



## Chemical composition and evaluation of antifungal and antioxidant potential of *Piper Marginatum* Jacq. (Piperaceae) essential oil in Santarém-PA

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*Piper marginatum* Jacq. (Piperaceae), known as “caapeba cheirosa”, it is popularly used in northern Brazil against liver diseases and as a tonic, with antispasmodic action, being assigned to the essential oil (EO) of this species fungicidal properties and cercaricide (1). Studies of the chemical composition of *P. marginatum* OE classified the specimens collected in the Amazon into 10 chemotypes (1). The aim of this study was to evaluate the chemical composition, antifungal and antioxidant activities of the essential oil from two specimens of *P. marginatum* collected in Santarém-PA. Samples (aerial parts) were collected in Alter-do-Chão community (PM44 - 2°30'25.0"S 54°57'02.2"W) and at the UFOPA campus (PM48 - 2°25'05.0"S 54°44'29.7"W). Voucher specimens were deposited in the Herbarium of the Federal University of Western Pará (registry: HSTM 000089). The material was dried at 40 °C followed by hydrodistillation in a Clevenger type apparatus for 180 minutes. The OE content was calculated on dried basis and identification of chemical constituents was performed by GC-MS. The antifungal activity against *Candida albicans* (CCCD - CC001), *C. tropicalis* (CCCD - CC002) and *C. parapsilosis* (CCCD - CC003) was performed in triplicate using the microdilution broth method and fluconazole was used as standard antifungal. The antioxidant activity was determined by the DPPH radical-scavenging assay, adding 10 µL of OE, 40 µL of ethanol and 1950 µL 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 instead of OE and trolox (1 mM) was used as antioxidant standard. The OEs obtained contents were 0.65% (PM44) and 1.39% (PM48). 3,4-methylenedioxypropiofenone phenylpropanoid was the major compound in both PM44 oils (19.59%) and PM48 (34.44%), although there were variations in the chemical composition of these oils. The other major compounds identified in PM44 oil were safrole (8.8%), 2-hydroxy-4,5-methylenedioxy propiofenone (7.07%), β-caryophyllene (4.8%), elemol (5.65%) and β-eudesmol (7.43%), while in the PM48 oil were safrole (4.51%), myristicin (6.05%), elemicin (4.21%), (*E*)-β-ocimene (7.4%) and spathulenol (4.72%). The minimum inhibitory concentrations (MIC) were 0.6, 2.5 and 0.3 µL mL<sup>-1</sup> (PM44); 0.6, 5.0 and 0.3 µL mL<sup>-1</sup> (PM48); and 0.95; 0.95 and 0.15 µL mL<sup>-1</sup> (fluconazole) for *C. albicans*, *C. tropicalis* and *C. parapsilosis*, respectively. In the DPPH assay, inhibition of OEs were 61.08 ± 0.21% (PM44) and 13.82 ± 0.31% (PM48), and trolox standard was 33.01 ± 0.16%. These results show that the OE from the specimen PM44 showed better antifungal potential against *Candida spp.* and high antioxidant activity when compared to trolox.

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