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Seasonality effects on the volatile profiles from *Baccharis dracunculifolia* DC and *Baccharis microdonta DC* (Asteraceae) from South Uruguay

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Seasonality is one of the main factors influencing emission of volatile organic compounds from plants to the atmosphere, in particular with relation to the occurrence of reproductive/vegetative life cycles (1). As the case of plants depending on insect pollinators, which need the emission of volatiles to attract and guide them (1). *Baccharis dracunculifolia* DC and *B. microdonta* DC are perennial woody shrubs widespread in Uruguay in shrublands, mountain ranges or even at sides of roads and railways (2). Both species are sometimes misidentified because the architecture of the plants is similar (2). The essential oil from *B. dracunculifolia* is highly appreciated in flavor and fragrance industry so many reports on chemical composition are found in the literature (3). In addition, this oil has several biological activities as antiprotozoal, schistosomicidal and antimicrobial, among others (3). By contrast, the volatile profile of *B. microdonta* has been poorly characterized (4). In order to evaluate the seasonality effects on the volatile metabolism of *B. dracunculifolia* and *B. microdonta*, aerial parts of both species were monthly collected along a year in wild populations located at Las Brujas, Canelones Province, in South Uruguay. The vegetal material was collected early in the morning and samples were representative of the populations. The plant material was extracted by simultaneous distillation-extraction (SDE) for 90 minutes using n-hexane. The identification of the volatile compounds was performed by GC-MS and the quantitation by GC-FID (internal standard). Furthermore, the enantiomeric distribution of the main chiral monoterpenes (α-pinene, β-pinene, limonene, linalool, terpinen-4-ol and α-terpineol) was determined by chiral phase gas chromatography (CPGC-MS) to establish typical metabolic profiles of both species and so vegetal material genuinity. The main compounds identified (µg/g plant material) in *B. dracunculifolia* were β-pinene (from 244 ± 26 to 1062 ± 111, spathulenol (310 ± 32 to 744 ± 78), viridiflorol (420 ± 44 to 744 ± 78) and limonene (258 ± 27 to 722 ± 76). The chemical profile of *B. microdonta* was qualitatively similar, but with quantitative differences as the main compounds (µg/g plant material) were spathulenol (123 ± 14 to 206 ± 24), caryophyllene oxide (59 ± 7 to 129 ± 15), β-pinene (17 ± 2 to 157 ± 18) and palustrol (19 ± 2 to 126 ± 15). The volatile profiles, at full flowering and vegetative stages were different for both species, a fact that might be associated with pollinators attraction (1). The enantiomeric distribution found for each one of the selected compounds remained almost constant along the year for both species. But presenting particularities between them, as for α-terpineol, which showed opposite signs in its optical values according the species considered.

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