

PROJECT PROFILE

Title of the Project:	Production of recombinant antifungal/antipest lectin from <i>Withania somnifera</i>
Principle Investigators:	Dr. Modhumita Dasgupta
Co Investigators:	Dr. J.P. Jacob, Scientist F
Duration:	2010-2014
Objectives:	<ol style="list-style-type: none">1. Isolation and cloning of full length lectin gene from <i>Withania somnifera</i>2. Production, purification and characterization of the recombinant lectin3. Functionality analysis of the recombinant lectin for antifungal/antipest properties
Funding Agency:	Department of Biotechnology, Govt. of India

Summary

- A mannose-binding lectin (*WsMBPI*) was isolated and characterized from the leaves of *W. somnifera*. The gene was expressed in bacterial system and the recombinant lectin was found to have significant insecticidal activity against the teak defoliator *Hyblaea puera* (Lepidoptera: Hyblaeidae) and seed feeder *Probergrothius sanguinolens* (Hemiptera: Pyrrhocoridae).
- *In planta* validation of *WsMBPI* was also conducted in tobacco and the transgenic plants with ectopic expression of the lectin were found to have antipest properties.
- The Salicylic acid treated leaf transcriptome of *W. somnifera* was sequenced and 17 Pathogenesis-related genes were identified.
- Isolated and characterized a cysteine protease inhibitor (cystatin) from SA treated leaves of *W. somnifera*.