



PHYTOCHEMICAL, ANTIOXIDANT, AND ANTIBACTERIAL EVALUATION OF *Croton argyrophyloides* FOR POTENTIAL PHARMACEUTICAL APPLICATIONS

Marina A. C. Souza (G),¹ Erica R. Lima (G),¹ Amana L. Cunha (PG),¹ Fernanda Stefanny L. Sobrinho (PG),¹ Mayara C. S. Silva (PG),¹ Vanderson B. Bernardo (Prof)¹, Saskya F. Araújo (Prof)², João G. Costa (Prof)³, Aldenir F. dos Santos (Prof)^{2,4}

marina.souza@iqb.ufal.br

¹ Federal University of Alagoas; ² Cesmac University Center; ³ Embrapa Coastal Tablelands; ⁴ State University of Alagoas

Keywords: Medicinal plants, bioactive compounds, free radical, secondary metabolites

ABSTRACT

Croton argyrophyloides Muell. Arg., from the Euphorbiaceae family, commonly known as “marmeleiro prateado” or “sacatinga,” is a plant native to the Caatinga biome, commonly found in northeastern Brazil. This study aimed to evaluate its antioxidant activity, determine its phenol and flavonoid content, and assess its antibacterial activity. The phytochemical analysis included qualitative characterization of chemical constituents and quantification of total phenol content using the Folin-Ciocalteu test. Antioxidant tests were performed using the DPPH (2,2-diphenyl-1-picryl-hydrazyl) method and the Ferric Reducing Antioxidant Power (FRAP) method. The minimum inhibitory concentration (MIC) was determined by microdilution in 96-well plates. The ethanolic extract of *C. argyrophyloides* leaves showed significant antioxidant activity, with 84.7% antioxidant activity observed (AAO%) at 500 µg/mL in the DPPH test and an EC₅₀ of 236.79 µg/mL. The total phenolic content was 946.06 mg gallic acid equivalents/g of sample, while the total flavonoid content was 58.11 mg quercetin equivalents/g. For the FRAP method, 15,294.44 µM Trolox/g of sample was obtained, and for the ABTS method, 718 µM Trolox/g. The chemical prospecting revealed the presence of key compounds associated with antioxidant activity, confirmed by the DPPH test, as well as significant levels of phenolic compounds and total flavonoids, affirming the antioxidant bioactivity of the extract. In antibacterial tests, leaf extracts showed growth inhibition halos of 10 and 12 mm against *Staphylococcus aureus* ATCC 25923. These results reinforce the potential of *C. argyrophyloides* as a natural source of antioxidants and antimicrobial agents.