

## Chemical variability in essential oils of *Eugenia uniflora* L., occurring on Pará state, Brazil

Pablo Luis B. Figueiredo<sup>1</sup>, Jamile S. Costa<sup>2</sup>, Rosa Helena V. Mourão<sup>3</sup>, Joyce Kelly R. da Silva<sup>1</sup>, José Guilherme S. Maia<sup>1</sup>

<sup>1</sup>Programa de Pós-Graduação em Química, <sup>2</sup>PIBIC-IC, Universidade Federal do Pará, Belém, PA, Brasil

<sup>3</sup>Programa de Pós-Graduação em Recursos Naturais da Amazônia, Universidade Federal do Oeste do Pará, Santarém, PA, Brazil  
gmaia@ufpa.br

Keywords: *Eugenia uniflora*, Myrtaceae, essential oils, sesquiterpenes.

Myrtaceae comprises 145 genera and 5970 species (1) and, among these, 1028 species are in Brazil, of which 231 occur in the Amazon region (2). *Eugenia* species are noted for their great pharmacological and economic potential (3,4). *Eugenia uniflora* is known as "ginja" in the Amazon and "pitanga" in other Brazil regions. Its fruits are consumed *in natura* or as refreshments, juices, ice creams, sweets, liqueurs and jellies (5). In the present study, essential oils from the leaves (100 g, dried at room temperature) of five specimens of *E. uniflora* (**E1-E5**), collected in different locations of Pará state, were obtained by hydrodistillation (Clevenger, 3h). The chemical composition of the oils was analyzed by GC and GC-MS (Shimadzu QP 2010 ultra), equipped with a silica capillary column Rtx-5MS (30m x 0.25mm x 0.25µm). The identification of the components of the oils was based on the interpretation and comparison of their mass spectra with authentic commercial library standards (Adams, 2007; NIST, 2011 and FFNSC, 2011), as well as the comparison of their linear retention indices with those of (C8-C20) n-alkanes. Multivariate statistical analysis was performed with the constituents above 2%, using PCA, and the euclidean distance and complete binding, when using HCA. The yields (v/m) of the oils were 1.3% for **E1** (Marambaia, Belém), 0.9% for **E2** (Outeiro, Belém), 1.3% for **E3** (Embrapa campus, Belém), 1.9% for **E4** (Ufopa campus, Santarém), and 1.2% for **E5** (Souza, Belém). Eighty-seven constituents were identified in the oils of these specimens, resulting in three different groups. The **E1**, **E4** and **E5** groups were formed mainly by selin-1,3,7(11)-trien-8-one (18.1%-43.1%) and selin-1,3,7(11)-trien-8-one epoxide (16.0%-30.4%), two oxygenated sesquiterpenes; the group **E2** was formed principally by curzerene (46,9%) and germacrone (6.7%), and the group **E3** was dominated by germacrene B (18.4%) and curzerene (13.4%), two sesquiterpene hydrocarbons. So, the chemical variability in the studied specimens suggests the occurrence of at least three *Eugenia uniflora* chemotypes in the Pará state, at Brazilian Amazon.

1. The Plant List. 2013. A working list of all plant species. Available in <<http://www.theplantlist.org/>>, 2013.
2. Sobral, M.; Proença, C.; Souza, M.; Mazine, F.; Lucas, E. Myrtaceae. In: Lista de Espécies da Flora do Brasil. Jardim Botânico do Rio de Janeiro, 2015. Available in <http://floradobrasil.jbrj.gov.br>.
3. Queiroz, J.M.G. et al. Fitos, 2015, **9**, 87-100.
4. Siani, A.C. et al. Óleos Essenciais: Potencial anti-inflamatório. Biotecnologia: Ciência e desenvolvimento, 2000, **16**, 38-43.
5. Cavalcante, P.B. Frutas comestíveis na Amazônia. 7. ed. Belém: Museu Paraense Emilio Goeldi, 2010.

Acknowledgements: CAPES, CNPq e FAPESPA/PA.