

**MDGC analysis and biological evaluation of essential oil from *Cymbopogon flexuosus* (Steud) Wats cultivated at PAF/FIOCRUZ (RJ)**

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*Cymbopogon flexuosus*, popularly known as lemongrass, belongs to the Poaceae family, which comprises approximately 500 genus and 8,000 herb species. Chemical profile of essential oil from *Cymbopogon flexuosus* cultivated at Agroecologica Platform of Phytomedicines (PAF/FIOCRUZ) allowed the identification of 13 compounds from fresh and frozen leaves samples, including two major compounds (neral and citral). In the writhing assay induced by acetic acid (0.8%), to check the antinociceptive activity, the two samples of the essential oil at the dose of 1mg/kg presented significant inhibition of writhings: 66.44% and 54.48%, respectively, compared to control. The in vitro cytotoxicity bioassay of both samples showed toxicity at the dose of 50µg/mL. The essential oil extraction obtained by steam distillation, using the modified Clevenger apparatus. The Shimadzu MDGC system consisted of two GC-2010 gas chromatographs (defined as GC 1 and GC 2), an MS-QP2010 quadrupole mass spectrometer. The MDGC transfer device, located in GC 1, is connected to an advanced pressure control (APC) unit which supplies carrier gas (He), at constant pressure. In a GC 1 we used an HP-FFAP 25m x 0.20mm i.d. x 0.33µm (Agilent) and GC 2 a Rtx-5MS 30m x 0.25mm i.d. x 0.25µm (Restek) as columns. All data were collected by the GC Solution software (Shimadzu) for the FID (GC 1) and by the GC-MS solution software for the MS (GC 2). MS: Ion source: 250°C; interface temp: 250°C, interval scan: 40-400 *m/z*, scan speed: 2000amu/s. The analgesic activity was evaluated through Collier's method. The major compounds in the volatile oil samples obtained from the fresh and frozen leaves were quantified through standardization of the areas in the chromatogram obtained by analysis MDGC in the GC 1 (FID) were neral (36.92 and 37.12%) and geranial (42.70 e 44.04%), followed by myrcene (3.09 and 2.33%). Our study have showed that the sample oil from fresh and frozen have different concentration composition and they present a potential antinociceptive activity.

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