



Effects of different aquafeeds on growth performance, oxidative capacity, and fatty acid profile of three major carps reared in the semi-intensive culture system

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ABSTRACT

The current study evaluated the impacts of various aquafeeds (farm versus commercial) on the growth rate, oxidative capability, and fatty acid profile of major carps reared in a polyculture system. For this purpose, about 1100 fingerlings/acre of the major carps (Rohu, Catla and Caprio) having initial body weight=61.3,71.5,30.8 and length=17.15,18.16, 9.10 were randomly distributed to sixteen ponds and randomly fed one of the 8 different aquafeeds (n=2 pond/feed) in a completely randomized plan. The aqua feeds of various companies (AMG, Supreme, Aqua, Star Floating, Hi-Pro and Punjab feed) used as commercial feed. Farm made feeds were maize gluten (C.P=24.9) and rice polish (C.P=7.3). For confidentiality, these feeds were randomly given code labels (D1-2) farm-based diets and (D-3 to D-8) commercial aqua feeds.

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The mean growth rate of two carp species (Rohu and Catla) significantly improved ($p<0.05$) by feeding D-3 as compared to the rest of the diets. Similarly, the concentration of White Blood Cells was greater ($p<0.05$) in D-3 groups of the major carps fed by commercial feed than in those fed on D-7, D-8, D-5, D-6, D-1 and D-2 groups respectively. The Aspartate Aminotransferase (AST), Alanine Transaminase (ALT), and Alkaline Phosphatase (ALP) activities remained significantly lower ($p<0.05$) in D-3-fed Rohu, Catla and Caprio compared with those fed on the rest of the treatments. Glutathione peroxidase and superoxide dismutase activity were also significantly higher ($p<0.05$) for D-3 fed Rohu, Catla and Caprio groups than those fed on other diets. The groups of Rohu, Catla and Caprio fed on D-3 and D-4 had greater ($p<0.05$) concentrations of myristic (14:00), palmitic acid (16:00) and stearic (18:00) acids than those fed on the rest of the commercial diets. However, meat chemical composition was similar ($p>0.05$) across the treatments. Based on these results, D-3 improved the production performance, oxidative status, and fatty acid profile of major carps (Rohu, Catla and Caprio).