

CHAPTER 21

GENETICS

Doctoral Theses

180. HAZARIKA (Pranjal J.)
Development of Transgenic Tomato for Stress Tolerance by Over-expression of S-Adenosylmethionine Decarboxylase Gene.
Supervisor : Prof. M. V. Rajam
Th 16333

Abstract

Develops tomato transgenic plants for enhanced tolerance to wilt causing fungus *F. oxysporum* and early blight causing fungus *A. solani* as well as to abiotic stress (salinity drought and extreme temperatures) via over-expression of a key polyamine biosynthesis gene ((SAMDC) under the control of stress-inducible PAI promoter and also constitutive CaMV 35S promoter.

Contents

1. Introduction. 2. Review of Literature. 3. Materials and methods. 4. Results and discussion. 5. Summary and conclusions.

181. MANOJ KUMAR
Biochemical and Genetic Analysis of Enterocin LR/6 Production by Enterococcus Faecium LR/6.
Supervisor : Prof. Sheela Srivastava
Th 16332

Abstract

Deals with the detailed identification and characterization of the strain LR/6. It also describes the results demonstrating its bacteriocinogenic potential. Delineates the physiological parameters important in bacteriocin production and the significance of the medium manipulations using statistical designs to bring about an enhancement of production. Also deals with characterization

of the crude bacteriocin preparation in terms of different relevant parameters; the detailed steps involved in the purification of bacteriocin, enterocin LR/6 produced by strain LR/6. Provides the current and appropriate strategies to improve the tedious purification steps. The purification is further supplemented with the characterization of enterocin LR/6 for its properties. Further deals with evaluation of strain as a probiotic. It also evaluates the antimicrobial potential of enterocin against an important food-borne pathogen, *Listeria monocytogenes*.

Contents

1. Introduction. 2. Materials and methods. 3. results. 4. Summary and conclusions.

182. PADMAJA (Kamada Lakshmi)
Genome Mapping and Molecular Dissection of Seed Coat Colour Trait in Brassica Juncea.
 Supervisor : Prof. Akshay K. Pradhan
Th 16334

Abstract

Describes enrichment of the existing *B. juncea* map with PCR-based codominant SSR markers; development of comparative map in *B. juncea* using single copy genes from *arabidopsis thaliana* and tagging and fine dissection of seed coat color trait in brassica juncea.

Contents

1. Introduction. 2. Review of Literature. 3. Materials and methods. 4. Results. 5. Summary and conclusions.

183. SINGH (Amarjeet Kumar)
Development of transgenics in cotton with cry genes and their analysis.
 Supervisor : Prof. Deepak Pental
Th 16331

Abstract

Develops transgenic lines in cotton (Coker 310FR) to confer resistance to a major insect pest *H. armigera*. The study is

based on analyzing 187 independent transgenic lines containing different combinations of cry genes and promoters using six different constructs. Of the 187 lines analyzed, 123 independent lines were developed in the present study using three different constructs while progenies of the remaining 64 lines analyzed, were available in the laboratory. Provides new facets on developing transgenics with cry1 Ac gene.

Contents

1. Introduction. 2. Development and analysis of transgenic lines expressing cry 1Ac and cry1C genes. 3. An analysis of expression of Cry1Ac protein and phenotype of the transgenic lines. 4. Detailed studies on the K30 event and its progenies from crosses with parental line Coker 310FR and some elite Indian cultivars. 5. Conclusions.