

**Title:** Chemical Characterization and Antibacterial effect of *Cymbopogon martinii* Essential Oil in the microbiota

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**Summary:**

The microbiota can influence physiological functions, including protection against infection, patterns of response of the immune system and arrangement for autoimmune diseases. Bacterial genera such as *Staphylococcus*, *Propionibacterium*, *Corynebacterium* and *Micrococcus* are found in the microbiota of the human skin, but 50% of the total microbiota of the face and back skin is represented by one micro-organism, the bacterium *Propionibacterium acnes*. There are strains of *P. acnes* associated with acne while others have been associated with opportunistic infections. We carry out chemical characterization of *Cymbopogon martinii* essential oil. Separation and quantification of substances were made by gas chromatography with flame ionisation detector and the identification of substances was performed on a gas chromatograph coupled to a mass spectrometer. We determined the antibacterial activity of *Cymbopogon martinii* essential oil for *Staphylococcus epidermidis* ATCC 12228 and to *Propionibacterium acnes* NCTC 737 through the sensitivity test by broth microdilution and obtain the values of minimum inhibitory concentration (MIC) of *Cymbopogon martinii* essential and its major compound. The major compound was determined by chemical characterization, geraniol - 84.99% of the oil. We determined the minimum inhibitory concentration (MIC) for these compounds, whereas for both the MICs were 2.500µg/mL, ie 3µL/mL of *Cymbopogon martinii* essential oil and 2.83µL/mL of geraniol both for *Propionibacterium acnes* NCTC 737 and for *Staphylococcus epidermidis* ATCC 12228. The results indicate that probably the major compound geraniol is responsible for the antibacterial activity of this oil.

**Keywords:** *Cymbopogon martinii*, *Propionibacterium acnes*, *Staphylococcus epidermidis*

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