

Replacement of Dietary Soybean Meal by Dried Grains with Solubles on Liver Histology of Rainbow Trout, *Oncorhynchus mykiss*

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Abstract : The aim of the present study was to investigate the effects of replacing dietary soybean meal by dried grains with solubles (DDGS) on liver histology of rainbow trout, *Oncorhynchus mykiss*. Five isoproteic (~45% crude protein) and isocaloric (~3570 kcal/kg digestible energy) diets were formulated: Control-1 (Fish meal control), Control-2, DDGS33, DDGS66 and DDGS100 which included 0%, 0%, 10%, 20% and 30% DDGS, respectively. Triplicate groups of fish with an average weight of 20.46 g were fed three times a day until apparent satiation during 84 days. The obtained results showed that diameters of hepatocyte nuclei were not statistically different among the groups. The histological examination of liver sections from the fish fed the Control-1 diet showed normal histology, mild cytoplasm vacuoles and appears to be central to hepatocyte nuclei. Fish fed diets containing soybean meal and DDGS presented variable levels of cytoplasmic vacuolization and some with eccentric hepatocyte nuclei. But, fish fed diet soybean meal based control (Control-2) showed the highest hepatocyte nuclei displacement, and cytoplasm vacuoles compared the DDGS30 diet. DDGS20 and DDGS30 fish also showed more regular hepatocytes than in Control-2 fish. The results of this study demonstrated that fish fed diets containing increasing DDGS levels exhibited less histomorphological changes compared the Control-2 diet.

Keywords : DDGS, soybean meal, rainbow trout, hepatocyte

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