

TITLE: ANTIMICROBIAL ACTIVITY OF ACID BACTERIA AGAINST *Aeromonas hydrophila* ISOLATED OF NILE TILAPIA

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ABSTRACT

Antibiotics are widely used for the control of several bacterial diseases. However their indiscriminate use may cause the selection of resistant strains and to become a public health problem. In this context, probiotics appear to minimize the use of these, since in aquatic environments the microorganisms administered through the feeds or renewal of water promote to the host a better growth performance and better adaptation to stress factors besides to confer resistance to diseases such as septicemia by *Aeromonas hydrophila*. The objective of this study was to evaluate the antimicrobial activity of Lactic Acid Bacteria (LAB on *A. hydrophila* isolates. For the experiment, six isolates of from elephant-grass silage were used, which were characterized phenotypically and identified through sequencing as belonging to the genus *Lactobacillus*, as well as three strains of *A. hydrophila* from diseased fish were used. *A. hydrophila* strains were grown in Tryptone Soya Agar (TSA) for 24h at 28°C, and then they were suspended in 4 mL of sterile water and standardized to approximately 10⁸ CFU/mL according to the standard turbidity n° 0.5 of McFarland. The bacterial suspension was applied to the surface of a dish with TSA agar through of a sterile swab. Then, it was added sterile filter paper discs (Whatmann n°1, 6 mm), which were moistened with 20 mL of cell free supernatant obtained by centrifugation from each isolate of LAB. The susceptibility of pathogens to LABs was assessed by measuring the zone of inhibition of bacterial growth around the discs (radius in mm) after incubation for 24 h at 37°C. A clear zone of inhibition of at least 1 mm of radius was considered as positive. There was no significant inhibitory effect (p <0.05) of the different strains of LAB on the tested pathogens. However, all tested isolates of BAL obtained activity against all strains of *A. hydrophila* presenting mean of 11.4 mm inhibition halos. The LAB that presented the greatest inhibition halo was the species *Lactobacillus paracasei* with 11.44 mm. Phenotypically and molecularly characterized LABs presented probiotic potential by inhibiting the growth of pathogenic bacteria, and they might be used as a preventive agent of diseases.

Keywords: probiotic, *Lactobacillus paracasei*, susceptibility

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