



## Agronomical assays, chemical composition and brine shrimp toxicity assay of essential oil of *Pogostemon cablin* Benth

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*Pogostemon cablin* Benth. (Lamiaceae), popularly known as patchouli, is worldwide cultivated for extraction of essential oil which is rich in mono and sesquiterpenes and has medicinal properties such as antiemetic and antifungal (1,2). In Amazon, patchouli is known as "oriza" and used in the perfume industry. The aim of this work was to evaluate the yield, the chromatographic profile of the essential oil and to verify their toxicity by brine shrimp assay (*Artemia salina*). Sprouts of 20 cm from Belém-PA were cultivated in Santarém-PA and submitted to three different agronomical treatments using as substrates: "terra preta"- biochar-rich soil found in the Amazon region (T1), "terra preta" and poultry litter (T2) and "terra preta", carbonized rice and sawdust (T3). After 100 days of cultivation, the leaves of the plants were collected and dried, followed by hydrodistillation using Clevenger-type apparatus during 3 h. The yield was calculated based on dry matter. The essential oils were submitted to chromatographic analysis in the following conditions: GC/MS Agilent Model HP-6890 coupled to a selective mass detector, column HP-5MS (30m X 0.25mm X 0.25 µm), temperatures: injector 220 °C, detector 250 °C, oven 60 °C, 3 °C min<sup>-1</sup> to 240 °C (20 min), carrier gas He 1.0 mL min<sup>-1</sup>. Compounds were identified by comparison with NIST-05 library, calculating retention index and comparing with literature. *Artemia salina* eggs were incubated in artificial saline solution during 24 h under illumination until the hatching. Ten nauplii were transferred to tubes containing saline solution and samples in the following concentrations: 1, 10, 100 and 1000 ppm. The assay was done in triplicate and the mortality rate of the nauplii was performed before 24 h. The yield of essential oils obtained from T1, T2 and T3 were, respectively, 1.8, 1.0 and 1.0 %. Major compounds of the essential oils were, respectively: patchoulol in 66.5, 73.4 and 71.7 % (IR: 1668); α-guaiene in 3.1, 6.1 and 4.1 % (IR: 1449); α-bulnesene in 3.6, 7.6 and 4.9 % (IR: 1507); seychelene in 1.7, 1.5 and 2.1 % (IR: 1441); α-patchoulene in 1.4, 2.1 and 2.0 % (IR: 1454) and β-patchoulene in 1.3, 0.6 and 0.5 % (IR: 1379). The essential oils showed 100 % mortality at 100 and 1000 ppm, showing the acute toxicity in nauplii of *A. salina*.

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