



Chemical composition and topical anti-inflammatory activity of *Plectranthus amboinicus* (Lour.) Spreng. (Lamiaceae) essential oil

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Plectranthus amboinicus is known as malvariço, malva-do-reino, hortelã-graúda, and is widely used in folk medicine for the treatment of inflammation, cancer, and respiratory infections (1). The aim of this study was to analyze the chemical composition of *P. amboinicus* essential oil and investigate its topical anti-inflammatory activity. Fresh leaves (500 g) were collected at 7:00 am in the Medicinal Garden of the Federal University of Pernambuco and extracted by hydrodistillation in a Clevenger apparatus for 2 h. Chemical analyses by GC/MS was performed using a gas chromatograph Agilent Technologies (Palo Alto, CA, USA), model 7890A, equipped with a flame ionization detector and a selective mass detector, model 5975C, with a capillary column Agilent J&W HP-5MS (30 m X 0.25 mm X 0.25 µm). The oven temperature was programmed at 70 °C with an increase of 4 °C/min until 280 °C, then maintained for 15 min. The carrier gas was helium, with a constant flow rate of 1.4 mL/min. The temperature of the ionization source was maintained at 280 °C, ionization energy at 70 eV, and ionization current at 0.7 kV. Mass spectra were recorded from 30 to 450 u. Individual components were identified by matching their 70 eV mass spectra with those of the spectrometer database by using the Wiley L-Built library and by comparing their retention indices and fragmentation patterns with those of the NIST. Topical anti-inflammatory activity was evaluated by croton oil-induced ear edema in mice. Briefly, mice were anesthetized with halothane and received 20 µL of croton oil 2% in acetone at the right ear. After drying, animals received 3 µL of essential oil diluted in acetone. Left ear received acetone and was used as control. The animals were euthanized after 6 h and samples of 6 mm of diameter were taken and weighted for edema measurement. The results were expressed as mean ± SEM and analyzed by ANOVA with posttest of Bonferroni, p<0.05. Essential oil extraction yielded 0.015%. GC/MS analyses identified 17 compounds, corresponding to 96.99% of the oil. Of these compounds, 76.27% were monoterpenes (55.26% oxygenated), and 20.07% were sesquiterpenes (1.24% oxygenated). The major compounds found were carvacrol (53.90%), *p*-cymene (12.82%), β-caryophyllene (9.97%), α-bergamoptene (5.39%), γ-terpinene (5.17%), and α-humulene (2.87%). Topical administration of *P. amboinicus* essential oil had no effect on the croton oil-induced ear edema, while dexamethasone (0.1 mg/ear) inhibited the ear edema by 81.3%. This animal model is used as a screening method for topical active anti-inflammatories (2). This data shows that the essential oil of *P. amboinicus* does not have topical anti-inflammatory activity in the used dose.

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