

TITLE: EVALUATION OF THE ANTIMICROBIAL EFFECT IN VITRO OF IgY ANTIBODIES AGAINST *Acinetobacter baumannii* MULTIDRUGS RESSISTENT

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ABSTRACT

IgY is an antibody class found in birds and has been used in immunotherapy studies of several diseases. *Acinetobacter baumannii* is a microorganism responsible for nosocomial infections and a cause of concern among health professionals, due to the emergence of multidrug-resistant strains of drugs that make it difficult the patients treatment. Among the various antimicrobial resistance mechanisms, the production of carbapenemases is the main mechanism that *A. baumannii* acquires resistance to carbapenems. Therewith, the objective of this work was to produce specific IgY antibodies to multidrug resistant *A. baumannii* strain and to determine its antimicrobial activity *in vitro*. Laying hens (White Leghorns) were immunized intramuscularly on days 14, 28, and 42 and received 4 booster doses every 42 days with a carbapenemase-producing *A. baumannii* inoculum carrying the bla_{OXA-23} resistance gene. Blood and eggs were then collected from the animals. An indirect ELISA was performed to evaluate the serum IgY production and the antimicrobial activity was prepared in a microdilution plate using the bacterial strain in the concentration of 1x10⁶ treated with specific IgY antibodies extracted from the yolk according to the ammonium sulphate precipitation technique concentration of 1mg / ml to 2mg / ml, and with antibiotic. A significant increase in IgY anti-*A. baumannii* antibody levels was observed from the first immunization, remaining constant after the third immunization. The antimicrobial activity test showed a significant inhibition of bacterial growth by the action of IgY anti-*A. baumannii* antibodies, at the concentrations tested, in relation to the control after 24 hours of incubation at 37 ° C. With this, our results suggest the development of an immunotherapy with IgY against multi-resistant *A. baumannii* bacteria.

Keywords: Antimicrobial, immunoglobulin Y, multiresistant bacterium.

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