INTRODUCTION

Probiotics:
- Food supplements of living microorganisms that benefits the host health through several mechanisms;
- Sustainable management of aquaculture;
- Functional foods.
- Saccharomyces cerevisiae, Aspergillus oryzae, Bacillus subtilis

OBJECTIVE

- Evaluation of Bacillus subtilis, Aspergillus oryzae and Saccharomyces cerevisiae as potential probiotic and their effect on immune parameters and survival against bacterial challenge with Aeromonas hydrophila and Streptococcus iniae.

MATERIAL AND METHODS

- Laboratory of Fish Diseases – Fisheries and Applied Aquacultures, Auburn University - USA;
  - Control diet;
  - 5 g kg⁻¹ probiotic;
  - 10 g kg⁻¹ probiotic.
- 720 fishes (25g ± 0.5g) distributed into 45 aquaria, into 9 experimental groups, with 5 replicates each;
- Blood samples were taken and analyzed for RBC, erythrocyte fragility, hematocrit, hemoglobin, MCV and MCHC. Cortisol and glucose tests were made with plasma;
- Coelomic macrophages were isolated from 10 fish in each group and tested for superoxide anion production using NBT;
- At the end of the feeding trial, fish were IP injected with 100 µL PBS with 2 x 10⁶ mL live A. hydrophila and 1 x 10⁶ mL live S. iniae each. For negative control group, fish were injected PBS.
- Survival percentage was recorded up to the 21th day of challenge;
- ANOVA and normality, multiple comparisons with Tukey’s test to analyze differences between treatments (P<0.05).

RESULTS AND DISCUSSION

- MCV and MCHM did not show changes during the experiment.
- Increase in RBC, plasma glucose and cortisol was observed in fishes of control group;

CONCLUSION

- Doses of 5 and 10 g kg⁻¹ of probiotic ensured the highest survival rates for tilapia against A. hydrophila;
- Dose of 10 g kg⁻¹ of probiotic promoted higher survival tax against S. iniae;
- The probiotic containing Bacillus subtilis, Aspergillus oryzae and Saccharomyces cerevisiae is safe for fish food use, and promote an increase in nonspecific immunity against bacterial diseases.