

Analysis of the Larvicidal Biopotential of Jua Bravo (*Solanum viarum* Dunal) on Mosquito Larvae Causing Tropical Diseases

Braga, Pedro (School: Escola Santa Teresinha)

Disease-causing mosquitoes represent a public health problem as they are vectors of various arboviruses, such as dengue, chikungunya, and zika, which can cause serious sequelae in those infected, such as microcephaly, Guillain-Barré syndrome, chronic inflammatory rheumatism postchikungunya, and others. From this perspective, the research aims to investigate the action of the active principles of the extract from Juá Bravo (*Solanum viarum* Dunal) as a potential biolarvicide against culicidae dipterans. The methods to achieve the goal were: Collection of the material; Extraction of the extract; Conducting phytochemical experiments; Evaluation of the toxicity of the *Solanum viarum* extract on the larvae of *Aedes aegypti* and *Anopheles* sp. Among the samples subjected to bioassays, it was observed that saponin 1 and 2, which contain two sugars in their osidic unit, showed the best larvicidal activity, with an LC50 value of 100 ± 0.31 and 100 ± 0.24 mg/mL after application at a concentration of 400 mg/mL over a period of 24 hours. The application on mosquito larvae at a concentration of 20-100 µg/mL showed larvicidal activity in 12 hours of 20%, in 24 hours the larvicidal activity was 60%, and in 72 hours it was 100%. The mortality of 20 *Aedes aegypti* mosquito larvae exposed to the active principles in 72 hours was: glycoside (85%), steroid (56%), anthracenic (58%), and coumarin (63%). In the genetic tests with mosquitoes that came from controlled larvae, all underwent sexual dimorphism (100%), i.e., they had no capacity to reproduce, making the diseases inactive. Thus, the study indicates the importance of using natural extracts in the entomological control of *Aedes aegypti* and *Anopheles* sp in the evaluation of economically viable alternative means.

Awards Won:

Non-Trivial: 10 scholarships for Non-trivial