



## Chemical composition and evaluation of the antioxidant potential of essential oils of species of *Myrcia* collected in Santarém-PA

Juliana D. A. Raposo<sup>1,2</sup>, Rosiele L. Santana<sup>1</sup>, Antônio Q. S. Júnior<sup>1</sup>, Chieno Suemitsu<sup>1</sup>, José G. S. Maia<sup>1,2,3</sup>, Rosa H. V. Mourão<sup>1,3</sup>

<sup>1</sup> Laboratório de Bioprospecção e Biologia Experimental - Universidade Federal do Oeste do Pará – Santarém-PA, Brasil

<sup>2</sup> Programa de Pós-Graduação em Química – Belém-PA, Brazil

<sup>3</sup> Programa de Pós-Graduação em Recursos Naturais da Amazônia – Santarém-PA, Brazil  
juraposo\_qui@yahoo.com.br

Keywords: *Myrcia sylvatica*, *M. multiflora*, *M. amazonica*, essential oil, antioxidant.

The genus *Myrcia*, one of the largest Neotropical Myrtaceae, with 750 species, is especially rich in Brazil, occurring mainly in areas of savanas (1). In the Amazon region the species of this genus, known popularly as "murta" or "pedra-ume-caá" (2), are abundant and diverse, but few study has been reported as to the chemical composition of its essential oils and their biological potential. In general, oils of aromatic species *Myrcia* are rich in cyclic sesquiterpenes mainly of cadinane, caryophyllane and germacrene groups (2). The aim of this study was to identify the chemical composition and evaluate the antioxidant potential of essential oils *Myrcia sylvatica* (G. Mey) DC., *Myrcia multiflora* (Lam.) DC. and *Myrcia amazonica* DC., which occur naturally in the Santarém-PA region. Samples (aerial parts) of *M. sylvatica* specimens (Ms01, Ms02), *M. multiflora* (Mm01) and *M. amazonica* (Ma01) were collected in savanna regions in Santarém in the dry season, and its voucher specimens were deposited in the Herbarium of Santarém (HSTM), under the registry numbers 000077, 000083 and 000095, respectively. The oils were obtained from the air-dried material followed by hydrodistillation in Clevenger-type apparatus for 2 hours and chemical analysis was performed by GC-MS. The antioxidant activity was determined by the DPPH radical-scavenging assay, adding 10  $\mu$ L oil, 40  $\mu$ L of ethanol and 1950  $\mu$ L DPPH (0.25M in ethanol), with absorbance reading (517 nm) after 30 minutes of reaction in the dark. The control sample was prepared using ethanol and trolox (1 mM) was used as antioxidant standard. High yields were obtained from oils of specimens Ms01, Ms02 (1.1%), Mm01 (1.4%) and Ma01 (0.92%). The major compounds identified were cyclic sesquiterpenes, such as  $\delta$ -cadinene (8.5%),  $\beta$ -selinene (8.3%) and *epi*-1-cubenol (6.9%) in the Ms02 oil, bicyclogermacrene (10.8%), germacrene D (10.6%) and  $\delta$ -cadinene (7.7%) in the oil Mm01 and *epi*-1-cubenol (16.6%), germacrene B (15.7%) and germacrene D (12.6%) in the Ma01 oil. However, in the oil from the specimen *M. sylvatica* Ms01 predominated the monoterpenes *trans*-pinocarveol (7.3%), myrtenol (7.2%) and  $\alpha$ -pinene (6.8%), indicating a chemical variability of this species, in the study region. In the DPPH assay, inhibition of the oils were  $37.4 \pm 1.7\%$  (Ms01),  $18.8 \pm 0.3\%$  (Ms02),  $42.5 \pm 1.6\%$  (Mm01) and  $11.9 \pm 0.3\%$  (Ma01), and the trolox standard was  $42.8 \pm 0.5\%$ . These results indicated that the oils from the specimens *M. sylvatica* (Ms01) and *M. multiflora* showed significant antioxidant activity when compared to trolox.

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Acknowledgements: CNPq and CAPES.