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Fermented Unripe Plantain (Musa paradisiacal) Peel Meal as a Replacement for Maize in the Diet of Nile Tilapia (Oreochromis niloticus) Fingerlings

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Abstract : A feeding trial was conducted to investigate the effect of fermented unripe plantain peel meal (FUP) on growth performance, nutrients digestibility and economic indices of production of Nile tilapia, Oreochromis niloticus fingerlings. Fingerlings (150) of Nile tilapia (1.70±0.1g) were stocked at 10 per plastic tank. Five iso-nitrogenous diets containing 40% crude protein in which maize meal was replaced by fermented unripe plantain peel meal at 0% (FUP0), 25% (FUP25), 50% (FUP50), 75% (FUP75) and 100% (FUP100) were formulated and prepared. The fingerlings were fed at 5% body weight per day for 56 days. There was no significant difference ($p > 0.05$) in all the growth parameters among the treatments. Feed conversion ratio of 1.35 in fish fed diet FUP25 was not significantly different ($P > 0.05$) from 1.42 of fish fed diet FUP0. Apparent protein digestibility of 86.94% in fish fed diet FUP100 was significantly higher ($p < 0.05$) than 70.37% in fish fed diet FUP0 while apparent carbohydrate of 88.34% in fish fed diet FUP0 was significantly different ($p < 0.05$) from 70.29% of FUP100. Red blood cell (4.30 ml/mm3) of fish fed diet FUP100 was not significantly different from 4.13 ml/mm3 of fish fed diet FUP50. The highest percentage profit of 88.85% in fish fed diet FUP100 was significantly higher than 66.68% in fish fed diet FUP0 while the profit index of 1.89 in fish fed diet FUP100 was significantly different from 1.67 in fish fed diet FUP0. Therefore, fermented unripe plantain peel meal can completely replace maize in the diet of O. niloticus fingerlings.

Keywords : fermentation, fish diets, plantain peel, tilapia
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