



Study of the volatile fraction *Persea americana* and *Veitchia merrillii* flowers by solid-phase microextraction

Corina Bernal-Bello, Andres Ramírez, Diego Castiblanco, Jairo R. Martínez, Elena E. Stashenko

Research center for Biomolecules-CIBIMOL, Center of Chromatography and Mass Spectrometry –CROM-MASS, Research Center of Excellence-CENIVAM-Bucaramanga, Colombia
elena@tucan.uis.edu.co

Keywords: *Veitchia merrillii*, *Persea americana*, solid-phase microextraction (SPME), GC-MS.

Veitchia merrillii is a species of palm native Philippines. It belongs to the Arecaceae family. It was first described by Beccari (1). It is a palm to the widely used in gardening for its colorful fruit. This palm flower attracts many different species of insects. Avocado is a plant belonging to the Lauraceae family, originally *Persea americana* species from Central America and cultivated today in tropical and subtropical climates. In traditional medicine the plant is used to treat conditions such as menorrhagia, hypertension, bronchitis, diarrhea and diabetes (2). The aim of this study was to determine the compounds that may make them so appealing to insects. The monitoring was conducted at the morning and in the afternoon. The metabolites were extracted from flowers, collected by solid phase microextraction, SPME and analyzed on a gas chromatograph coupled to a mass selective detector. To improve the reproducibility and increase the sample transfer to the chromatographic column, liner 78.5 mm x 0.75 mm ID x 6.5 mm O.D., and splitless injection mode were used. The extraction efficiencies for three fibers, CAR-PDMS, PDMS and PDMS-DVB, with different polarity, were compared. The exposure temperature for the fibers (40 and 60°C) was evaluated with 30 minutes exposure time. The metabolites were analyzed in two chromatographic columns: one polar stationary phase with DB-Wax, [poly (ethylene glycol)], and the other, non-polar, DB-5MS [5%-phenyl-poly-(methylsiloxane)]. For *Veitchia merrillii*, the main compounds found were *trans*- β -ocimene, *cis*- β -ocimene, linalool, *allo*-ocimene, methyl salicylate and eucalyptol. For avocado, the main compounds present in the flower fragrance during the morning were *cis*-3-hexenol, 3-methylbutan-1-ol and limonene. In the afternoon, the compounds were similar to those found in the morning, but linalool appeared as the main compound. Eucalyptol is used as an insecticide and insect repellent (3), linalool is used in some mosquito-repellent products; however, the EPA notes that a preliminary screen of labels for products containing linalool indicates that efficacy data on file with the Agency may not support certain claims to repel mosquito (4).

1. Beccari O. Philippine Journal of Science, 1919, 14, 329.
2. Adeyemi et al. Fitoterapi, 2002, **73**, 375-380.
3. Kloche A., Darlington M., Balandrin M. Journal of Chemical Ecology, 1987, **13**, 2131-2141.
4. Linalool Summary Document, Registration review docket,. Docket number: EPA-HQ-EPA-2006-0356, 2007.

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