

CHAPTER 15

ENVIRONMENTAL BIOLOGY

Doctoral Theses

153. FIROZ ANWAR
Genetic Transformation of Chickpea with Bacterial Coda Gene for Enhancing Drought Tolerance.
Supervisor : Prof. P. Pardha Saradhi
Th 15293

Abstract

Aims to enhance tolerance of chickpea to drought, low temperature and frost, through metabolic engineering by introducing the codA_{ps} gene for one enzyme (i.e. choline oxidase) mediated, simplest known glycinebetaine biosynthetic pathway.

Contents

1. Introduction 2. Materials and methods. 3. Results. 4. Discussion. 5. Summary and conclusion. 6. References.

154. GROVER (Amit)
Molecular Analysis of Genes Involved in Zinc and Copper Ion Resistance in Mycobacterium Smegmatis.
Supervisor : Prof. P. Pardha Saradhi
Th 15292

Abstract

Deals with the construction of *M. smegmatis* mc²155 transposon mutant library, screening of transposon mutants for zinc and copper ion sensitivity, characterization of zinc and copper ion sensitive mutant - determination of number of transposon insertion; mapping of transposon insertion site in chromosomal DNA and functional characterization of disrupted gene from mutant with highest zinc and copper ion sensitivity - complementation of the mutant with wild-type gene; transcriptional analysis of gene; in-silico analysis of gene homologues in cognitive mycobacterial species.

Contents

1. Introduction. 2. Identification and characterization of genes involved in zinc ion resistance in mycobacterium smegmatis. 3. Identification of genes involved in copper ion resistance in mycobacterium smegmatis. 4. Characterization of mycobacterium smegmatis copper ion sensitive mutant with disruption in gene encoding for metalloprotease. Summary, conclusion and bibliography.

155. KOUMELEH (Abbas Shahdi)
Impact of Global CO₂ Changes on Paddy Fields.
Supervisors : Prof. P. Pardha Saradhi and Dr. D. C. Uprety
Th 15291

Abstract

Studies the impact of elevated CO₂ using the FACE and OTC technologies on physicochemical properties and nutrient (macro as well as micro) status of paddy soil under submerged and un-submerged soil conditions. Evaluates elevated CO₂ induced alteration in growth and nutrient status of four rice cultivars under FACE and OTC condition.

Contents

1. Introduction. 2. Review of literature. 3. Material and methods. 4. Results. 5. Discussion. 6. Summary and conclusions. 7. References.