

## Antimicrobial activity of grape pomace extract against *Escherichia coli* and *Staphylococcus aureus*

*Estefani Tavares Jansen*<sup>1</sup>; *Elder Pacheco da Cruz*<sup>1</sup>; *Laura Martins Fonseca*<sup>1</sup>; *Eliezer Ávila Gandra*<sup>1</sup>; *Alvaro Renato Guerra Dias*<sup>1</sup>; *Elessandra da Rosa Zavareze*<sup>1</sup>

<sup>1</sup> Federal University of Pelotas (UFPEL)  
*estefani\_tj@hotmail.com*

*Sessão do trabalho:* Outros tópicos em microbiologia de alimentos

**Abstract:** Several microorganisms, such as bacteria, are capable of contaminating food products. In addition, some bacterial strains can transmit diseases to humans. In front of these issues and alluding to the fact that some species of bacteria show resistance to antimicrobial agents of regular use, there is a need to find alternative natural compounds with antimicrobial activity. The anthocyanins have potential to inhibit bacterial growth due to interactions of these compounds with the bacterial cell membrane, which causes damage, altering the selectivity of the membrane, or even the rupture of this structure, resulting in the death of the microorganism. Thus, the objective of the present work was to evaluate the *in vitro* antimicrobial activity of grape pomace extract, rich in anthocyanins, against two strains of microorganisms relevant to the food industry, Gram-negative *Escherichia coli* (ATCC 25922) and Gram-positive *Staphylococcus aureus* (ATCC 14458) bacteria. The methodologies of minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were used. The bacteria were incubated at 37 °C for 24 h. The results found were MIC equal to 4 and 16 mg.mL<sup>-1</sup> of extract in relation to *E. coli* and *S. aureus* bacteria, respectively. Also, for MBC a concentration of 16 mg.mL<sup>-1</sup> of extract showed a bactericidal effect observed against Gram-positive bacteria. There were no MBC observed for *E. coli*. The lower susceptibility occurs because Gram-negative bacteria have a double-layer membrane, making it difficult the interaction and internal diffusion of antimicrobial compounds to this type of bacteria. Thus, the grape pomace extract, rich in anthocyanins, showed bacteriostatic effect, inhibiting the growth of both pathogenic microorganisms evaluated and bactericidal action against *S. aureus*. This fact suggests that the extract has the potential to be employed in the food industry as an antimicrobial agent, in order to preserve and extend the shelf life of food products.

**Keywords:** Anthocyanins. Conservation. Food.