

TITLE: ANTIMICROBIAL ACTIVITY OF *BACCHARIS DRACUNCULIFOLIA* EXTRACTS AND ESSENTIAL OIL AGAINST *STAPHYLOCOCCUS AUREUS*

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ABSTRACT:

As a consequence of the increase in bacterial resistance to antibiotics, several researches are being conducted in the field of natural products, exploring suitable alternatives for the treatment of infections. Among various plants of Brazilian Cerrado biome, *Baccharis dracunculifolia*, commonly known as “alecrim-do-campo”, has a wide variety of chemical constituents with biological activities. This study aimed to evaluate the *in vitro* antimicrobial activity of *Baccharis dracunculifolia* extracts and essential oil against *Staphylococcus aureus* ATCC 25923. *B. dracunculifolia* leaves were obtained from “Fazenda Água Limpa, Brasília, Distrito Federal”. The extracts were prepared using 100 g of dried leaves and cold extraction process (passive maceration), resulting in ethanolic and hexane extract. The extracts were dried by a rotary evaporator before use. The essential oil was obtained from 400 g of dried leaves by hydrodistillation for 6 h using a Clevenger apparatus. The antibacterial assay was done by disc diffusion method and microdilution method to determine the minimum inhibitory concentration (MIC), according to *Clinical and Laboratory Standards Institute*. The extracts did not present satisfactory results for inhibition of the growth of *S. aureus* in the disk diffusion tests. It can be understood that the disc diffusion method was not suitable for the analyzed extracts, considering that the high molecular weight of the components made difficult the diffusion of the antimicrobial substances for the agar. The essential oil resulted in inhibition of bacterial growth, with mean values of 22.3 mm. In the microdilution tests for MIC determination, the extracts and the essential oil showed antibacterial activity. The ethanolic extract showed MIQ50 at the concentration of 1.25 mg/mL and MIQ90 at 2.5 mg/mL. The hexane extract showed MIQ50 at 10 mg/mL and MIQ90 at 20 mg/mL. And the essential oil showed MIQ50 at 0.2 mg/mL and it was not possible to determine MIQ90 because the oil formed a turbid solution when tested in higher concentrations, not allowing an accurate reading of turbidity caused by microbial growth. According to the results, extracts and essential oil obtained from *B. dracunculifolia* when evaluated against *S. aureus* ATCC 25923 showed to be effective in inhibiting bacterial growth. Thus, it can be concluded that *B. dracunculifolia* from Cerrado is a promising species for the development of antimicrobial drugs for gram-positive bacteria.

Key words: *Baccharis dracunculifolia*, alecrim-do-campo, minimum inhibitory concentration, antibacterial activity