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Abstract

In Vitro Antimicrobial Activity of Vetiver Essential Oil (*Chrysopogon zizanioides*) †

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Introduction: Vetiver (*Chrysopogon zizanioides*) is a perennial grass traditionally used in folk medicine due to the properties of its essential oil, mainly obtained from the roots, which exhibits antimicrobial, antiparasitic, anti-inflammatory, antifungal, and antioxidant activities. The aim of this study was to evaluate the in vitro antimicrobial potential of vetiver essential oil against different Gram-positive bacteria (*Staphylococcus aureus*, *Enterococcus faecalis*) and Gram-negative bacteria (*Klebsiella pneumoniae* and *Pseudomonas aeruginosa*). **Methodology**: Vetiver essential oil was purchased from a commercial brand belonging to a company located in Santa Catarina, southern Brazil, with local production of the plants. The oil, supplied and extracted from roots by steam distillation, was tested using the disk diffusion method. Bacterial inocula were seeded on Müller–Hinton agar (Kasvi, Brazil) with discs impregnated with 10 µL of essential oil. The test was performed in triplicate, and plates were incubated at 37 °C for 18 to 24 h, followed by measurement of inhibition zones. **Results**: Vetiver oil showed limited antimicrobial activity, with inhibition zones of 11.56 mm against *S. aureus*, 10.04 mm against *E. faecalis*, and 8.25 mm against *K. pneumoniae*. However, it showed no inhibitory effect against *P. aeruginosa*. **Conclusions**: The findings demonstrate that although vetiver essential oil has recognized bioactive properties, its antimicrobial efficacy is reduced compared to other essential oils, particularly against Gram-negative bacteria, highlighting the need to investigate synergistic combinations or specific applications to enhance its therapeutic potential.

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