



Study of the volatile fraction of *Erythroxylum coca* flower by gas chromatography coupled with mass spectrometry

Corina Bernal-Bello, Jairo R. Martínez M. Elena E. Stashenko

Research Center for Biomolecules, Universidad Industrial de Santander-Bucaramanga, Colombia
elena@tucan.uis.edu.co

Keyword: *Erythroxylum coca*, solid phase microextraction (SPME), GC-MS.

Erythroxylum coca, or coca, is a plant native to the Andes. There have been many studies on the composition of secondary metabolites in this plant's leaves (1), but no studies on the fragrance of its flowers are known. The aim of this study was to identify the volatile organic components of coca flower fragrance. *In vitro* solid phase microextraction (SPME) was used to sample the volatile fraction of freshly picked coca flowers. Extraction conditions were systematically varied in order to select the SPME fiber coating, and extraction time and temperature. A Carboxen/PDMS-coated SPME fiber (intermediate polarity) was used to sample (20 min) the headspace of coca flowers placed in a vial (20 mL) maintained at 60 °C. An Agilent Technologies (Palo Alto, CA, USA) 7890/5975C GC/MS system was used to analyze the secondary metabolites collected by the SPME fiber. Splitless injection mode was used, into a SPME-liner (78.5 mm x 0.75 mm ID x 6.5 mm O.D.). Capillary columns (60 m) with polar (DB-Wax) or non-polar (DB-5MS) stationary phase were employed. The main components in the flowers fragrance in the morning were *trans*- β -ocimene, linalool, *cis*- β -ocimene, methyl salicylate, α -farnesene and bovolide. In the afternoon, the same components were found, with an increment in ethyl salicylate; bovolide, a compound with a strong odor reminiscent of celery (2), was not detected in the afternoon.

1. Aynilian et al. J. Pharm. Sci., 1974, **63**, 1938-1939.
2. Lardelli G et al, Recl. Trav. Chim. Pay B., 1966, **85**, 43-55.

Acknowledgements: Colciencias - Patrimonio Autónomo Fondo Nacional de Financiamiento para la Ciencia, la Tecnología y la Innovación, Francisco José de Caldas, Contract RC-0572-2012.