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TOTAL PHENOLIC CONTENTS OF ALKALINE AQUEOUS EXTRACT OF CALLISTEMON VIMINALIS

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The *Melaleuca* genus is renowned for its fungicidal, bactericidal, anti-inflammatory, and antioxidant properties. *Callistemon viminalis*, a species within this genus native to Australia, is widely used for ornamental purposes in the city of Divinópolis. Its extracts are rich in phenolic compounds, tannins, terpenes, and flavonoids, which are primarily responsible for its biological activities. These compounds can be selectively extracted depending on solvent polarity: polar solvents are effective for flavonoids and phenolic compounds, while nonpolar solvents are better suited for terpenes and tannins. Given that water is a polar solvent, this study aimed to evaluate the efficiency of aqueous extraction of phenolic compounds from *C. viminalis* using water alkalized with sodium hydroxide at pH 8, 10, and 12. The extracts were freeze-dried, pulverized, and subsequently solubilized in ethanol. Total phenolic content was determined using the Folin–Ciocalteu method, following Bonoli et al. (2004) with modifications. Stock solutions (5 mg/mL) were prepared in ethanol (P.A.), and phenolics were quantified using a standard curve of gallic acid (18.75 to 600 µg/mL), expressed as gallic acid equivalents (mg GAE/g sample). Reaction mixtures contained 10 µL of diluted Folin–Ciocalteu reagent (1:10) and 40 µL of a 2% sodium carbonate solution, incubated at room temperature for one hour, protected from light. Absorbance was measured at 650 nm using an ELISA reader (Molecular Devices). The phenolic content measured was 138.79 ± 34 mg/g at pH 8, 110.89 ± 12 mg/g at pH 10, and 69.57 ± 7.6 mg/g at pH 12. One-way ANOVA followed by Tukey's post-hoc test revealed a statistically significant reduction between pH 8 and pH 12, while no significant difference was observed between pH 8 and pH 10. These results suggest that higher alkalinity reduces the aqueous extraction efficiency of phenolic compounds from *C. viminalis*.

Keywords: *Callistemon viminalis,* Phenolic compounds, Alkaline extraction, Folin_Ciocalteu method, pH influence, Aqueous solventes.