Cytotoxicity and genotoxicity in vitro acetone extracts of *Annona muricata* L.

F. S. Barreto¹, C. C. de Oliveira¹, C. C. dos Santos¹, M. O. M. Filho¹

¹UFC-Universidade Federal do Ceará - Federal University of Ceará

**Keywords:** *Annona muricata*; cytotoxicity; genotoxicity; extract.

**Introduction:** *Annona muricata* L. (Annonaceae) is popularly known as soursop. In Brazilian vernacular medicine, its husk, leaves and roots are used with anthelmintic, antipyretic, sedative and antispasmodic purposes. This paper aimed to verify *in vitro* cytotoxic and genotoxic activities of acetone extract from leaves of *A. muricata*.

**Experimental study:** Cytotoxicity was assessed using the MTT method and tumor lineages HL-60, K-562, MDA-MB-435, HCT-8 and SF-295. Extract concentrations were incubated for 72 hours in stove at 37°C at 5% CO₂. Afterward plaques were centrifuged and supernatant was discarded. MTT was added to the plaques, which were then incubated in stove. Afterward, plaques were centrifuged and precipitate was resuspended using DMSO. Absorbance was measured using a spectrophotometer at 595 nm. For the DNA damage assay, we used concentrations of 12, 6 and 3 µg/mL, which were incubated for 24h at 37°C. Afterward, 20 µL of cells were removed, to which agarose was added to prepare slides. Slides were taken to a refrigerator in a lysis solution, then washed in a neutralizing solution. After that electrophoresis was performed. Afterward, slides were washed in neutralizing solution and fixed with ethanol. Ethidium bromide was used as tag for analysis. Positive control was doxorubicin. The IC₅₀ for tests was determined using GraphPad Prism and confidence interval was 95%.

**Results/Discussion:** The extract of *A. muricata* produced effective cytotoxicity in the tumor lineages we evaluated, with the best IC₅₀ (0.145 µg/mL) for K-562. The extract caused DNA damage to lymphocytic cells in all tested concentrations; the concentration of 12 µg/mL showed the most extensive harmful effect.

**Conclusion:** The extract of *A. muricata* is cytotoxic to tumor lineages at tested concentrations. At tested concentrations, the extract has genotoxic effects on human lymphocytes.

**Financial Support:** CNPq, CAPES, FUNCAP

**Acknowledgements:** We would like to thank the supporting agencies.