



Chemical composition and biological activities of *Myrcia minutiflora* and *Myrcia magnolifolia*

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The Amazon Rainforest, as a holder of many plant resources, presents itself as a primary source for obtaining new drugs. This biome has several Angiosperms families, whose species are objects of the chemical and biological investigations. In the Reserva Florestal Adolpho Ducke, a representative sample of the Terra-Firme ecosystem, 67 identified species of the Myrtaceae family are found, predominantly, arboreal. Almost 15 species are from *Myrcia* genus (1,2). Few chemical studies involving *Myrcia* species occurring in this biome are described in the literature. Therefore, the volatile chemical compositions of the leaves from *M. minutiflora* and *M. magnolifolia* were characterized, as well as the antibacterial and cytotoxicity activities of these essential oils were evaluated. Dried leaves (250 g) of *M. minutiflora* and *M. magnolifolia* previously identified (voucher numbers: 4774 and 1384, respectively) were hydrodistilled in a modified Clevenger type apparatus (4h). The crystalline solid was obtained from the oil of *M. magnolifolia*, which was separated and identified by GC-MS and NMR (¹H and ¹³C). Essential oils were analyzed by GC-FID and GC-MS [Shimadzu, GC2010 and GCMS - QP2010, using capillary column DB -5 and DB-5MS (30 m x 0.25 mm x 0.25 mM), respectively; carrier gas: helium for both previous systems (1 mL/min); temperature program: 60 to 240 °C (3 °C/min); electronic ionization: 70 eV]. The contents of compounds were obtained by normalizing the data acquired by GC-FID. The identification of compounds was carried out by comparing mass spectra existing in databases Wiley 7th and Adams (2007), as well as by comparative analysis of the Kovats indices. Antibacterial and cytotoxic activities were carried out by applying methods of measurement of the inhibition zone and the alamar blue assays (time: 72h; human cell lines: Skmell 3, ACP02, and MRC5). The yields obtained of oils were 0.35 % and 0.08 % for *M. minutiflora* and *M. magnolifolia*, respectively. The crystals were identified as 7-eudesm(11)-en-4-ol. From *M. magnolifolia* oils were identified 47 compounds (100 %), consisting of mono- and sesquiterpenes, whose majority are: α-pinene (28.64 %), β-pinene (8.57 %), limonene (4.58 %), α-terpineol (12.03 %) and (*E*)-caryophyllene (11.39 %). About *M. minutiflora*, 41 compounds were identified (98.30 %), composed mainly by sesquiterpenes: β-elemene (11.63 %), (*E*)-caryophyllene (15.59 %), sesquiterpene (7.21 %) *cis*-β-guaiene (6.51 %), δ-cadinene (5.20 %) and viridiflorol (10.49 %). These oils have shown high antibacterial action (Ø > 1.7 cm) against *Staphylococcus aureus*. The essential oil of *M. minutiflora* has showed high cytotoxicity to non-neoplastic line MRC5 (10.74 %). Therefore, the biological potentials of these Amazon Rainforest species have shown to be promising.

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