



Chemical Composition and Avaluation of Antioxidant Activity of Species of *Baccharis* Genus

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Abstract: The *Baccharis* genus belongs to the Asteraceae family, one of the largest families within the angiosperms. In Brazil, there currently 167 species described for this genus, divided into 4 subgenera and 21 sections [1-2]. The *Baccharis* genus is known to have therapeutic and aromatic properties. Previous reports of secondary metabolites of this genus have been described flavonoids, phenolic acids and essential oils [3-5]. The essential oils are mixtures of volatile compounds, they show antioxidant, antimicrobial and/or anti-inflammatory activities [5]. The aim of this study was chemical composition evaluated of essential oils and the antioxidant activity through ORAC^{FL} and DPPH assays of male and female flowers from species of two sections, *Caulopterae* (*B. burchellii* Baker and *B. organensis* Baker) and *Axillaris* (*B. aracatubaensis* Malag). The specimens were collected in November 2013, Piraquara, Paraná, Brazil. The essential oils were extracted by hydrodistillation with Clevenger modified [6]. Individual constituents from the oils were identified by comparison of their mass spectra (MS) and retention index (RI) with those reported in literature and also in NIST mass spectral database [7]. In GC-MS analyzes of essential oils were identified 25 compounds in the *B. aracatubaensis*, 29 in *B. burchellii* and 33 in *B. organensis*. The chemical composition of the oils revealed a high proportion of sesquiterpenes in male and female specimens of *B. burchellii* (100% for both specimens), *B. organensis* (99.1% and 91.4%, respectively) and *B. aracatubaensis* (89.2% and 100%, respectively). Among the compounds identified, only eight were found in common in the specimens: (*E*)-caryophyllene, γ -muurolene, bicyclogermacrene, 2,6-di-*t*-butyl-4-methylphenol, β -germacrene, spathulenol, τ -muurolol and α -cadinol. It was observed a similarity of the chemical composition of the essential oils from *B. aracatubaensis* and *B. organensis*, which belong two different sections, *Axillaris* and *Caulopterae*, respectively. This similarity can be explained by the environmental conditions. These were collected in regions above 1000 m of altitude and a high solar irradiation. While *B. burchelli* was collected in a region with higher humidity and lower luminosity and altitude. The male and female from *B. organensis* oils show the best antioxidant activity with 951.4 and 1202.2 μmol of TE g^{-1} , respectively. Some compounds identified in these essential oils, including β -caryophyllene, bicyclogermacrene, limonene and α -terpineol. Thus, based on the results obtained in this work, more studies are being conducted to evaluate possible pharmacological actions.

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