

TITLE: ANTIBACTERIAL ACTIVITY AND ACUTE TOXICITY OF FRACTIONS OF *Foeniculum vulgare* Mill EXTRACT.

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ABSTRACT:

Foeniculum vulgare Mill, popularly known as fennel, is a medicinal plant widely used in folk medicine, being used in inflammatory and infectious processes. Due to the events of bacterial resistance to synthetic antimicrobials, it is necessary to search for natural alternatives, high viability and low toxicity, to control pathogens. In view of this, the objective was to evaluate the antibacterial activity and acute toxicity of the polar and apolar fractions of the ethanolic extract of *F. vulgare*. The crude extract was obtained by means of the Soxhlet apparatus and its fractions were separated on a silica chromatographic column, the polar fraction obtained using methanol and the non-polar fraction obtained with hexane. Solvent-free fractions were used for the evaluations. In order to evaluate the antimicrobial activity, the Broth Microdilution methodology was used, as proposed by the National Committee for Clinical Laboratory Standards (NCCLS, 2002), which obtained the minimum inhibitory concentration (MIC) of the fractions on the microorganisms *Staphylococcus aureus* and *Escherichia Coli*. Acute toxicity was assessed by testing in *Artemia salina*, thus finding the LD₅₀ of the compounds obtained. For both *S. aureus* and *E. coli*, the polar fraction had MIC of 31.25 µg mL⁻¹ and the non-polar fraction of 3.9 µg mL⁻¹. Both extracts were considered to be highly effective because they demonstrated MIC values below 500 µg mL⁻¹. The LD₅₀ value of the polar fraction was 15.62 µg mL⁻¹ and the non-polar fraction was 62.5 µg mL⁻¹. Therefore, it is considered impracticable to use the polar fraction of the extract, since the toxic dose determined was lower than the minimum effective dose value, on the microorganism. Therefore, it can be related that only the apolar fraction presents potential for pharmacological use, since the toxic dose was higher than the effective dose on the tested microorganism.

Keywords: Fenel, *Staphylococcus aureus*, *Escherichia coli*, *Artemia salina*.