TITLE: EVALUATION OF THE ANTIMICROBIAL POTENTIAL OF *Cinnamomum verum* (CINNAMON) ESSENTIAL OIL AGAINST *Corynebacterium diphtheriae* AND TOXICITY ON *Tenebrio molitor* LARVAE

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ABSTRACT:

Essential oils have been used for medicinal purposes and cinnamon is related to antibacterial activity. *Corynebacterium diphtheriae* is agent that causes diphtheria, with notification of resistance to drugs of choice in the world. This work evaluated the antimicrobial potential of *Cinnamomum verum* essential oil (EO) against *C. diphtheriae* strains and EO toxicity in *Tenebrio molitor* larvae. The EO was obtained from the leaves of cinnamon, collected in São Luís-MA, Brazil, and subjected to extraction by hydrodestilation in a Clevenger apparatus. Subsequently, was verified chemical composition of EO from gas chromatography coupled to mass spectrometry. The antioxidant activity of EO by inhibition of the phosphomolybdenum complex and toxicity of *T. molitor* larvae at concentrations 2000 to 62.5 µg/mL were analyzed. The experiment was carried out to obtain minimum inhibitory and bactericidal concentration (MIC and MBC) against 6 *C. diphtheriae* strains from diphtheria outbreak in Maranhão, Brazil, and 2 American Type Culture Collection using the microdilution test from the initial concentration of 3000µg/mL. Eugenol was major chemical in the EO composition. The EO had low antioxidant activity. The rate survival in bioassay with *T. molitor* larvae was 56.88%. Cinnamon essential oil inhibited the growth of 4 strains and did not present CBM. Although cinnamon EO it did not present bactericidal activity, had interesting results of pharmacological aspect and could turn out to be a product for concomitant use of conventional drugs.

Keywords: antioxidant activity, chemical composition, eugenol

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