



Circadian rhythm and seasonal analysis of the essential oil of *Eugenia jambolana* Lam. from Ilha do Fundão, Rio de Janeiro, RJ.

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Eugenia jambolana Lam., (Myrtaceae), also known as “jamelão”, “azeitona” or “jambolão” is a tree about 15 m high with edible fruits, popularly used in *Diabetes mellitus* to lower blood sugar levels. The chemical profile consists mainly of flavonoids, anthocyanins and tannins with a considerable antioxidant effect. The aim of this study is to characterize the essential oil composition of *Eugenia jambolana* leaves and to investigate the daily and seasonal variations of the volatile fractions. Fresh leaves (250 g) have been subjected to hydrodistillation in a Clevenger-type apparatus for 2 h, monthly from February until July, 2015. The oils were analyzed by GC-FID in a QP 5000 Shimadzu and by GC-MS in a GC-QP2010 PLUS Shimadzu, with HP-5MS fused silica capillary columns (30 m X 0.25 mm X 0.25 µm). Helium was used as a carrier gas for GC-MS, with a flow rate of 1.0 mL min⁻¹. The programmed temperatures were 270 °C at the injector and 290 °C at the detector. Oven temperature was raised from 60 to 240 °C at 3 °C min⁻¹. Oil components were identified by comparison of both mass spectra and linear retention indices with spectral library and literature (1). Oil yields have been 0.1 % between February and July, 2015. The main components of the oil were (*E*)-ocimene (15.4-25.8 %), α-pinene (12.3-22.2 %), (*Z*)-ocimene (8.4-10.0 %), (*E*)-caryophyllene (6.6-8.0 %), limonene (6.7-7.6 %), α-humulene (4.1-4.4 %), β-pinene (3.7-3.2 %), α-terpineol (5.0-2.6 %) and bornyl acetate (3.0-3.3 %). The seasonal analyses showed that monoterpenes are present in higher concentration during the summer season while the sesquiterpenes are the major components during the winter time. In the warmer months, the major compounds were β-ocimene and α-pinene, while α-terpineol and (*E*)-caryophyllene are the major compounds in the winter season. Besides, it is showed a balance in the production of mono- and sesquiterpenes in the autumn season. The circadian analysis has been done in July, 2015 at 7, 9, 11, 13, 15, 17 and 19 h and it was showed that α-terpineol and (*E*)-caryophyllene were found as major compounds during the cool morning hours. The monoterpenes content was evidenced during the hottest part of the day. From 11 h there was a significant increase of α and β-pinene, limonene and (*Z*) and (*E*)-β-ocimenes in all samples analyzed with (*E*)-β-ocimene as the major volatile component from 11-17 h.

1. Adams, R.P. Identification of Essential Oil Components by Gas Chromatography/Mass Spectrometry, 4th Edition, New York: Academic Press, 2007, 804p.

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