



## Volatile constituents of *Zingiber officinale* Roscoe (Zinziberaceae) from Rio de Janeiro - Brazil obtained by solid phase micro-extraction (SPME) - GC/MS

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The Zinziberaceae family has 53 genera and over 1200 species of plants. The genus *Zingiber* consists of a set of medicinal and food plants, and the species *Zingiber officinale* Roscoe has a high therapeutic potential in several diseases. The rhizome is the most important part of the plant as it is rich in carbohydrates, lipids, volatile oil and oleoresin. This part of the plant has been well studied for medicinal purposes due to anti-inflammatory activity, anti-emetic, antinausea, anti-ulcer, hypoglycaemic, antibacterial and others. The essential oil of ginger oleoresin contains considerable quantities of phenolic compounds, which are responsible for the antimicrobial potency. The rhizome and fresh leaf were acquired in Rio de Janeiro, Brazil and subjected to head space solid-phase microextraction (HS-SPME) using a 100 µm polydimethyl- siloxane (PDMS) fiber, exposed for fifteen minutes to the headspace of fresh plant, in bath with boiling water. Desorption time of 20 minutes. The volatile constituents were analyzed by GC/MS on a Shimadzu QP 2010 system, both with HP- 5MS fused silica capillary columns (30 m X 0.25 mm X 0.25 µm). Helium was used as carrier gas for GC/MS, with a flow rate of 1.0 mL/ minute. Oven temperature was raised from 60 to 240 °C at 3°C/ min. Injector was kept at 260°C and mass detector was operated in electron ionization mode at 70 eV. Oil components were identified by comparison of mass spectra with spectral library and literature. In the rhizome in a total of ten constituents were identified: α-zingiberene (65.4%), germacrene D (6.2%), β-bisabolene (5.3%), β-sesquiphellandrene (5.0%), α-copaene (4.1%), camphene (3.6%), α-farnesene(3.3%), α-fenchene (3.0%), α-pinene (2.3%) and α-thujene (1.3%). In the fresh leaf oil only one compound was identified, the sesquiterpene, (*E*-caryophyllene (98.6%).

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