CARDIOTOXICITY EVALUATION OF JATROPHA CURCAS L. EXTRACTS IN ISOLATED RAT HEARTS PERFUSED BY LANGENDORFF TECHNIQUE.

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ABSTRACT

In the world scenario, Brazil stands out for its immeasurable source of natural resources that represents a potential field to investigate biologically active substances to the development of new drugs. Jatropha curcas L. (Physic-nut), species from Euphorbiaceae family, contains molecules that exhibit biological activity of great pharmacological interest, however, with a limited use due to high toxicity of some compounds produced by the plant. In this context, the aim of the present study is to evaluate the cardiotoxicity of ethanol extracts of stem, leaf, root and seed from J. curcas. The samples were dried at 105 °C for 24 hours at oven to obtain the dry weight. The extracts were obtained by maceration process with PA ethanol using fresh and dried material of stem, leaf, root and seed. Then, the extracts were submitted to rota-evaporation, lyophilization and kept in a freezer at -20 °C. Functional groups present in each extract were identified by phytochemical screening. To evaluate the cardiotoxicity of the samples the experiments were performed on isolated hearts from male Wistar rats retrograde perfused by Langendorff technique with Tyrode solution (20°), plant extract for 10’ 0.1; 1.0 and 10μL/ml solution) + Tyrode solution (20°). The extracts obtained with fresh and dried material showed differences in the presence of catechins, steroids, flavonoids, catechin tannins, saponins, xanthones and simple phenols. The extracts produced from different plant structures and fresh seeds did not induce any significant cardiac abnormalities in the ECG records. However, the dry seed extract of Physic-nut (1μg/mL) led to irreversible severe disturbances such as polymorphic ventricular tachycardia and "torsade de pointes". Due to the elevated cardiotoxicity presented by J. curcas seeds, the identification and isolation of bioactive compounds must be done, as well as, the mechanisms of interaction with the heart.

Keywords: Medicinal plants, bioactive compounds, Physic-nut.

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