# Comparative Study of the Effects of Kalanchoe pinnata Leaves Extracts, Obtained through Different Methods, in the Growth of Pseudomonas aeruginosa, Streptococcus salivarius and Staphylococcus aureus Bacteria

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This research intends to find a natural, economical, and effective method to treat otitis externa without secondary effects. The extracts of Kalanchoe pinnata leaves have been commonly used to treat conditions caused by bacteria. For this study, physicians answered a questionnaire and identified P. aeruginosa, S. salivarius and S. aureus as the main bacteria that cause otitis externa. The hypothesis was: If the Kalanchoe pinnata leaves extract, obtained by the direct heat method is applied to the cultures of Pseudomona aeruginosa, Streptococcus salivarius and Staphylococcus aureus, then it will cause greater bacteria inhibition than other extraction methods. Leaves extracts obtained by different methods were compared to identify which one caused greater bacteria inhibition. The methods to obtain the extracts were drying and macerating, each one followed by dilution and filtration, and direct heat application and squeezing of the leaves. Cultures were done to test the extracts effectiveness. The extract obtained by the maceration method produced a 9.2mm inhibition diameter in P. aeruginosa, 7.2mm in S. salivarius and 10mm in S. aureus. The extract obtained by direct heat produced an 8mm inhibition diameter in P. aeruginosa, 7.8mm in S. salivarius and 9.6mm in S. aureus. The extract obtained by the drying method produced a 9.2mm inhibition diameter in P. aeruginosa, 0mm in S. salivarius and 7.2mm in S. aureus. The hypothesis was rejected because the macerated extraction method was the most effective one since there are no high temperatures that affect the antibacterial properties of the substances identified in these leaves.

**Awards Won:**