

Project Profile

Title of the Project	:	Prospecting bioactive compounds from certain flora: Biopesticides against papaya mealybug, <i>Paracoccus marginatus</i> Williams and Granara de Willink
Principle Investigator	:	Dr. S. Murugesan
Co Investigators	:	Dr. N. Senthilkumar
Duration of Project	:	3 years (2011-2014)
Objectives	:	<ul style="list-style-type: none"> • Extraction, isolation, characterization, identification, and variation of bioactive principles of selected plant species (plants which are not hosts to the mealy bug, <i>P. marginatus</i> but reported toxic to other insects) by chromatographic methods. • Screening and evaluation of bioactive compounds of selected plant species for their insecticidal, antifeedant, repellent properties against <i>P. marginatus</i> under greenhouse and field trials for generation of new and safe pesticides. • Development of suitable procedures/preformulations for field applications of the active principles.
Funding agency	:	TNSTC-DST
Summary/Achievements	:	<p>Survey on mealy bug was conducted in papaya, teak agroforestry plantation, tapioca, eucalyptus, teak, casuarinas, <i>Ceiba pentandra</i>, Ailanthus and <i>Thespesia populanis</i> plantations in various districts under seven Agroclimatic zones in Tamilnadu. Pest monitoring was made at regular monthly interval was carried out in papaya plantations at Annadhasampalayam, Sirumugai, Coimbatore Dt. Population trend was correlated with abiotic environmental factors and arrived regression equation for early warning system. Mealy bug incidence was observed in the plantation adjacent to papaya plantation, where the damage is 100%. <i>Adathoda vasica</i>, <i>Melia dubia</i>, <i>Vitex negundo</i>, <i>Aristolochia bracteata</i> and <i>Pongamia pinnata</i>, leaves were collected from Sirumugai, Poondi, Mullankadu and Sadivayal, shade dried, processed. Sequential extractions were made from the processed leaves with different solvent system and the water extracts were dried by using spray drier at PSG College of Technology, Coimbatore for further chemical analysis. Bioassay studies were conducted against mealybug to ascertain bioefficacy of ethnobotanicals against papaya mealybug. Biochemical profiling of all the extracts were made using UV, TLC, HPLC and GCMSMS analysis. Field bioassay studies were also conducted to find out the efficacy in Kannurpudur at Thandukarampalayam (Coimbatore district). Based on the efficacy, preformulation namely <i>Crawl clean</i> (Green insecticide) was developed to contain the pest.</p>