

Title: *Vernonanthura tweediana* (Baker) H. Rob. (Asteraceae), an Ordinary Bush or an Anti-Inflammatory and Immunomodulator Aromatic Species?

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Abstract: Background: Oral traditional knowledge disseminates the use of young leaves of *Vernonanthura tweediana* (Asteraceae) as poultice in feverish cases among family farmers in Santa Catarina, Brazil, but there is a lack of phytochemistry and pharmacological studies on this species, especially those related to volatile organic compounds. Methods: In the present study, the dry leaves of *V. tweediana* were subjected to hydrodistillation for the extraction of essential oil. Sample characterization was conducted using GC-FID and GC-MS. To evaluate anti-inflammatory and immunomodulatory activities, the air pouch method was used, and with the exudate obtained, total and differential leukocyte counts were performed, as well as the quantification of total proteins, interleukin (IL) 1 β , IL-6, and tumor necrosis factor (TNF). Results: The essential oil yield extraction was 0.13%, and sesquiterpenes were the main constituents: α -copaene (5.1%), β -caryophyllene (27.77%), α -caryophyllene (15.1%), germacrene D (14.0%), and bicyclogermacrene (13.3%). A sample was subjected to biological tests, with a reduction in leukocyte migration to the inflammatory focus. The immunomodulatory activity was also pronounced, as the oil modulated all cytokine secretions measured when compared to the control. The high concentration of caryophyllenes might explain these findings. Conclusions: Future studies will consider the fractionation of the essential oil to establish the degree of synergism between the constituents.

Keywords: hydrodistillation; essential oil; chromatographic characterization; caryophyllenes; leukocytes and cytokines

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