

PP34. Effect of the essential oil from *Cantinoa carpinifolia* (Benth.) Harley & J.F.B.Pastore on efflux of potassium ions from *Escherichia coli* and *Staphylococcus aureus* strains

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Essential oils are secondary metabolites synthesized from glucose via two basic precursors, terpenes and phenylpropanoids. These compounds present diverse biological activities that reflect the very role they play in plants [1]. One of the most important properties is the antibacterial activity, although there are still few studies regarding the mechanism of action. *Cantinoa carpinifolia* (Benth.) Harley & J.F.B.Pastore, popularly known as rosman, is a plant species belonging to the Lamiaceae family and whose use in popular medicine is described in the treatment of diseases such as colds, flu, and rheumatism [2]. The objectives of the present work were to extract the essential oil from *C. carpinifolia* and to evaluate its effect on the efflux of potassium ions from strains of *Escherichia coli* and *Staphylococcus aureus*. The essential oil was extracted by the hydrodistillation technique using a modified Clevenger apparatus. The effect of the essential oil on the potassium efflux of bacterial strains was determined by flame photometry [3]. The concentrations tested were 6.25 $\mu\text{L mL}^{-1}$ and 0.39 $\mu\text{L mL}^{-1}$ for *E. coli* and *S. aureus*, respectively. The cell membrane is a barrier between the external and internal environments of the cell, being permeable to the passage of electrolytes that are important for various cellular functions, such as K^+ ions. The leakage of these ions indicates that an increase in permeability or rupture of the cell membrane occurred, affecting the functioning of bacterial cell metabolism and causing lysis. There was no significant variation between the five evaluated times (0, 60, 135, 197 and 267 min) for either of the bacteria nor did the concentration of potassium ions differ statistically when the treatments containing the essential oil and the control (bacterial culture) were compared. These results suggest that the essential oil from *C. carpinifolia* did not influence the cell membrane permeabilities of *E. coli* and *S. aureus* to potassium ions because there was no increase in the concentration of this ion at the evaluated times.

References:

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