



## PHYTOCHEMICAL CHARACTERIZATION OF *Eugenia brasiliensis* LEAVES: IMPACT OF EXTRACTION METHODS AND SEASONAL VARIABILITY

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### **INTRODUCTION**

The phytochemical composition of natural extracts varies with season and extraction method. *Eugenia brasiliensis* (Myrtaceae), or 'grumixama,' is native to the Atlantic Forest and found in Vale do Itajaí, Brazil. This study evaluates the impact of extraction method and season on the phytochemical profile of *E. brasiliensis* leaf extract.

### **MATERIAL AND METHODS**

Leaves of *Eugenia brasiliensis* were collected at the end of each season (Autumn, Winter, Spring, Summer) in 2023/2024, Balneário Piçarras, SC, Brazil, and identified by Prof. Dr. André Luis de Gasper. The study is registered in SISGEN under code A1E97D3. To assess seasonal variability, leaves were dried, powdered, and macerated in 70% ethanol for 4h (triplicate), followed by analysis of loss on drying, refractive index, pH, total phenolics content<sup>(1)</sup> and HPLC profile. For extraction optimization, ethanol (50%, 70%, 90%) and times (2h, 4h, 6h) were tested to obtain the crude extract (CHE), evaluating yield, loss on drying, and total phenolic content.

### **RESULTS**

Regarding seasonality, loss on drying showed no significant difference between summer/spring and autumn/winter. pH values were similar (5.71–5.97), and the refractive index remained unchanged. Phenolic content was highest in autumn and spring (544.3 mgGA/g), followed by

summer (508.1 mgGA/g) and winter (452.0 mgGA/g). The HPLC profile was consistent across seasons. For the impact of extraction method, yield and dry residue decreased with higher ethanol concentrations, regardless of maceration time. The highest yield occurred with 50% ethanol (2h, 21.55%), and the lowest with 90% ethanol (6h, 12.57%). Similarly, loss on drying declined as ethanol concentration increased. The highest phenolic content was observed with 50% ethanol (2h, 6h) and 70% ethanol (4h) with no statistical difference between them, while the lowest was with 90% ethanol (6h). Higher ethanol concentrations and longer maceration reduced total phenolic content.

### **CONCLUSIONS**

Seasonality influenced phenolic content but not loss on drying, pH, or refractive index. The HPLC profile remained consistent throughout seasons. Higher ethanol concentrations reduced extraction yield and dry residue content. The best extraction efficiency was achieved with 50% ethanol (2h and 6h) and 70% ethanol (4h).

### **ACKNOWLEDGMENTS**

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### **REFERENCES**

<sup>(1)</sup> BONOLI, Matteo et al, 2004, Journal of agricultural and food chemistry.

