05$) trough SAS software. No mortality was recorded in different experimental groups. No statistical differences were observed between the experimental groups. However, it was possible to observe that G100 presented the lowest means of Red Blood Cells (RBC), hematocrit (Ht) and hemoglobin (Hb) in relation to the other groups, showing a possible influence of higher level of silage inclusion in erythrogram. The group control G0 presented the highest means of Ht, Hb and Mean Corpuscular Hemoglobin Concentration (MCHC) in relation to the group G100. The group G50 presented the higher value of Mean Corpuscular Volume (MCV) when compared to the other treatments, while the group G25 presented the same means of Ht and MCHC found in the groups G0 and G75, respectively. In the present study all the experimental groups presented White Blood Cell (WBC) in a similar range. In relation to the variety of leukocytes the groups G0 and G50, presented neutrophils, lymphocytes, monocytes and Special Granulocitic Cell (SGC). Curiously, G25 was the unique group that did not present monocyte but at the same time presented the lowest level of basophils and SGC. The present study demonstrates that fish silage can be used as an alternative protein source for pacu with no significant influence in hematological parameters.

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