

TITLE: TOXICITY *in vivo* AND *in vitro* AND ANTIBACTERIAL ACTIVITY AGAINST *Corynebacterium ulcerans* OF ESSENTIAL OIL OF LEMON GRASS

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ABSTRACT:

The emergence of multiresistant samples of *Corynebacterium ulcerans* emphasizes the need to investigate new drugs, since this microorganism can provoke several clinical conditions, including zoonotic diphtheria. Plants have long been evaluated as a source of natural products to conserve human health and one of the most studied active principles is essential oil (EO). The objective of this study was to verify the toxicity and antibacterial activity of EO obtained from lemon grass. The EO was obtained from the leaves collected in the municipality of São Luís-MA, through hydrodistillation by steam drag. The hemolytic capacity of EO was evaluated with 1% human erythrocytes (CEP no. 1,732,522) and *in vivo* toxicity, verified using EO concentrations that were inoculated into groups of 10 *Tenebrio molitor* larvae. Minimal inhibitory (MIC) and minimal bacterial (MBM) concentrations of EO against human and dog *C. ulcerans* samples were determined by the microdilution technique and the measurement of the inhibition halo of EO against the bacterium was done by the diffusion method wells. Statistical analyzes demonstrated that CH50 568 standard deviation of 0.07620 EO to hemolysate 50% of erythrocytes, the mean larval survival was 0.2062, there was therefore no significant difference between the controls and the concentrations. The MBM or the EO MIC could not be determined against the samples used and no inhibition halo formation was observed. The EO studied showed low toxicity with the methodologies tested, besides the capacity of inhibition of bacterial growth, suggesting the possibility of use for pharmacological purposes, but not ruling out the need for tests in other methodologies.

KEYWORDS: *Corynebacterium ulcerans*, Essential oil, *Tenebrio molitor*.