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Effects of dietary levels of potassium diformate on growth, feed utilization and resistance to *Streptococcus iniae* of Nile tilapia, *Oreochromis niloticus***Chhorn Lim^{1*}, Phillip H. Klesius¹ and Christian Lückstädt²**¹Aquatic Animal Health Research Unit, USDA-ARS, 990 Wire Road, Auburn, Alabama 36832²Addcon Nordic AS 3908 Porsgrunn, Norway**Abstract**

The use of antibiotics as growth promoters in animal production, including aquaculture, is increasingly under public scrutiny and criticism. In the EU countries, the use of antibiotics as growth promoters in livestock production has been banned since January 2006. Short-chain organic acids or their salts have received much attention as alternatives. Among these, potassium diformate (KDF) has been shown to be an effective growth stimulator in diets of pigs, but its effects on aquaculture species are inconsistent. Thus, this study was conducted to evaluate the effects of dietary levels of KDF on growth, feed utilization, hematology, immune response and resistance of Nile tilapia (*Oreochromis niloticus*) to *Streptococcus iniae* challenge.

Mixed-sex juvenile Nile tilapia (7.05 ± 0.14 g) were stocked in 27 flow-through 57-L aquaria at a rate of 35 fish/aquarium. Practical basal diets (32% protein, 6% fat and 2,900 kcal of DE/kg) supplemented with 0 (control), 0.25, 0.50, 0.75, 1.00, 1.25 and 1.50 % KDF (D-1 to D-7, respectively) were each fed to fish in four replicate aquaria twice daily to apparent satiation for 12 weeks. Survival at the end of week 12 did not differ among fish fed different diets. Weight gain and feed efficiency ratio of fish fed diet D-5 (1.00 % KDF) were significantly higher than those fed higher levels of dietary KDF (D-6 and D-7), but were not different from those fed diets with lower supplemental levels of KDF (D-1 to D-4). Dry matter feed intake was highest and lowest for fish fed diets 4 and 7, respectively. These values were significantly different from those of fish fed other diets. There were no significant differences among hematological parameters (total, red and white blood cell counts, hematocrit, hemoglobin, mean corpuscular volume, mean corpuscular hemoglobin and mean corpuscular hemoglobin concentration) of fish fed different diets. Likewise, innate immune responses (serum protein, immunoglobulin, lysozyme and alternative complement) did not differ among treatments. Cumulative mortality 14 days post-challenge with *S. iniae* and post-challenge antibody titer against the same bacterium were also not affected by dietary treatments.

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