



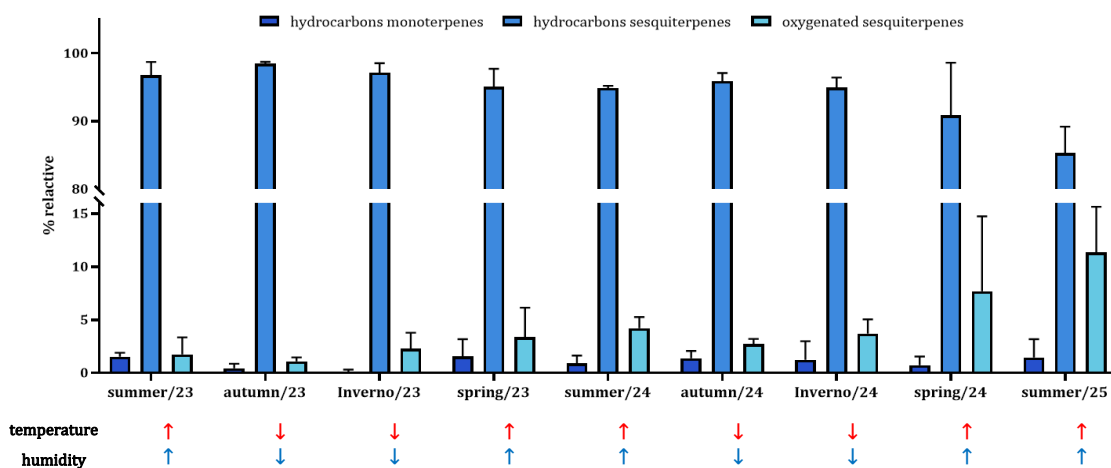
INFLUENCE OF MICROCLIMATIC PARAMETERS AND SEASONALITY ON THE COMPOSITION OF ESSENTIAL OILS FROM *Vernonanthura polyanthes* (ASTERACEAE)

Felipe S. Sales*, Carlos Henrique T. dos Santos, João Henrique G. Lago

felipe.sales@ufabc.edu.br

Center for Natural Sciences and Humanities, Federal University of ABC, Santo André, Brazil

Vernonanthura polyanthes, belonging to the Asteraceae, is chemically composed of triterpenes, sesquiterpene lactones, and flavonoids.¹ The essential oil composition revealed a predominance of sesquiterpenes, with zerumbone as the main compound.² However, the literature does not contain any information about the dynamics of the essential oil chemical composition. Therefore, in the present study, aerial parts of *V. polyanthes* were monthly collected from January/2023 to January/2025 (for a total of 25 samples) and the essential oils were extracted by hydrodistillation, in triplicate. After dereplication using GC-MS and determination of Kovats index, the data were regrouped by season: summer (January, February, March), autumn (April, May, June), winter (July, August, September), and spring (October, November, December). Chemically, a predominance of hydrocarbon sesquiterpenes – from $91 \pm 7\%$ (spring/2024) to $99 \pm 1\%$ (autumn/2023) was observed, with β -caryophyllene ($16 \pm 1 - 18 \pm 1\%$), α -humulene ($15 \pm 2 - 19 \pm 1\%$), germacrene D ($22 \pm 4 - 25 \pm 1\%$), and bicyclogermacrene ($18.6 \pm 0.7 - 22.4 \pm 0.8\%$) as the main compounds. Oxygenated sesquiterpenes, however, were identified as minor compounds but showing more intense variation ($1.1 \pm 0.4 - 11.0 \pm 0.9\%$), with humulene ($0.13 \pm 0.09 - 0.95 \pm 0.09\%$) and caryophyllene ($1.0 \pm 0.1 - 3.3 \pm 0.6\%$) oxides were predominant. Similarly, the amount of β -pinene, the only monoterpene identified in the analyzed oils, ranged from 0.11 ± 0.09 to $1.56 \pm 0.08\%$. These results suggest that variation in chemical composition (Figure 1) may be associated with microclimatic parameters (especially temperature and humidity) and seasonality. This finding is consistent with our previous studies on *Pittosporum undulatum*³ and *Guarea macrophylla*⁴.



References: ¹Igual et al. *Biochem. Syst. Ecol.* **2013**, 51, 94–97; ²Moreira et al. *Nat. Prod. Res.* **2017**, 31, 2905–2908;

³Lago et al. *J. Braz. Chem. Soc.* **2006**, 17, 1334; ⁴Oliveira et al. *J. Braz. Chem. Soc.* **2019**, 30, 1395.

Keywords: essential oils, sesquiterpenes, seasonality, assa-peixe. **Acknowledgment:** CNPq, CAPES, FAPESP.

