CHAPTER 58

ZOOLOGY

Doctoral Theses

495. BANO SAIDULLAH
Bronchial Reactivity In Diabetic Guinea Pigs.
Supervisors : Dr. K. Muralidhar and Dr. M. Fahim
Th 15446

Abstract

Studies the role of diabetes mellitus in influencing the development of the inflammatory reaction in airway smooth muscles and its epithelium. Demonstrates the presence of airway epithelium restricted the bronchoconstrictor response of ACh, suggesting a role of epithelium derived relaxing factors which are present in airways of control animals as well as in sensitized animals. However in diabetes alone or in combination with hyperreactive airways such involvement of epithelium-dependent machanism was absent, making airways more vulnerable to constrictor agents. Concludes that the effects of certain bronchoactive agents which are normally partially medicated through epithelium dependant mechanisms are markedly attenuated in diabetes as well as in animals with diabetes and hyperreactive airways. These findings are supported by histological examination, where epithelium was damaged in such diseased conditions. Under normal conditions epithelium plays a protective role against bronchoconstrictive agents.

Contents

496. CHAUDHARY (Rajesh)
Comparative Studies on Purification of Luteinizing Hormone (LH) from Buffalo, and Sheep and Goat Pituitaries With Spe cial References To Yield and Isoforms.
Supervisor : Prof. K. Muralidhar
Th 15441

Abstract

Deals with the purification of LH from the pituitaries of Indian goats (Capra hircus), comparative accounting of distribution of LH in the different side fractions obtained when the pituitaries of three model animals buffalo, goat and shep were processed through a couple of common protocols and the development of the protocols for the purification and enrichment of LH through single or two step protocols giving high yield of the final product.

Contents

497. DWIVEDI (Meenakshi)
Genetics of Radio-adaptive Response in Saccharomyces Cerevisiae.
Supervisors : Dr. Madhu Bala and Dr. Neeta Sehgal
Th 15439

Abstract

Described the physical and physiological factor affecting RAR and the genetics of RAR in saccharomyces cerevisiae. Reviews the mechanism of RAR and association of RAR with mutagenesis, DNA repair. Role of kinases, singal transduction, protein synthesis, heat shock proteins, cell cycle arrest and repair pathways are also reviewed. The implications of RAR have also been described.

Contents

498. GAUTAM (Dinesh kumar)
Role of Oxidative Stress in the Regulation of Spermatogenesis in Rats.
Supervisors : Dr. M.M. Misro and Dr. Neeta Sehgal
Th 15443

Abstract

Investigates the role of oxidative stress in the supermatogenic regulation in rats. Used H_2O_2, an oxygen intermediary, to induce oxidative stress in Leydig cells. Near physiological concertrations of H_2O_2 were employed to highlight the regulation of cellular functions. In addition, hormonal interventions, that affected spermatogenesis and altered reproductive hormone levels, were employed to investigate intra-testicular concentrations of H_2O_2.

Contents

499. MALHOTRA (Shweta)
Complete Nucleotide Sequence of a 30-Kilobase Plasmid pA387 from Amycolatopsis benzoatilytica DSM 43387 and molecular Characterization of the Vector pKVERL2 Capable of Conjugative Transfer from Escherichia coli to Amycolatopsis.
Supervisor : Prof. Rup Lal
Th 15361

Abstract

Attempts to determine the whole sequence of plasmid pA387 and to establish a conjugal transfer system for mediating gene transfer into the genus Amycolatopsis. Presents the complete sequence of plasmid, pA387. DNA sequence of plasmid pA387 from A.benzoatilytica DSM 43387 was determined using the methods of restriction endonuclease digestion, cloning, and primer walking. Confirm thrugh nucleotide sequence analysis that pA387 does not carry any functions other than those associated with being a plasmid. Using E.coli ET12567/pUZ8002, which provides plasmid transfer functions, the donor strain and establishes a conjugation system and suggests that isolation of a stable plasmid should be undertaken, and single restriction sites should be introduced. The construction of improved conjugative shuttle plasmid(s) that can be transferred via conjugation would significantly enhance the applicability of gene transfer system for the genetic engineering of amycolatopsis.

Contents

500. MITTAL (Alka)
Characterization of resistance in the diamondback moth to Bacillus thuringiensis Cry toxins.
Supervisors : Dr. G.T.Gujar and Dr. D.K.Singh
Th 15440

Abstract

Deals with the spatial and temporal variation in susceptibility of the diamondback moth,P.xylostella to B. thuringiensis var kurstaki HD-1 spore crystal complex and δ-endotoxinCry1Ab. It also includes evaluation of synergism between different toxins from B. thuringiensis against p. xylostella larvae. Describes detection and analysis of genetic variation in natural geographic populations of diamondback moth, P. xylostella from seven different locations using RAPD markers. Reports the studies on laboratory selection and inheritance of Cry1Ab resistance in the diamondback moth. Communicates the work on identification of molecular marker linked to B. thuringiensis Cry1Ab resistance in P. xylostella.

Contents

501. OM PRAKASH
Biochemical and Molecular Characterization of Phenanthrene Degrading Bacteria Isolated from Polycyclic Aromatic Hydrocarbons (PAHs) Contaminated Sites.
Supervisor : Prof. Rup Lal
Th 15442

Abstract

Focuses on isolatation of efficient phenenthrene degrading bacteria from diverse PAHs contaminated sites, which can thrive well in variable ecological conditions after application in the soil and their taxonomical characterization using polyphasic approach viz. 16SrRNA gene sequencing (phylogeny), fatty acid,

polar lipids and quinon analysis (chemotaxonomy) and on the basis of morphological and physiological data (numerical taxonomy). Efforts were also made for isolation and characterization of intermediates of phenenthrene degradation pathway and optimization of phenenthrene degrading potential of selected organism under laboratory conditions and under soil microcosms.

Contents

1. Introduction 2. Review of literature 3. Materials and Methods. 4. Results and Discussion 5. Summary. Bibliography.

502. POOJA SUMAN
Pesticide Residue Analysis on Different Matrices : Estimation of Uncertainty and Variability.
Supervisor : Dr. Dileep Kumar Singh
Th 15445

Abstract

Pesticide residue analysis is performed to estimate the residues of broad range of pesticides and their metabolites on a variety of matrices. Multi-residue methods facilitate the demand for efficient monitoring of multiple pesticide residue analysis. These methods involve various analytical steps and these are improved to rectify all the errors affecting the reproducibilit of the analysis. The non-reproducibility and variability in the results lead to uncertainly in residue analysis of pesticides. These uncertainly factors must be estimated in order to develop a method that confirm the reproducibility of the results. The research work encoded in the thesis emphasized on the estimation of various uncertainty factors in residue analysis of multiple pesticides on food matrices.

Contents

1. Introduction 2. Literature Review 3. Multiresidue methods 4. Uncertainly and validation 5. Matrix effect 6. Protocol 7. Materials 8. Methodology 9. Results and Discussions 10. Lettuce 11. Orange 12. Mango 13. Tomato. 14. Conclusions and Summary.

503. RATHORE (Raja Mansingh)
Digestive Enzyme Pattern in Carps During Ontogensis : Functional changes and Characterization of Proteases.
Supervisor : Dr. Rina Chakrabarti
Th 15444

Abstract

Assays the digestive enzymes quantitatively that play vital role in digestive physiology of carps during early and crucial days of development. Amylase, protease, trypsin, chymotrypsin and lipase activities have been taken into account. An effort has been made to characterize the functional proteases appeared during ontogenesis of carps. Evaluates the fate of major digestive enzymes and characterization of the functional proteases appear during early development. Indian major carp : catla catla, rohu Labeo rohita, mrigal cirrhinus mrigala; exotic fishes common carp cyprinus carpio and hybrid of silver carp Hypophthamichthys molitrix and big head carp Aristichthys noblis have been taken as test fishes.

Contents

504. SHARMA (Poonam)
Haloalkane Dehalogenase (LinB) is Resposible for β– and δ– Hexachlorocyclohexane Transformation in Sphingobium indicum B90A and IS 6100-Mediated Acquisition of lin Genes via Homologous Recombination.
Supervisor : Prof. Rup Lal
Th 15360

Abstract

Studies the chemistry and biodegradability of different HCH isomers by microorganisms both anaerobically and aerobically and highlights differences in the degradation of β– and δ– HCH isomers in sphingobium indicum B90A, Sphingobium francense Sp+ and Sphingobium japonicum UT26 with a cell biomass of ~ 20mg/ml. To further prove the differential activity of the linB gene of the three strains, the genes have been cloned in an expression vector and the degradation studies have been carried out with both the E. coli clones containing linB gene as well as the purified LinB proteins. Infers that it is difficult presently to point out the factors leading to the differences in the activity of the LinB proteins from three different strains it can only be stated that in addition to the differences in the amino acids, the host environment might also play an important role. Further

investigates the acquisition, evolution and organisation of linB gene of the three strains, B90A, Sp+ and UT26, sequence of these genes and their flanking regions.

Contents

1. Review of literature 2. Materials and Methods. 3. Results 4. Discussion 5. Summary. Bibliography.

505. UNIZA WAHID KHAN

Endocrine and Paracrine control of Testicular Functions in the Wall Lizard, Hemidactylus flaviviridis.

Supervisor : Dr. Umesh Rai

Th 15438

Abstract

Provides the direct evidence on endocrine and paracrine control of testicular functions in reptiles. The inter-relationship between different testicular cells importantly Leydig cell, Sertoli cell, and immune cells like macrophages and mast cell has been explored in wall lizards that belong to a group which is phylogenically very important being ancestor to both birds and mammals. Reveals that leydig cell activity in wall lizard is directly controlled by follicle-stimulating hormone (FSH)-like molecule, since ovineFSH increased the testosterone production and tritiated thymidine ([^{3}H] TdR) incorporation by the Leydig cells.

Contents

1. Introduction 2. Materials and Methods. 3. Endocrine and paracrine control of sertoli cell function 4. Endocrine and paracrine control of leydig cell steroidogenesis and proliferation 5. Bidirectional communication between Leydig cells and testicular macrophages 6. Differential effects of histamine on Leydig cell and testicular macrophage activities 7. Summary. Bibliography.

M.Phil Dissertations

506. AGARWAL (Shweta)
Effect of Gamma Radiation on the Activity Profile of catalase, an Antioxidant Enzyme, in a Radio-Resistant Lepidopteran Insect Pest, Spodoptera litura (Fabricius).
Supervisor : Dr. R. K. Seth

507. AGGARWAL (Archana)
Molecular Markers in Fishes with Special Reference to Selective Breeding
Supervisor : Dr. Neeta Sehgal

508. BHARTI (Neetu)
Evaluation of Antitumor Activity in Crude Extra CT of 'Kagbooti' (a Medicinal Plant) Against Dalton's Lymphoma
Supervisor : Dr. Anju Shrivastava

509. DABRAL (Sanyam)
Effect of Estradiol 17β on Reactive Oxygen Species in Different Tissues of Clarias Gariepinus
Supervisor : Dr. Neeta Sehgal

510. DEOPA (Pooja)
Studies on Soil Microbes and soil Enzymes of Three Different Locations : Delhi, Himachal Pradesh and Punjab.
Supervisor : Dr. D. K. Singh

511. GHOSH (Soma)
Effect of Gamma Radiation on Glycogen, Lipid and Protein Profile as Bioenergy Reserves of Entomopathogenic Nematode (EPN), Sreinernema glaseri.
Supervisor : Dr. R. K. Seth

512. KAPINDER
Foraging Behaviour and Effect of Nutrition on the Fitness of Parasitoids
Supervisor : Dr. A. K. Singh

513. KUMARI VANDANI RANI
Partial Sequence of Vitellogenin Gene in the Indian Fresh-water Murrel, Channa Punctatus (Bloch)
Supervisor : Dr. Neeta Sehgal

514. LOHIA (Rakhee)
Polycystic Ovary Syndrome in Indian Caucasian Population
Supervisor : Dr. Rita Singh

515. MAHTAB ZARIN
Interaction of Temperature and Radiation of Parasitization Behaviour of Trichogramma Chilonis (Ishii) on the Lepidopteran Host, Spodoptera Litura (Fabricius)
Supervisor : Dr. R. K. Seth

516. PANDEY (Neha)
Insulin Receptor Expression in PCOS Ovary of Rat
Supervisor : Dr. Rita Singh

517. PURI (Parul)
Impact of Matrix on Pesticide Residue Analysis : Apple as Matrix
Supervisor : Dr. D. K. Singh

518. SEHGAL (Lalit)
Mutation Scanning of Insulin Receptor Gene (RTK Domain) by PCR-SSCP
Supervisor : Dr. Rita Singh

519. SHARMA (Menka)
Role of Hyperandrogensim in the Etiology of Polycystic Ovarian Syndrome (PCOs)
Supervisor : Dr. Rita Singh

520. TARKESHWAR
Effect of Chinaberry, Melia Azedarach (L.), on Certain Behavioural Responses of Agricultural Pests
Supervisor : Dr. A. K. Singh

521. ZUBEDA
Influence of Temperature and Host Irradiation on Bioefficacy of Entomopathogenic Nematode (EPN), Steinernema Thermophilum (Rhabditida : Steinernematidae) on Lepidopteran Pest, Spodoptera Litura (Fabricius)
Supervisor : Dr. R. K. Seth