

Substitution of Soyabean Meal with Bioactive Yeast in the Diet of *Clarias Gariepinus*: Effect on Growth Rate, Haematological and Biochemical Profile

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ABSTRACT

The effects of substituting soyabean meal with yeast (*Sacharomyces cerevisiae*) meal in diets fed to *Clarias gariepinus* was studied for 60 days. Growth response, haematological and biochemical parameters were evaluated. 105 juvenile three-weeks old *C. gariepinus* composed of seven treatment groups replicated thrice were used for the study. Each replicate had five fishes. The Groups (A to G) were: Group A, 0% yeast meal (YM) (15 juveniles); Group B, 10% YM; Group C, 20%; Group D 30%; Group E, 40%; Group F, 50%; and Group G, 100% YM. The acceptability of yeast based diets by *C. gariepinus* was studied using the time to strike index, and their growth responses studied using 'weight gain' and 'specific growth rate' while the haematological and biochemical indices were assessed using the different blood parameters. The results indicate that substituting yeast meal for soyabean meal in diets fed *C. gariepinus* juveniles slightly increased the growth response. All the catfishes fed with 100% yeast meal (diet G) died within the first week. Increasing proportion of substitutions of yeast meal in diets fed to *C. gariepinus* juveniles, led to weight increase in all dietary types with exception of diet G and higher growth induction in catfishes fed diets with exception of diet B. Diet F induced better mean growth than the control diet. Substitution of various levels of soyabean meal with yeast meal after 30 days led to better result on haemoglobin (HB), red blood cell (RBC), packed cell volume (PCV) and white blood cell (WBC) in diet C Group when compared to the control, while after 60 days, diet F Group had better HB, RBC, PCV and WBC values than the control. Substitution of varied percentages of soyabean meal with yeast meal for 60 days led to significantly higher ($P < 0.05$) serum, total protein and cholesterol in some of the groups on yeast meal inclusion when compared to the control, and significantly higher ($p < 0.05$) serum aspartate aminotransferase activity in all the groups given yeast meal based diets when compared to the control (Group A). There were however no significant differences ($p > 0.05$) between those on yeast inclusion and the control in the serum alanine aminotransferase activity. This study shows that yeast inclusion at 50% (diet F) led to significantly better growth, weight gain, haematological and biochemical profile than other diets. This study shows that yeast inclusion may have a better effect on fish diet at lower levels of inclusion. Diet F (50% yeast inclusion) was considered the best level of inclusion because of enhanced nutritional status, better blood parameters and improved health of fishes.

Keywords: *Clarias gariepinus*, soyabean, yeast, growth, haematology, biochemistry, serum, total protein, cholesterol, aspartate aminotransferase, alanine aminotransferase.