LOOKING FOR NEW COMPOUNDS WITH PHARMACOLOGICAL ACTIVITY USING CELLS FROM THE CENTRAL NERVOUS SYSTEM

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The screening of new compounds with neuropharmacological activity is imperative for the development of new drugs. Many secondary metabolites of plants may have pharmacological activity in the brain. Since there are diverse plants in Brazil, it is important to search for the pharmacological activities of their natural products. Herein, human glioblastoma GL-15 cells were used to evaluate the cytotoxicity of the methanolic root extract of *Pylocarpus spicatus*, *Zantoxylum tingoasuiba, Dictyoloma incanensis* and *Metreodorea nigra*. Furthermore, 1,2-dihydroxybenzene (catechol) toxicity to GL-15 cells was used to determine the ability of extracts, fractions and substances derived from plants to protect these cells against it. It has been previously demonstrated that the generation of superoxide and reactive quinones is involved in catechol cytotoxicity to GL-15 cells. Data demonstrated that the most cytotoxic methanolic root extract was that obtained from *Zantoxylum tingoasuiba* (EC_{50} = 161 μg/mL). The methanolic root extract of *Pylocarpus spicatus* was the less cytotoxic one and it was able to protect cells against catechol-induced cytotoxicity. Hence, fractions obtained from this extract were screened for their ability to protect cells against catechol-induced cytotoxicity. The 2aF-10 fraction at 0.6 μg/mL partially but significantly protected cells against catechol-induced cytotoxicity. The toxicity and protective effects of coumarins from leaves of *Zantoxylum tingoasuiba* were also tested. The EC_{50} calculated for coumarins was 73 μg/mL. Coumarins also protected cells at non-toxic concentrations (1 – 3 μg/mL). Coumarins were able to rescue cells from necrotic death but were unable to protect them against apoptosis. Coumarins also reverted the catechol-induced glutathione depletion. Coumarins from *Zantoxylum tingoasuiba* leaves presented antioxidant and protective effects.

Key words: glioblastoma, plants, screening.