



# Cytotoxic effects of essential oils from three *Lippia gracilis* Schauer genotypes on HeLa, B16, and MCF-7 cells and normal human fibroblasts

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**ABSTRACT.** This study aimed to evaluate the chemical composition of the essential oils from three genotypes of *Lippia gracilis* Schauer (Verbenaceae) and investigate the cytotoxic activities of these oils. Essential oils were extracted from the leaves using a Clevenger-type apparatus, and chemical analysis was performed using a gas chromatograph coupled to a mass spectrometer and flame ionization detector. 3T3, MRC5, B16, HeLa, and MCF-7 cell lines were used to study the *in vitro* cytotoxicity of the essential oils, and the level of cell death was determined using the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide test with three replicates. The cytotoxic activity was expressed as the concentration that inhibited 50% of cell

growth. The main compound in the essential oil of LGRA-106 was thymol (40.52%), while LGRA-109 and LGRA-201 contained 45.84 and 32.60% carvacrol, respectively, as their major compound. The essential oils of *L. gracilis* showed cytotoxic activity against both normal and tumor cells at concentrations below 100 µg/mL; this demonstrated the antitumor potential of these essential oils, which should be further investigated.

**Key words:** *Lippia gracilis*; Germplasm; Volatile oil; Thymol; Carvacrol; Antitumor potential