

CHAPTER 18

GENETICS

Doctoral Theses

191. GHOSH (Nitika)
Genetic Characterization of Plantaricin (pln) LR14 Locus in a Potentially Probiotic Strain, Lactobacillus plantarum LR/14.
Supervisor : Prof. Sheela Srivastava
Th 18900

Abstract

Studies is directed towards the optimization of bacteriocin, plantaricin LR/14 production by Lactobacillus plantarum LR/14, identification and characterization of genetic determinants involved, and probiotic potential of the strain LR/14. Lactic acid bacteria (LAB) have been demonstrated to be associated with a large variety of food fermentations that are known to have some beneficial property due to the production of lactic acid, hydrogen peroxide, and bacteriocins.

Contents

1. Introduction. 2. Materials and methods. 3. Result. 4. Discussion. 5. Summary, conclusions and reference.

192. SHAVETA KANORIA
Studies on the Role of a Synthetic 5'UTR on Transgene Expression in Dicotyledonous Plants.
Supervisor : Dr. Pradeep Kumar Burma
Th 18899

Abstract

Demonstrates that the presence of the 28 bp long region encoding a synthetic 5'UTR stretch (synJ), up-regulated the expression levels of the reporter genes gus and gfp when transcribed under either a strong viral promoter like the 35S or a weak nos

promoter as studied in different tissues of transgenic tobacco lines and callus developed from cotton.

Contents

1. Introduction. 2. Influence of SynJon transgene expression in dicotyledonous plants. 3. Development of synJ based binary vectors for achieving high levels of transgene expression in plants. 4. Bibliography.

193. SINGH (Neeru)
Genetic Engineering of Tomato for Fusarium wilt Resistance by in planta RNAi-mediated Silencing of Fungal Ornithine Decarboxylase Gene.
 Supervisor : Prof. M. V. Rajam
Th 18897

Abstract

Focuses on the control of soil-borne fungus *Fusarium oxysporum* using host plant induced RNA silencing technology. *F. oxysporum* is the causal agent of vascular wilt, a disease that affects a large variety of economically important crops worldwide. Besides this, *F. oxysporum* is also known as the serious emerging pathogen of humans due to available antifungal drugs.

Contents

1. Introduction. 2. Review of literature. 3. Materials and methods. 4. Result and discussion. 5. Summary, conclusions and reference.

194. SINHA (Ranjita)
Engineering Male Sterility in Tomato by RNAi-mediated Silencing of S- Adenosylmethionine Decarboxylase Genes in Tapetal Tissue.
 Supervisor : Prof. M. V. Rajam
Th 18898

Abstract

Undertakes the effect of tapetal specific down-regulation of S-adenosylmethionine decarboxylase (SAMDC - one of the key gene in polyamine biosynthesis pathway) on tomato pollen development and fertility. SAMDC enzymes carry out the decarboxylase of S- adenosylmethionine (SAM) to convert it into

decarboxylated SAM (dSAM). The dSAM provides aminopropyle group to the diamine putrescine for the synthesis of higher polyamine spermidine and further to spermine. RNAi has been chosen for down-regulation of SAMDC gene homologos and A9 promoter is considered for its tapetal specific effect in tomato.

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