**Chemical composition and Mosquitocidal activity of the Pongam, Pongamia pinnata (Fabaceae) extracts on the mosquito, Culex quinquefasciatus and Aedes agypti (Diptera: Culicidae)**

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The resistance problem of mosquito vectors to different classes of insecticides that are used for public health has raised concerns about vector control programmes. Hence, the discovery of alternative compounds that would enhance existing tools is important for overcoming the resistance problem of using insecticides in vectors and ensuring a chemical-free environment. The larvicidal effects of P. pinnata extracts by using soxhlet extraction methods with methanol solvent against Aedes aegypti and Culex quinquefasciatus in early 3th instar larvae was conducted. The fresh Pongamia pinnata plant from Palayamkottai was used for crude extraction using Soxhlet method. The present study is to evaluate P.pinnata methanolic extracts and chemical analysed by UV–Vis spectroscopy, FT-IR, and GC-MS analysis. Next, following the WHO procedures for larval bioassays, the extracts were used to evaluate the early 4th instar larvae of Aedes and *Culex* mosquito vectors. Our findings showed that the crude extract of P. pinnata bioactive molecules are effective and have the potential to be developed as biolarvicides for Aedes and Culex mosquito vector control. This study recommends future research on the use of active ingredients isolated from P. pinnata extracts and their evaluation against larvicidal activity of Aedes and *Culex* in small-scale field trials for environmentally safe botanical insecticide invention.

Keywords: Larvicidal activity, Botanical extracts, Eco-friendly, Adult emergence inhibiton, Pongamia pinnata, Mosquitoes