

EVALUATION OF A DIETARY ORGANIC ACID BLEND ON TILAPIA *Oreochromis niloticus*. GROWTH PERFORMANCE

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The growing awareness regarding misuse of antibiotic growth promoters (AGP) in aquaculture has led to the need to find more sustainable alternatives for a responsible aquaculture production, particularly in exporting countries. Several feed additives, including acidifiers consisting of organic acids and their salts may be promising alternatives to the prophylactic use of in-feed antibiotics in aquaculture. A trial was set up to compare the efficiency of an acidifier with a common AGP to demonstrate if growth performance in androgen treated all male Nile tilapia *Oreochromis niloticus*, under laboratory conditions could be improved.

An acidifier (Biotronic® A.S.), containing Ca-formate, Ca-propionate, Ca-lactate, Ca-phosphate and citric acid, was tested at 3 different inclusion levels (0.5, 1 and 1.5% inclusion rate) against a negative control and a positive control containing an AGP (0.5 % Oxytetracycline). Fish weighed approximately 7 g were randomly allocated into rectangular plastic tanks (60 liters) using 20 fish per tank and 3 replicates per treatment. The fish were fed to satiation two times a day during a 8 week period, using a pelletized diet containing 31% crude protein. Feed intake, weight gain and total length were recorded.

During the trial period the fish under test showed a good growth performance, with an increase in body weight ranging from 387% to 434%. Overall, there was no statistical significant difference ($P < 0.05$) in weight gain, total length and FCR measurements between the control and the tested diets. Nevertheless, despite the lack of statistical significant difference between treatments, the inclusion of the acidifier at 1.5 % of the diet resulted in an numerical 11 % increase in body weight when compared to the fish fed the control diet (41.33 vs 37.91) and achieved better results than the inclusion of the AGP (41.33 vs 40.25). This slight improvement, however, could be economically important during conventional tilapia production.

Under the study conditions, supplementation of organic acid salts showed no effect on pH, and the observed pH (7.3-7.6) was found to be in an optimal range and consistent throughout the eight weeks experimental period.

We consider that the optimal conditions during the trial period (good water quality and nutrition) and a short experimental period have probably contributed to the lack of significant effects between treatments. We anticipate that inclusion of dietary organic acid blends in fish feed may be a good alternative in order to reduce the application of AGP's and attain economic tilapia culture. Nevertheless the results achieved should be validated with further field studies.