



Study by solid-phase micro-extraction (HS-SPME) and gas chromatography coupled to mass spectrometry of the volatile fraction of *Petrea volubilis* L. (Verbenaceae) flowers at different times of day

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Flower secondary metabolites play important roles in plant survival, mainly related to chemical defense. *Petrea volubilis* L. is a woody shrub, belongs to the Verbenaceae family, and is native to Mexico, the Caribbean and Central America; it is well adapted to different climates, mainly tropical, and its growth is favored in sunny places. The *P. volubilis* L. flower is lilac-blue in color (1). The target of this study was to identify the compounds present in the volatile fraction of *P. volubilis* L. flowers. The plant material (COL No. 569628, Colombian National Herbarium) was collected from experimental plots at the Pilot Agroindustrial Complex of CENIVAM, on the main campus of Universidad Industrial de Santander. Whole *P. volubilis* L. flowers (1.5 g) were placed in an amber vial (15 mL) and allowed to reach thermal equilibrium (10 min, 60 °C). Volatile compounds were sampled by exposing a solid-phase microextraction fiber (coated with PDMS, PDMS/DVB or CAR/PDMS) to the headspace inside the vial for 30 min. Sampling was performed at 6 am, 12 am and 6 pm, in triplicate. The analyses were carried out with a GC 7890 gas chromatograph (Agilent Technologies, Palo Alto, CA, USA) coupled to a mass selective detector AT 5975C (electron ionization 70 eV), with MSD ChemStation data system, G1701-DA version, including spectral libraries (ADAMS, NIST and WILEY). A polar chromatographic column (DB-WAX, J & W Scientific), with stationary phase of poly(ethyleneglycol) (60 m X 0.25 mm ID X 0.25 µm) was used. The largest total chromatographic area was obtained with the CAR/PDMS coating. The largest volatile compound emission was registered at 6 am. The main compounds identified by GC-MS were: *trans*-β-ocimene (11.6 %), (3Z)-hexen-1-ol (2.2 %), 1-octen-3-ol (28.2 %), *cis*-3-hexenyl-2-methylbutanoate (2.1 %), linalool (34.4 %), 1-octanol (0.7 %) and geraniol (0.1 %). There are no reported studies on the volatile profile of *Petrea volubilis* L. flowers. Compounds found have different applications; *trans*-β-ocimene, (3Z)-hexen-1-ol, linalool, 1-octanol, geraniol and *cis*-3-hexenyl-2-methylbutanoate are mainly used by fragrance and flavor industry and 1-octen-3-ol is a chemical that attracts insects.

1. Drewes, S.I.; Martínez, S., Darwiniana, 1999, **37**, 209-218.

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