Cytotoxic screening of *Piper lucaenum var. grandifolium* extracts on leukemia cells

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**Introduction:** Piperaeeae family is widely distributed throughout tropical regions in Brazil. Species from Piper genus are used in folk medicine and studies suggest anti-inflammatory activities. As cancer is the second leading cause of death worldwide, substances with anti-inflammatory effects also present antitumoral action and natural product is a source of alternative or complementary treatment of cancer, this work studied the *in vitro* anti-leukemia action of *Piper lucaenum var. grandifolium* extracts.

**Methods:** Methanolic (MEL) and hexanic (HEL) extracts of leaves, hexanic extract of steam (HES) and inflorescence (HEI) of *P. lucaenum var. grandifolium* were obtained by static maceration. Leaves methanolic extract was fractionated by liquid-liquid partition using ethyl acetate, buthanol and methanol. The *in vitro* cytotoxicity to lymphocytic leukemia Jurkat cells (2 x 10⁵/ml) was detected by the MTT assay after 24 and 48 h treatment with the samples. Statistical analysis was performed using One-way Anova followed by Tukey’s test.

**Results:** As the MEL was not cytotoxic to leukemia cells both at 24 h or 48 h, it was fractionated to investigate the properties of their substances when separated. Their fractions also did not induce anti-leukemia action. Then, the Jurkat cells were treated for 24 h with HEL, HES and HEI at 50 µg/mL. HES and HEI showed greater cytotoxicity effect, with inhibition (p<0.0001) of 89% ± 4.1% and 86% ± 4%, respectively on mitochondrial reduction activity. Concentration curves (2.5–70 µg/ml) for these extracts were performed at 24 h and 48 h. Similar cytotoxicity indexes (84.9 ± 0.8% and 84.1 ± 4.4%, p<0.0001) were observed with lower concentration (30 µg/ml) at 48 h, for HES and HEI, respectively. Complete inhibition of leukemia cells viability was observed with HES and HEI at 70 µg/ml (24 h or 48 h).

**Conclusion:** Jurkat leukemia cells are sensitive to cytotoxic effect of *P. lucaenum var. grandifolium* specie, mainly to the hexanic extract of steam and inflorescence (HES and HEI), and these effects occurred in a time and concentration dependent manner.

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