AUTOCHTHONOUS PROBIOTIC PROTECT MATRINXÃ BRYCON AMAZONICUS FROM AMMONIA TOXICITY

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RESUMO

In aquaculture, nitrogenous compounds such as ammonia become a challenging environmental problem, which have negative effects on the physiological and productive function of aquatic organisms, and can even lead to fish mortalities. Different immunomodulators are described in the literature and can improve the general health status of animals, however, the development of autochthonous probiotics from matrinxã *B. amazonicus* and its protective effects against ammonia poisoning are still little known. The objective of this work was to evaluate the effectiveness of feeding with the addition of different autochthonous strains on ammonia-induced intoxication in matrinxã. The strains freeze-dried with cryoprotectant (maltodextrin) were tested at a concentration of 10 g/kg of feed. The matrinxã larvae (n=4800, ± 8.8 mg) were divided, in duplicate, into the following 12 groups: feed without additives - control (GC); control with cryoprotective - maltodextrin (GM); *Bacillus cereus* (G1); *B. megaterium* (G2); *B. pumilus* (G3); *Lysinibacillus sphaericus* (G4); *Lactococcus lactis* (G5); *Lactobacillus plantarum* (G6); *Pediococcus pentosaceus* (G7); *Staphylococcus epidermidis* (G8); *S. xylosus* (G9); *Enterobacter kobei* (G10). Larvae were fed four times a day, in the amount of 15% of the live weight, during 31 days. After finishing the experiment, the animals were counted, weighed and measured to evaluate zootechnical parameters (Weight Gain and Relative Growth Rate) and survival (%). Then, 20 fish/treatment were exposed to ammonia stress for 96 h at a concentration of 61.95 mg/L. Challenge mortality data were analyzed using Kaplan-Meier and zootechnical performance using analysis of variance (one-way ANOVA). Diets with probiotic strains did not show a significant influence on growth or survival during the experimental period, however, there was greater resistance to ammonia intoxication in groups G1, G2 and G10 (100% survival) when compared to all other tested groups ($p < 0.05$). The survival in the control group was only 30%. In conclusion, an innovative protective effect against ammonia poisoning was found in different indigenous strains of matrinxã, which can bring excellent benefits to daily challenges on fish farms.
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PALAVRAS-CHAVE: Ammonia, B amazonicus, probiotics, survival, toxicity

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