

**TITLE:** SUSCEPTIBILITY OF *STAPHYLOCOCCUS AUREUS* TO AQUEOUS EXTRACTS OBTAINED FROM YACON LEAVES

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**ABSTRACT:**

*Staphylococcus aureus* is an opportunistic pathogen and the causative agent of a wide range of human diseases. In food industry, *S. aureus* causes great concern mainly due to the ability to adhere to surfaces and produce biofilms. Once contaminating foods, its growth can result in the production of enterotoxins which is considered the major cause of foodborne poisoning. Yacon (*Smallanthus sonchifolius*) is a tuberous root plant known for its nutraceutical properties. Different compounds with biological and hypoglycemic effects are present in yacon leaves. Antimicrobial peptides are important components of the natural defense of most living organisms against invading pathogens, which are expressed or induced by an infection. Natural substances, such as antimicrobial peptides extracted from plants, emerge as an alternative to chemicals commonly used by the food industry to control microbial growth and biofilm formation. The objective of this work was to verify the susceptibility of *S. aureus* to antimicrobial peptides extracted from yacon leaves. Aqueous protein preparations were obtained from fresh leaves of yacon collected in Capão Bonito, SP. Part of the crude extract was fractionated with acetone or salt and then, all extracts were tested on *S. aureus* FRI 722 for minimal inhibitory concentration (MIC), minimal bactericidal concentration (MBC) and biofilm inhibition. The crude extract and the extract precipitated with acetone showed the most inhibitory effect on *S. aureus*. The MIC for the crude extract was 6.25 % while for the extract precipitated with acetone was 25 %. Although crude extract was more effective on bacterial inhibition, only the extract precipitated with acetone showed bactericidal effect on *S. aureus* (50 %). Extract precipitated with ammonium sulfate showed no inhibitory activity. Reduction on the biofilm formed by the strain was observed for both extracts with antimicrobial properties. These results suggest the presence of antimicrobial compounds in yacon leaves as well as its potential on controlling foodborne pathogens.

**Keywords:** Antimicrobial peptides, natural compounds, *Staphylococcus aureus*.

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