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Publikation

Effects of dehydrated methanol extracts of Moringa (Moringa oleifera L.) leaves and three of its fractions on growth performance and feed nutrient assimilation in Nile tilapia (Oreochromis niloticus (L.).

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Autor(en):	Dongmeza, E., Siddhuraju, P., Francis, G. and Becker, K.
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Abstract:	A 10-week feeding trial was conducted in a recirculation system at (27 ± 0.5 °C) to determine the effect of a methanol extract of moringa leaf meal and its different fractions. Nine isonitrogenous and isoenergetic diets containing 35% crude protein and 20 MJ kg^{-1} gross energy were used. All the experimental diets contained the same amount of fishmeal. The inclusion of moringa methanol extract or of moringa extract fractions occurred by replacing the wheat meal. These diets were then denoted as diets 1 (control without any moringa product), 2, 3 (containing respectively 10.6 and 17.7% of moringa leaf meal methanol extract), 4, 5 (containing respectively 9.3 and 15.4% of a tannin-reduced fraction), 6, 7 (containing respectively 2.6 and 4.3% of a saponin-enriched fraction), 8 and 9 (containing respectively 7 and 11.6% of a tannin- and saponin-reduced fraction). Thirty-six fish (four fish per treatment), with mean initial body mass of 4.9–5.2 g, were kept individually. They were fed the experimental diets at the rate of 15 g feed per kg metabolic body weight ($kg^{0.8}$) per day. Up to the 5th experimental week, no difference in growth performance was observed between all the groups. At the end of the experiment, a significant ($P < 0.05$) reduction of the growth performance of all the fish fed diets containing moringa 80% methanol extract or the extract fractions was generally observed when they were compared to the fish fed with the control diet. The whole body moisture, ash and crude protein of the fish fed diets containing moringa crude extract or extract fractions were not significantly different to those of the control group. Body lipid was significantly reduced for the fish fed the diets 2, 4, 5 and 9 when compared to control. Muscle and plasma cholesterol levels were generally reduced for the fish fed diets containing moringa extract and extract fractions (except for the group 5 which showed higher muscle cholesterol than that of the control). The fish in the groups 2 and 5 had significantly lower hepatosomatic indices when compared to control. On the other hand, the intestinalsomatic indices (ISI) of the groups 2, 3, 4, 5, 6 and 7 were generally higher than the control group and the groups 8 and 9 had lower ISI than the control group. The relatively high total phenolics and saponins in diets 2 to 9 may have contributed to the poorer growth performance in these groups.