

TITLE: COMPARISON OF ANTIMICROBIAL ACTIVITY AND TOXICOLOGICAL STUDY OF DRY CRUDE EXTRACTS OF *Annona squamosa* L. BOUGHS AND LEAVES

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ABSTRACT:

Annona squamosa L. belongs to Annonaceae family, popularly known as Pinha or Ata. It has several biological activities, such as analgesic, anti-inflammatory, antimicrobial and cytotoxic. The aim of the present work is to determine the LC₅₀ of *Annona squamosa* L. against *Artemia salina* Leach and to evaluate antimicrobial activity of crude extracts. *Artemia salina* cysts were incubated for 48 hours, for larvae (Metanauplius) hatching. Then, 12 metanauplius was separated in 7 tubes, the first received only marine water and the others were added concentrations (1000, 750, 500, 250 and 50µg/mL) of extracts of boughs and leaves of *Annona squamosa* L., in triplicate, for a period of 24 hours under artificial lighting. The number of live and death larvae were counted and data was tabulated in program Microcal Origin 4.1. Minimal inhibitory concentration (MIC) was determined by diffusion technique in wells in Mueller Hinton agar, using strains of *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Streptococcus pyogenes* and *Candida albicans*. In the wells were added relative dilutions (50, 25, 12.50 and 6.25%) to initial extract sample (1g). The plates were incubated oven at 37 °C for 18 hours and Amoxicilin was used as control. Minimum Inhibitory Adhesion Concentration (MIAC) was established for the inclined tube technique in Mueller Hinton broth, with addition of sucrose under the same MIC conditions. The number of dead larvae was proportional to increase of tested concentrations and swimming behavior was similar as control (marine water). The extract of leaves and boughs of *Annona squamosa* L. showed a LC₅₀ of 114.554µg/mL and 375.557µg/mL, respectively, it means high toxicity. In MIC testes, the crude extract of boughs presented inhibitory activity in concentrations of 12.5% (halo 9 mm), 25% (halo 10 mm) and 50% (halo 13 mm), only in *Klebsiella* strain. However, the crude extract of leaves did not shown antimicrobial activity in any of strains tested. In MIAC tests, both extracts formed biofilm in all concentrations. The tests with *Artemia salina* presented highly toxicity results and antimicrobial activity of extracts proved unsatisfactory, being unviable for therapeutic treatments in humans.

Keywords: *Annona squamosa* L., antimicrobial activity, toxicity.

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