



**Chemical analysis and lethal and sub-lethal effect of the essential oil of  
*Aristolochia trilobata* on cutting ants.**

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Leaf-cutting ants of *Atta* and *Acromyrmex* genus (Hymenoptera: Formicidae) are common insects in the Neotropics region and an important pests in agricultural environments. These organisms are often controlled using organosynthetic insecticides. However, mostly products are inefficient. This problem has generated a growing demand for environmentally safe products to control these pests. Thus, this work aimed to analyze the chemical composition of the essential oil of *Aristolochia trilobata* and test lethal and sub-lethal effect on ants *Atta sexdens* and *Acromyrmex balzani*. Acute toxicity and behavioral bioassays were performed, being these effects evaluated in repellency (evasion without contact with the essential oil) and irritability (evasion after contact) in 1% solution. The essential oil of *A. trilobata* was obtained by hydrodistillation of crushed dried stems and the identification of compounds was performed by GC/MS/FID. We identified 25 compounds in the essential oil of *A. trilobata*, and mostly were monoterpenes. The major chemical constituents were sulcatyl acetate (25.64%), limonene (24.80%), *p*-cymene (10.41%) and linalool (9.51%). The essential oil of *A. trilobata* was highly toxic by fumigation for *A. balzani* and *A. sexdens*. The lethal concentration to kill 50% of population of *A. balzani* and *A. sexdens* was 3.76 and 5.48  $\mu\text{L mL}^{-1}$  respectively. The essential oil of *A. trilobata* was repellent and caused great irritability to both species. The insects passed over 96% of the total time in the untreated side after contact. Thus, these results show the great potential of the essential oil from *A. trilobata* for the development of new insecticides.

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