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EVALUATION OF THE CHEMICAL COMPOSITION OF ANNONA SQUAMOSA L. SEED OIL FOR APPLICATION AS A NATURAL PESTICIDE

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The search for ecological alternatives to synthetic pesticides has intensified due to environmental impacts and concerns about effects on human health. In this context, *Annona squamosa*, commonly known in Brazil as ata, pinha or fruta-do-conde, native to tropical regions, stands out as a promising plant due to its bioactive compounds. Among these compounds, acetogenins have been widely reported for their insecticidal potential, which is strongly associated with the characteristic biological activity of the Annonaceae family (Crisafulli, 2007; Paes et al., 2019). In this context, this study investigates the insecticidal activity of oil extracted from *A. squamosa* seeds against the leaf-cutting ant *Acromyrmex balzani*, an agricultural pest of economic relevance. To obtain the oil, seeds were removed from ripe fruits, separated from the pulp, and washed. They were then oven-dried, ground in a mill, and macerated in hexane for seven days. The solvent was removed by simple distillation, and the chemical composition of the oil was determined by GC-MS. GC-MS analysis identified high concentrations of oleic acid (77%), palmitic acid (10.87%), and stearic acid (10.71%). These long-chain fatty acids participate in the polyketide pathway, in which they can be converted by specific enzymes into more complex structures, such as acetogenins. The presence of these precursors suggests that the fruit seeds contain the necessary elements for the biosynthesis of acetogenins (Colin-Oviedo et al., 2022; Gallimore, 2009). Understanding the chemical profile of this oil is essential for elucidating its relationship with insecticidal activity. In subsequent stages, the insecticidal activity of the obtained oil will be evaluated against leaf-cutting ants, and other parts of the plant will be investigated to further expand knowledge on the species' insecticidal properties.

Keywords: *Annona squamosa, acetogenins, insecticide, oil, seeds, Acromyrmex balzani, GC-MS, long-chain fatty acids.*