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Effect of Replacing Fish Meal with Poultry by Product on Growth Rate, Immune System, Blood on Indices and Liver Enzymes in Fingerling Beluga (*Huso huso*)

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Abstract

In this study, feasibility of replacing fish meal with poultry by product was examined. Six test diet were prepared based on anchovy fish meal (contain 45% protein and 20mj/ kg^{-1}) and poultry by product substituted at levels of 0, 20, 40, 60, 80 and 100%, respectively.180 fingerling *Huso huso* were stocked (28.42±0.17gr average initial weight) in 18 fiberglass tanks (six treatments and eighteen replicate) and were fed to satiation. At the end of 8 weeks feeding period, there were not significant differences between the final weight, increase body weight and specific growth rate of fish fed to (control), (PBM20), (PBM40) and (PBM60) ($P>0.05$), but growth performance were depressed significantly for Huso huso fed PBM80 and PBM100 compared with other treatments ($P<0.05$). Replacement of fish meal with poultry by product at level of 60% had not negative effect on total protein (TP), Albumin (AL), Triglyceride (TG) and Cholesterol (CL). Also, it was not found any significant increase or decrease in liver catabolic enzymes (Aspartat amino transferase and Alanin Amino Transferase) for fish fed with PBM100 compared to other treatments ($P>0.05$). Also, lysozyme were similar between PBM0, PBM20, PBM40 and PBM60 ($P>0.05$). The result showed that up to 60% fish meal can be replaced with poultry by product with no adverse effect on growth and feed conversion ratio, immune system, and liver enzymes and is a suitable source for replacement with fish meal for feeding *Huso huso* in fingerling period.

Keywords: *Huso huso, Replacement, Fish meal, Poultry by product, Growth rate, Immune system, Liver Enzyme.*