ANTITUMOR ACTIVITY AND TOXICITY EVALUATION OF THE ESSENTIAL OIL FROM THE FRUITS OF *Xylopia langsdorffiana* St. Hil. & Tul. (ANNONACEAE)


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**Introduction:** The cancer is a complex genetic disorder, which results from changes in genes generally related to proliferation, differentiation and cell death. Natural products are widely used in the treatment of cancer. *Xylopia langsdorffiana* is a tree known popularly as “pimenteira-da-terra”. The phytochemical study of the essential oil from the fruits of *X. Langsdorffiana* (O.E.X.) characterized as the major components the α-pinene and limonene.

**Objectives:** This work aimed to evaluate the toxicity and antitumor activity of the O.E.X., through in vitro and in vivo assays. **Methodology:** It was used the sulforhodamine B assay to evaluate the in vitro antitumor activity. To the in vivo assay, eight-day-old sarcoma 180 ascites tumor cells (25 x 10^6 cells/mL) were implanted subcutaneously into subaxilar region of female Swiss mice (n = 6). One day after, O.E.X. (50 and 100 mg/kg) or 5-fluorouracil (5-FU, 25 mg/kg) in 5% Tween 80 were administered (i.p.) for 7 days. There was a negative control. On day 9, peripheral blood samples were collected under thiopental anesthesia (50 mg/kg) for evaluation of biochemical and hematological parameters. All of the animals were euthanized and tumors excised and weighed. Data are presented as mean ± standard error of the mean of six animals. It was considered significant when p <0.05 compared with control group transplanted (5% Tween-80) by ANOVA followed by Tukey’s test. **Results:** O.E.X. showed in vitro antitumor activity on K562 leukemia cell line, with TGI (Total Growth Inhibition) = 1,8 g/mL. In addition, the O.E.X. showed significant cytotoxicity against NCI/ADR-RES cell line (multiple-resistant ovarian), with TGI = 45.38 μg/mL On the evaluation of in vivo antitumor activity, the tumor growth inhibition rates were 38.7, 54.3 and 70.16% after treatment with 50 and 100 mg/kg of O.E.X. and 5-FU, respectively. There were no changes in biochemical parameters. In addition, the changes observed in hematological parameters were considered reversible and lower than those produced by various anti-cancer agents. **Conclusions:** O.E.X. presented in vitro and in vivo antitumoral activity with moderate toxicity.

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