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

AUTHORS: ALVES, M.B¹ ²; NASCIMENTO, K.S¹; MENDES, L.S.S.²; VIANA, P.R.S.¹; SOARES, T.R.¹; SILVA, I.S.S.¹; FIRMO, W.C.A.¹, MATTOS GUARALDI, A.L³; SABBADINI, P.S.¹ ²


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 hydrodistillation 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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