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Xylopia aromatic hexane extract promotes antitumor effects in Ehrlich tumor carcinoma

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Introduction: The *Xylopia aromatica*, a typical Brazilian cerrado species, has been used in several studies due to the biological properties related to the presence of alkaloids, flavonoids and acetogenins presence in genus *Annonaceae*. In this study, we evaluated the antitumoral effect of extracts of *X. aromatica* and identify their secondary metabolites.

Methodology: The hexane and ethyl acetate extracts were obtained by liquid-liquid fractionation of hydroalcoholic extract (CE). A cell line of Ehrlich ascites carcinoma cells (EAC) was obtained from the peritoneal cavity. 2.5×10^5 cells/well and it was distributed and treated with a serial dilution of $1000 \mu\text{g.mL}^{-1}$ to $32.3 \mu\text{g.mL}^{-1}$ of extracts. The cells were count at 6, 12, 18 and 24 hours after treatment. To assay *in vivo*, the animals were inoculated with 2×10^6 cells/well in suspension (PBS, pH 7.2), in the right flank. The animals were treated intraperitoneally with 32.3 mg.kg^{-1} of hexane partition and 32.3 mg.kg^{-1} of ethyl acetate partition. The tumor growth was accompanied for 20 days. Secondary metabolites were identified by HPLC-DAD.

Results: All partitions and CE were cytotoxic against EAC *in vitro*. The lowest concentrations of hexane and ethyl acetate partitions (62.5 mg.mL^{-1} and 32.3 mg.mL^{-1} , respectively) were more cytotoxic than other treatments. For the *in vivo* assay, hexane partition induced a decrease of necrosis area, inflammatory infiltrate and MMP-2 expression. The extracts demonstrated a band characteristic for phenolic acid (263 nm), flavonoids (255 and 354 nm) and alkaloids (282 and 302 nm).

Conclusion: The study concludes that hexane extract of *X. aromatica* may be a promising natural source for active compounds against cancer.

Biography

Maria Juliana Ferreira Passos holds a degree in Biochemistry from the Federal University of São João Del-Rei (2013). She has concluded the scientific initiation with the development of the work entitled "Isolation and characterization of isolated peptides of venom of the snake *Crotalus oreganus abyssus* with pharmacological action on the control and release of insulin", in two consecutive years as CNPq fellow. She has completed her Master's degree at the Federal University of São João Del Rei by the Graduate Program in Pharmaceutical Sciences, finalizing the project that involves the research by targets, through the technique of Reverse Vaccinology, that allow the development of vaccines against *Schistosoma mansoni*. Currently, she is a PhD student in the multicenter program of postgraduate in Biochemistry and Molecular Biology, with emphasis on the discovery of natural extracts that have antitumor action on human glioma lines.

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