Isolation Screening And Identification Of Fungal | 541d83925b561f341df87722233653ee


Introduction; Review of literature: Silage and factors affecting ensiling; Organisms for ensiling; Characteristics of a good inocula; Materials and methods: Isolation of lactic acid bacteria; Screening and identification of isolates; Screening of isolates for inoculant production; Inocula production using corn stovers as carriers; Silage production; Results and discussion; Conclusion and recommendation; literature cited; Appendix tables; Appendices.

The 14th International Nitrogen Fixation Congress was held in Beijing, China from October 27th through November 1st, 2004. This volume constitutes the proceedings of the Congress and represents a compilation of the presentations by scientists from more than 30 countries around the World who came to Beijing to
discuss the progress made since the last Congress and to exchange ideas and information. This year marked the 30th anniversary of the first Congress held in Pullman, Washington, USA, in 1974. Since then, this series of Congresses has met five times in North America (three in the United States and once each in Canada and Mexico), once in South America (Brazil), four times in Western Europe (once each in Spain, The Netherlands, Germany and France), once in Eastern Europe (Russia), and once in Australia; and now for the first time in Asia. China was a most appropriate choice because China is a big country with the largest population in the World, about 1.3 billion people, which is about 22% of the World’s population. It is traditionally an agricultural country, even though China has only 7% of the available farming land. This situation explains why agriculture and its productivity are major issues for the Chinese people, its government and the scientists in the field.

The future of agriculture greatly depends on our ability to enhance productivity without sacrificing long-term production potential. The application of microorganisms, such as the diverse bacterial species of plant growth promoting rhizobacteria (PGPR), represents an ecologically and economically sustainable strategy. The use of these bio-resources for the enhancement of crop productivity is gaining importance worldwide. Bacteria in Agrobiology: Crop Productivity focus on the role of beneficial bacteria in crop growth, increased nutrient uptake and mobilization, and defense against phytopathogens. Diverse group of agricultural crops and medicinal plants are described as well as PGPR-mediated bioremediation leading to food security.

This book explores the recent advancements in cutting-edge techniques and applications of Biotechnology. It provides an overview of prospects and applications while emphasizing modern, and emerging areas of Biotechnology. The chapters are dedicated to various field of Biotechnology including, genome editing, probiotics, in-silico drug design, nanoparticles and its applications, molecular diagnostics, tissue engineering, cryopreservation, and antioxidants. It is useful for both academicians and researchers in the various disciplines of life sciences, agricultural sciences, medicine, and Biotechnology in Universities, Research Institutions, and Biotech companies. This book provides the readers with a comprehensive knowledge of topics in Genomics, Bionanotechnology, Drug Designing, Diagnostics, Therapeutics, Food and Environmental Biotechnology. The chapters have been written with special reference to the latest developments in the frontier areas of Biotechnology that impacts the Biotech industries.

This book summarizes the various areas of research in metagenomics and their potential applications in medicine, the environment and biotechnology. The book presents the recent advances in theoretical, methodological and applied aspects of metagenomics and highlights their applications in the fields of environmental microbial forensics, bioremediation, drug-discovery and agriculture. In addition, the book discusses various metagenomics approaches used for understanding the microbial physiology and biochemistry. Lastly the book describes a range of bioinformatics tools and computational methods for metagenomics analysis as well as the functional diversity and dynamics of microbial communities colonizing the human skin.

There is a large market demand for new drugs. The existing chronic or common ailments without cures, development of new diseases with unknown causes, and the widespread existence of antibiotic-resistant pathogens, have driven this field of research further by looking at all potential sources of natural products. To date, microbes have made a significant contribution to the health and well-being of people globally. The discoveries of useful metabolites produced by microbes have resulted in a significant proportion of pharmaceutical products in today’s market. Therefore, the investigation and identification of bioactive compound(s) producing microbes is always of great interest to researchers. Actinobacteria are one of the most important and efficient groups of natural metabolite producers. Among the numerous genera, Streptomyces have been recognized as prolific producers of useful natural compounds, as they provide more than half of the naturally-occurring antibiotics isolated to-date and continue to emerge as the primary source of new bioactive compounds. Certainly, these potentials have attracted ample research interest and a wide range of biological activities have been subsequently screened by researchers with the utilization of different In vitro and In vivo model of
Online Library Isolation Screening And Identification Of Fungal experiments. Literature evidence has shown that a significant number of interesting compounds produced by Actinobacteria were exhibiting either strong anticancer or neuroprotective activity. The further in depth studies have then established the modulation of apoptotic pathway was involved in those observed bioactivities. These findings indirectly prove the biopharmaceutical potential possessed by Actinobacteria and at the same time substantiate the importance of diverse pharmaceutical evaluations on Actinobacteria. In fact, many novel compounds discovered from Actinobacteria with strong potential in clinical applications have been developed into new drugs by pharmaceutical companies. Together with the advancement in science and technology, it is predicted that there would be an expedition in discoveries of new bioactive compounds producing Actinobacteria from various sources, including soil and marine sources. In light of these current needs, and great interest in the scope of this research, this book seeks to contribute on the investigation of different biological active compound(s) producing actinobacteria which are exhibiting antimicrobial, antioxidant, neuroprotective, anticancer activities and similar.

Actinomycetes are renowned as a rich source of bioactive molecules. However, the commercially potent secondary metabolites from well-known actinomycetes are difficult to discover due to the practice of screening that is leading to rediscovery of known bioactive compounds, thereby, emphasizing the need to isolate undiscovered actinomycetes. Mangroves are highly productive ecosystem though less attention has been given into the diversity of actinomycetes present in mangrove sediment particularly in Malaysia. Therefore, the objectives of this study were to isolate, screen and identify antimicrobial producing actinomycetes from sediment samples in Tanjung Lumpur mangrove. Sediments from five different sites at Tanjung Lumpur mangrove were collected and selectively pre-treated. The pretreated sediments were diluted and plated onto eight different selective media. Pretreatment of wet heat with seawater was the most effective method for the isolation of actinomycetes as it yielded a maximum of 105 isolates and IM7 was the most suitable medium for actinomycete isolation with highest percentage of recovery (31%). A total of 172 potential actinomycetes were isolated from all the media. Antimicrobial activities of the selected isolates were checked against 8 test microorganisms using primary and secondary screening. In primary screening, of 61 isolates, 43 isolates showed antimicrobial activities against one or more test microorganisms. Isolate IIUM B21 and IIUM B31 showed inhibitory activity against all the test microorganisms. They were found to have good activity against B. subtilis, S. pyogenes and C. albicans. Forty three actinomycete isolates showing positive antimicrobial activity in the primary screening were subjected to secondary screening assay. In this test, only 12 isolates showed antimicrobial activity at least to one test microorganisms. Twelve isolates were randomly selected for identification based on partial sequences of 16S rRNA gene. Eight isolates were found belong to the genus Streptomyces, 2 isolates belong to the genus Micromonospora and 2 isolates were identified as Rhodococcus species. A phylogenetic tree was constructed. The 12 identified isolates showed different morphologies on the 8 selective media. These findings revealed the potential of mangrove sediment of Tanjung Lumpur as an important source of actinomycetes with biosynthetic capabilities which might be beneficial to pharmaceutical industries.

Food systems involve a range of activities concerning food production, processing, distribution, marketing and trade, preparation, consumption and disposal. They encompass the path of food from the farm to the dinner table, meeting the food and nutritional needs of a nation. When such systems do so without sacrificing the needs of future generations, they are referred to as “Sustainable Food Systems.” The natural and physical environment, infrastructure, institutions, society and culture, and policies and regulations within which they operate, as well as the technologies they adopt, shape these systems’ outcomes. Making food systems more sustainable is a key priority for all nations, and Sri Lanka is no exception. Food systems deliver optimal performance when the policy and regulatory environment is conducive, institutions are supportive, and a combination of agricultural research investments and an efficient extension system generates the technologies and scientific evidence required for sound policymaking and agenda setting. Further, agricultural research can generate essential findings, technologies and policies for sustainable agricultural development – across disciplines, sectors and stakeholder groups. This book shares valuable insights into research conducted in the broad food and agriculture sectors in Sri Lanka. It also discusses the status quo in related disciplines, and outlines future research directions. Accordingly, it offers a valuable source of reference material for researchers, students, and stakeholders in the food and agriculture sectors, while also highlighting the types of support that policymakers and other decision-makers can provide.
In order to meet the increasing demand for food quality and safety, the control of pathogenic microorganisms from farms to consumers remains a continuous challenge. Disease has always been a critical issue in animal production, affecting animal health and wellbeing. For several decades, antibiotics and chemotherapeutic agents have been used in animal feed to treat and prevent infectious diseases or to promote growth. However, there are concerns about the risk of development of cross-resistance and multiple antibiotic resistance in pathogenic bacteria in both human and livestock. To slow the development of resistance, some countries have restricted or banned use of antibiotics in feeds. Therefore, the need to find alternatives to growth-promoting and prophylactic uses of antibiotics is of utmost importance in agriculture. Beneficial bacteria, mainly lactic acid bacteria have been effectively used previously as feed additives in livestock to manipulate the gut microbiota in order to support animal health. Therefore, the current study focused on isolation and characterisation of probiotic bacteria from raw goats milk. The first part of the study aimed at isolating and identifying potential probiotic bacteria. Bacteria from raw milk were cultured onto selective media including, M17 agar and MRS agar supplemented with 0.05 g/L cysteine-hydrochloride. A total of seventeen lactic acid bacteria were isolated, and were then identified using phenotypic assays, 16S rDNA gene sequencing and matrix-assisted laser desorption ionization-time of flight (MALDI-TOF). Lactobacillus plantarum strains (KJ026587.1, KM207826.1, KC83663.1, and KJ958428.1) and Pediococcus acidilactici were obtained. Potential probiotic bacteria were identified based on their ability to survive in the gastrointestinal conditions that include growth at low pH and bile tolerance, production of antimicrobial compounds and adhesion to the intestinal mucosa.

Methicillin-resistant Staphylococcus aureus (MRSA) emerged as a clinically relevant human pathogen more than 5 decades ago. The virulent bacterium was first detected in hospitals and other health care facilities where vulnerable hosts, frequent exposure to the selective pressure of intensive antimicrobial therapy, and the necessity for invasive procedures created a favorable environment for dissemination. MRSA emerged as an important cause of health care-acquired infections, particularly central line-associated bloodstream infection, ventilator-associated pneumonia, and surgical site infection. Despite the adoption of infection control measures, the incidence of MRSA infection at most hospitals in the United States (U.S.) steadily increased for many years, but is now decreasing. Routine clinical cultures may miss a large portion of patients who are silent carriers of these organisms and serve as reservoirs for further transmission. More aggressive measures have been sought to check the spread of this particularly virulent pathogen. Active surveillance screening for MRSA is receiving greater attention for its potential value in identifying carriers of MRSA to prevent further transmission. To identify the population of colonized individuals, microbiological samples are obtained from at-risk patients even in the absence of signs or symptoms of infection. The screening strategy may use a testing modality with a rapid turnaround time (results available on the same day as the testing is performed, typically using polymerase chain reaction (PCR), intermediate turnaround time (results available next day to 2 days after testing performed) or longer turnaround time (results available greater than 2 days after testing performed, typically culture). Because screening alone is not expected to affect health outcomes, screening strategies may include screening with or without isolation and with or without attempted decolonization or eradication. By detecting the larger population of colonized individuals, at the very least conventional precautions (i.e., hand hygiene and contact isolation) can be implemented in a broader and timelier manner to interrupt horizontal transmission of MRSA. Detection of colonized patients also permits consideration of more aggressive interventions, including attempts at microbiological eradication or decolonization. A Comparative Effectiveness Review (CER) was prepared by the Blue Cross and Blue Shield Association Technology Evaluation Center Evidence-based Practice Center (BCBSA TEC EPC) on Screening for Methicillin-Resistant Staphylococcus aureus (MRSA). The objective of the CER was to synthesize comparative studies that examined the benefits or harms of screening for MRSA carriage in the inpatient or outpatient settings. The review examined MRSA-screening strategies applied to all hospitalized or ambulatory patients (universal screening), as well as screening strategies applied to selected inpatient or outpatient populations (e.g., patients admitted to the intensive care unit (ICU), patients admitted for a surgical procedure, or patients at high-risk of MRSA colonization or infection such those on prolonged antibiotic therapy) and compared them to no screening or to screening of selected patient populations (targeted screening). The review evaluated MRSA-screening strategies with or without isolation and with or without attempted eradication/decolonization.
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Microalgae are a particularly interesting source of products that range from currently marketed human nutritionals and food ingredients, to potential sources of biofuels and animal feeds. Rapid advances in technology and commercial development are taking place worldwide. Importantly, algal cultivation does not compete with agriculture for land, water, and in some cases, fertilizer resources. Microalgal Production for Biomass and High-Value Products covers the field from a variety of perspectives with 14 chapters contributed by recognized academic experts and industrial practitioners. The book presents the latest technologies and innovations in algal biomass production, from cultivation in open ponds and photobioreactors, to strain selection, synthetic biology, pest control, harvesting, and processing. It explores novel algal products and addresses key issues, including markets, supply chains, business strategies, legal issues, current products, and future prospects. This book brings together the latest advances of interest to those already working in the field while providing an introduction to those beginning to learn about the promise of microalgae as a sustainable source of both specialty and commodity products. It gives stimulating overviews from many different perspectives that describe how laboratory and applied research are creating advances in commercial microalgae production. It also addresses the still many open questions and challenges in this field.

The book consists of 21 chapters by subject matter experts and is divided into four parts: Soil Microenvironment and Biotransformation Mechanisms; Synergistic effects between substrates and Microbes; Polyhydroxyalakanoates: Resources, Demands and Sustainability; and Cellulose based biomaterials: Benefits and challenges. Included in the chapters are classical bioremediation approaches and advances in the use of nanoparticles for removal of radioactive waste. The book also discusses the production of applied emerging biopolymers using diverse microorganisms. All chapters are supplemented with comprehensive illustrative diagrams and comparative tables.

Actinobacteria are well-known producers of a vast array of secondary metabolites. Compared with actinobacteria from temperate habitats, the community structure, diversity, biological activities and mechanisms of environmental adaptation of those actinobacteria in special and extreme environments are relatively unstudied and unclear, and their functions and utilization are even less reported. These actinobacteria are potential new sources of novel natural products and functions for exploitation in medicine, agriculture, and industry. Recent advances in cultivation, DNA sequencing technologies and -omics methods have greatly contributed to the rapid advancement of our understanding of microbial diversity, taxonomy, function and they interactions with environment. Following the success of the Research Topic “Actinobacteria in special and extreme habitats: diversity, functional roles and environmental adaptations” organized in 2015, we are happy to launch a second edition. This Research Topic second edition, comprising reviews and original articles, highlights recent discoveries on rare actinobacterial diversity, phylogenomics, biological compounds, ecological function and environmental adaptations of actinobacteria in special and extreme habitats; and broadens our knowledge of actinobacterial diversity and their ecophysiological function.

This book is a printed edition of the Special Issue "Antibacterial Activity of Nanomaterials" that was published in Nanomaterials

Special edition of the Federal Register, containing a codification of documents of general applicability and future effect with ancillaries.
State-of-the-art research by leading experts ## Advanced feedstock production and processing ## Enzyme and microbial biocatalysis ## Bioprocess research and development ## Commercialization of biobased products.

A practical manual of the key characteristics of the bacteria likely to be encountered in microbiology laboratories and in medical and veterinary practice.

The present book discusses the screening, isolation, identification and molecular characterization of thermophilic bacteria along with the production of important industrial enzymes. The plus point of this book is abundantly used images along with detailed protocols and compositions of all the reagents. This book will open new vistas to search for novel bacteria(s) present in soil which is still unexplored for their potential.

The present study deal with the isolation, screening and selection of Aspergillus niger cultures for citric acid fermentation. The organism was isolated from onion and garlic peels which were collected from local market. Pour plate method using Czapak Dos Agar medium was used for isolation. The agar plates were incubated at room temperature for 7 days. Maximum sporulation were obtained and then stored in a refrigerator at 4 °C for maintenance and further screening for citric acid fermentation. The cultural conditions and nutritional requirements for citric acid production by the selected culture were optimized in 250 ml Erlenmeyer flasks by submerged mould culture technique prior to scale up studies in a stirred fermenter. Two types of fermentation were succeeded they are solid and submerged state fermentation. In solid state fermentation basal medium for citric acid production were prepared in 7 conical flasks of about 100 ml each containing 30 g of samples like wastes of apple, pineapple, carrot, beetroot, sugarcane, mosambi and grape and whereas in submerged state fermentation basal medium. The basal medium for citric acid production were prepared in 2 conical flask of about 100 ml each containing 15 ml of samples like date syrup and sugarcane juice were added in 2 conical flasks and 3.5 g of corn flour was also taken in separate flask containing the same amount of basal medium. These samples were then sterilized in an autoclave for 121 °C for 15 lbs at 15 mins. These samples were cooled down and were inoculated with Aspergillus niger isolates which were obtained from Czapak Dos Agar medium. These flasks were then kept for incubation at room temperature for further studies. This comparative study of citric acid production in various medium were studied at each intervals up to 14 days of incubation. Pineapple and date syrup have shown an extreme citric acid production when compared to other samples.

Rapid developments in the chemical industry have lead to the distribution of a wide variety of synthetic compounds into the environment. Synthetic polymers form the base for the more than 55% of all textile material with a worldwide fiber production of 3.3 million tones. Research on the microbial degradation of xenobiotic polymers has been underway for more than 40 years. It has exploited a new field not only in applied microbiology but also in environmental microbiology and has greatly contributed to polymer science by initiated the design of biodegradable polymers. According to important use of nylon, and because of limited studies of nylon biodegradation, this study was focused on: Isolation and identification of bacteria that capable of degrading nylon6. Screening the bacteria for their ability to degrade nylon6 and select the efficient isolate(s). Determine the plasmid(s) profile of the efficient isolate(s). Determine the role of plasmid(s) in nylon6 degradation process via curing and/or transformation experiments. Study some optimum conditions for nylon6 degradation by efficient isolates.

The research focus on the following this study uses Malaysian crude palm oil (CPO) and crude palm kernel oil (CPKO) as feedstock, which was initially hydrolysed to free fatty acids (FFAs) and subsequent esterification using crude halophilic lipase; isolation, screening and identification of halophilic lipase-secreting microorganisms from various saline environments; this work only deal with crude halophilic lipase and the application of the crude lipase in characterization, compatibility and esterification studies; commercial lipase of Thermomyces lanuginosus was used as biocatalyst for hydrolysis of CPO and CPKO to corresponding FFAs, while crude halophilic lipase of Marinobacter litoralis SW-4S catalysed esterification of the FFAs to corresponding esters; this research is limited to...
esterification of hydrolysed FFAs by crude halophilic lipase and analysis of the synthesised esters was performed using only Gas Chromatographic (GC) technique.

Bioremediation for Environmental Sustainability: Approaches to Tackle Pollution for Cleaner and Greener Society discusses many recently developed and successfully applied bio/phytoremediation technologies for pollution control and minimization, which are lacking more comprehensive coverage in previous books. This book describes the scope and applications of bio/phytoremediation technologies and especially focuses on the associated eco-environmental concerns, field studies, sustainability issues, and future prospects. The book also examines the feasibility of environmentally friendly and sustainable bio/phytoremediation technologies to remediate contaminated sites, as well as future directions in the field of bioremediation for environmental sustainability. Illustrates the importance of microbes and plants in bio/phytoremediation and wastewater treatment Includes chapters on original research outcomes pertaining to pollution, pollution abatement, and associated bioremediation technologies Covers emerging bioremediation technologies, including electro-bioremediation, microbial fuel cell, nano-bioremediation, constructed wetlands, and more Highlights key developments and challenges in bioremediation and phytoremediation technologies Describes the roles of relatively new approaches in bio/phytoremediation, including molecular engineering and omics technologies, microbial enzymes, biosurfactants, plant-microbe interactions, genetically engineered organisms, and more

Amylases are well known for applications ranging from starch and food processes industry to medical applications. The increased demand for these enzymes in various industries has led to an enormous interest in developing enzymes with better properties such as raw starch degrading amylases. It is suggested that banana peel and male inflorescence could employ as a promising substrate for the production of amylase by Aspergillus niger. Further, solid state fermentation is a better choice for amylase production. The addition of external growth medium is also found beneficial for increasing enzyme production. The present study was undertaken to isolate, identify and characterize the Aspergillus niger in the culture medium followed by amylase production and extraction. The banana parts used here as substrates are ripe fruit peel and male inflorescence from locally cultivated species Ethan (Nendran), Palayamkodan (Palayanthodan), Rasakadali (Njali Poovan) and Sundari. The result shows that amylase from sundari peel have the best activity followed by Ethan peel. Ethan flower bud shows the least activity among the eight substrates under study.