

## Project Profile

<b>Title:</b>	<b>Evaluation of certain flora based on ethno botanical records for their pesticidal properties against important forestry insect pests</b>
<b>Principle Investigator:</b>	Dr.N.Senthilkumar
<b>Co Investigators:</b>	Dr.S.Murugesan
<b>Duration:</b>	3 years 2010-2013
<b>Objectives</b>	<ol style="list-style-type: none"> <li>1. Survey, collection and taxonomic confirmation of candidate plant species.</li> <li>2. Standardization of extraction methods for candidate plant species using different organic solvents.</li> <li>3. Laboratory bioassay with extracts of candidate plant species.</li> <li>4. Biochemical characterization of bioactive compounds of selected candidate (insecticidal) plants</li> </ol>
<b>Funding Agency:</b>	<b>ICFRE</b>
<b>Summary/Achievements</b>	<p>Ten plants have been short listed based on ethnobotanical records to identify their pesticidal properties against insect pests of forestry importance. Surveys have been made in different districts of Tamil Nadu and samples have been collected, processed, powdered and stored under deep freezer for further analysis. Different organic solvents such as acetone, methanol and ethyl acetate extracts of the collected leaves were sequentially performed and solvents were evaporated using vacuum evaporator, dried, lyophilised and stored at -20° C till bioassays and other analysis completed. Larvae of the test insects (<i>Hyblaea puera</i>) collected from teak fields were mass cultured and established nucleus culture under laboratory for bioassay studies. Bioassay studies of the extracts made from the selected plants were evaluated against teak defoliator at Nilambur, Kerala Forest Research Institute, Research station at and Ailanthus defoliator <i>Atteva fabriciella</i> and <i>Eligma narcissus</i> in <i>Ailanthus excelsa</i> plantations at Kurumbapatti, Salem. All the extracts were found to possess antifeedant and insecticidal property (40-80 %) at higher concentrations (5000 and 10,000 ppm). The extracts were subjected to column chromatographic separation followed by UV Spectrum and the fractions were analysed using HPLC for phenol and phenolics. Further GC/MS/MS analysis of extracts made out of plant species was carried out to characterize bioactive principles. The bioefficacy of individual compounds identified showed significant results when tested against teak defoliator and ailanthus defoliators in laboratory as well at field. Based on the promising results the two preformulations developed showed 60% insecticidal activity when tested against casuarina bark eating caterpillar, <i>Indarbelaquadrinotata</i> under field conditions.</p>