Project Profile

Title:	**Studies on oil: chemical composition, antifeedant, insecticidal and antifungal activities of tree borne oil seeds**
Principle Investigator:	Dr.S.Murugesan
Co Investigators:	Dr.N.Senthilkumar Dr. V. Mohan Dr.R. Anandalakshmi
Duration:	3 years: 2010-2013
Objectives 1. To evaluate the inhibitory potency of oils of *Calophyllum inophyllum, Hydnocarpus pentandra, Quassia indica, Erythrina indica, Moringa oleifera, Pongamia pinnata* and *Sapinduse marginatus* and synthetic pesticides/fungicides against teak defoliator *Hyblaea puer*a and some of the fungal isolates. 2. Chemical investigation of the major compounds ofthe oils, which make easy to investigate Active Principles of biopesticidal and medicinal importance. 3. To develop suitable pre-formulations for application at nursery level in combination with commercially available oils like neem/pongam.	
Funding Agency:	**I**CFRE
Summary/Achievements	The selected Tree Born Oil seeds (TBOs) were collected from the natural stands in Tamilnadu and Kerala. Seeds were processed and extracted oil fractions for bioassays and chemical analysis. Antifungal activity of TBOs oils was tested against five fungal pathogens in comparison with fungicide and observed no antagonistic activity but found to have synergetic activity. The bioefficacy of the oils was tested against teak defoliator at laboratory in different concentrations and observed larval mortality after 24 hours of treatment. Oils fractions were tested against *Atteva fabricella* and *Eligma narcissus* larvae in *Ailanthus excelsa* field plantation at Kurumbapatti, Salem and restrain the larval activity. The bioactivity of the extracts and fractions of the oils were further confirmed through bioassay methods. Extracts were sprayed against some of the microbials infected seedlings viz. *Tectona grandis*, *Swietenia mahagoni*, *Terminalia bellirica*, *Syzygium cumini*, *PterocarpusMarsupium* and *Gmelina arborea* raised by Tamil Nadu Forest Department at Thirumurthi Hills, Udumalpet. Tree born seed oils were analysed, and identified the major bioactive compounds like fatty acid methyl esters (FAME). Study of bioefficacy of the identified individual compounds against the defoliators of Teak, Ailanthus in terms of antifeedant, insecticidal activity showed significant larval mortality for Cyclopentanedeconone compared to other molecules. Based on the significant insecticidal property of the TBO oil & identified individual compounds like fatty acid methyl esters (FAME) preformulations were developed. Bioefficacy of the preformulation of oil fractions extracted from the *H.pentandra, L.camara*, neem and Pongam tested against the defoliators of teak/ ailanthus, casuarinas both in the laboratory and field condition showed significant result and a new product Tree Pal (H) has been developed and released during the Tree Growers Mela 2013.