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TIBOUCHINA GRANULOSA: BEYOND ORNAMENTAL USE, A SOURCE OF ANTIOXIDANT BIOACTIVE COMPOUNDS

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Tibouchina granulosa (Melastomataceae), popularly known as "quaresmeira-roxa," is native to Brazil and widely cultivated as an ornamental plant due to its striking flowers, rapid growth, and adaptability to diverse soil and climate conditions. Beyond its ornamental value, the species holds considerable potential, as its secondary metabolites may exert biologically relevant activities. Considering its abundance in the Atlantic Forest and the limited studies addressing its chemical composition and pharmacological properties, further investigation is highly warranted. This study aimed to quantify the phenolic and flavonoid content of the ethanolic leaf extract of *T. granulosa* (ETB) and to evaluate its antioxidant activity, given the well-established role of these metabolites in mitigating oxidative stress. ETB was obtained by ultrasound-assisted extraction in absolute ethanol at 45 °C for 1 hour, followed by filtration and rotary evaporation. Total phenolics were determined by the Folin–Ciocalteu method, while flavonoids were quantified using the aluminum chloride complexation assay. Antioxidant activity was assessed through DPPH radical scavenging and nitric oxide inhibition assays. The extract exhibited 185.29 ± 1.07 mg TAE/g (tannic acid equivalents), corresponding to total phenolic compounds, and 54.00 ± 4.41 mg QE/g (quercetin equivalents), corresponding to total flavonoids, confirming its richness in metabolites with recognized antioxidant potential. In the DPPH assay, ETB exhibited strong activity (IC_{50} = 2.48 ± 0.17 µg/mL) compared with quercetin (IC_{50} = 0.65 ± 0.062 µg/mL). In contrast, nitric oxide inhibition was lower (IC_{50} = 241.63 ± 6.70 µg/mL) than that of rutin (IC_{50} = 102.90 ± 2.07 µg/mL). The high activity observed, particularly in the DPPH assay, can be directly attributed to the elevated levels of phenolics and flavonoids, compounds known to neutralize reactive oxygen species. Overall, these findings highlight the potential of *T. granulosa* extract as a bioactive ingredient for cosmetic and phytotherapeutic applications targeting oxidative stress–related conditions, supporting further studies on its standardization and technological development. The authors thank the support from their institutions and the financial support of CAPES, CNPq, FAPEMIG e UFJF.

Keywords: *Antioxidant potential, bioactive compounds, flavonoids, phenolic compounds, Tibouchina granulosa.*

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