CHAPTER 35

MICROBIOLOGY

Doctoral Theses

298. BHARDWAJ (Manju)
Low Temperature Active Alkaline Protease of Alkaliphilic Psychrotroph Bacillus Lehensis : Production Characterization and Potential Applications.
Supervisor : Prof. T. Satyanarayana
Th 15779

Abstract

It studies 200 bacterial isolates, obtained from 40 different environment soil samples and screened for proteolytic activity, one of which 16 are found to produce high protease activity. On the basis of maximum activity, an novel psychrophilic, alkaliphilic, endospore forming bacterium, motitle, aerobic designated MLB2^T, isolated from pristine soil samples from Leh, India (at 3500 m above sea level at temperature ranging from-20 to 30^{0}C) has been selected. The Bacillus strain (isolated from soil samples from Leh), which is a low temperature active or cold active, serine, ADS-stable, bleach stable, oxidation stable protease.

Contents

299. PARVINDER KAUR
Cell - Bound Phytase of the Yeast Pichia Anomala.
Supervisor : Prof. T. Satyanarayana
Th 15778

Abstract

Investigates the cell-bound phytase producing Pichia anomala isolated from dried flower buds of Woodfordia fruticosa due to the desired properties of thermostability, acid stability, broad substrate specificity and non-requirement of metal ions for its

activity as well as its potential utility as an animal feed supplement. For cost-effective production of the cell-bound phytase, parametric optimization in medium comprising cane molasses are attempted. The complete phytase gene is cloned and its sequence analyzed, based on which a 3D model of the phytase is studied. the efficacy of the cell-bound phytase in dephytinization of plant-based products and plant growth promotion is also tested.

Contents

1. Introduction. 2. Materials and methods. 3. Results. 4. Discussion. 5. Summary and conclusions. 6. Bibliography.

300. SAURABH SARAN
Alkaline Protease from Bacillus Licheniformis : Production, Down-Stream Processing and Potential Applications with Special Emphasis on Leather Industry.
Supervisor : Prof. R. K. Saxena
Th 15777

Abstract

A extensive screening of 200 bacterial isolates (soil samples from various regions in Delhi and from tannery effluents) was carried out qualitatively on milk agar plates and potential protease producers are selected. These potential protease producing bacteria are further evaluated quantitatively for protease production. The isolate no. SBP-114, is selected for detailed investigation and evaluation of its protease. Attempts to optimize the processes for maximum protease production followed by exzyme purification, immobilization, characterization and detailed evaluation for various potential industrial applications including leather processing. procedures for quick down-stream processing for large volumes of fermentation broths, are optimized to establish the commercial feasibility of this enzyme.

Contents

1. Introduction. 2. Review of literature. 3. Materials and methods. 4. Observations and results. 5. Discussion. 6. Summary and conclusions. 7. Future prospects. 8. Bibliography and appendices.

301. SINGH (Bijender)

Production, Characterization and Applications of Extracellular Phytase of the Thermophilic Mould Sporotrichum Thermophile Apinis.

Supervisor : Prof. T. Satyanarayana

Th 15776

Abstract

The 138 thermophilic fungal isolates have been isolated from environmental samples collected from various geographical regions of India on Emerson YpSs agar medium. These isolates are screened for phytase production. All the isolates of thermophilic moulds except of few are able to grown on PSM agar plates, but only a few fungi exhibited zones of calcium phytate hydrolysis. These zone forming fungi are cultivated on PSM agar plates containing sodium phytate, only a few thermophilic moulds displayed clear zones of phytate hydrolysis after double staining method. This is due to the secretion of organic acids like acetic acid, malic caid and others, which are known to solubilize calcium phytate, and thus result in zone formation. These acids lower the pH of the medium and hence, solubilize calcium phytate.

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