LARVICIDAL EFFECT AGAINST Aedes aegypti OF A Borreria Verticillata LEAVES EXTRACT WITH LECTIN ACTIVITY


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INTRODUCTION: Borreria Verticillata (Rubiaceae), popularly known as “vassoura-de-botão” is a herbaceous plant found in the “Agreste” region of Pernambuco, that have showed antimicrobial, antibacterial, antifungal and Termitecidal activities. It was previously determined that leaves of this plant contain lectins. Lectins are proteins able to interact with carbohydrates specifically and reversibly; these proteins have shown insecticidal activity. Aedes aegypti is the vector of causative agents of chikungunya and dengue fevers. OBJECTIVE: This work evaluated a lectin preparation from Borreria Verticillata leaves for larvicidal effect against A. aegypti fourth-stage larvae (L4).

METHODOLOGY: Dried leaves were powdered and the flour obtained (10 g) was submitted to protein extraction in 0.15 M NaCl (100 mL) for 4 h at 25°C. After filtration and centrifugation, the supernatant corresponded to the saline extract (SE), which was evaluated for protein concentration and hemagglutinating activity. In each bioassay, the A. aegypti larvae (20) were placed in solution containing known concentrations of SE (25 to 90 ppm). The control group was treated with 0.15 M NaCl. After 48 h, larval mortality was recorded. The lethal concentrations (LC) protein required to kill 50% and 90% of the larvae were determined by probit analysis. RESULTS AND DISCUSSION: SE showed hemagglutinating activity of 8192, and concentration of proteins 5.44mg/mL, indicating the presence of lectins. The extract promoted death of larvae, with LC50 of 49,165 ppm; and LC90 of 76,3184 ppm. CONCLUSION: B. Verticillata leaves preparations containing lectin activity, showed larvicidal activity against A. aegypti. The purification process is under development in order to evaluate the larvicidal effect of isolated lectin.

Keywords: Lectin, Borreria Verticillata, Aedes aegypti. Supported by: CNPq and CAPES