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Isolation and Characterization of Chromium (VI) Tolerant Bacterial Strains from Tannery Effluent of Park Circus Area

Suvranil Mitra, Soumyajit Guha, Saswati Gayen

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Abstract

Heavy metals contamination is a global environmental concern because it is difficult to remove these contaminants from the environment unlike other pollutants. Chromium (Cr) is an important heavy metal widely used in various industries of which the tanning industry deserves special mention. There are more than 2500 tanneries in the country and nearly 80% of the tanneries are engaged in the chrome tanning process. More than 170,000 tone of Cr waste are discharged into the environment annually as a consequence of industrial and manufacturing activities. Cr, a highly reactive element with an oxidation state of 6 exhibits stability as Cr (III) and Cr (VI). But hexavalent chromium is more toxic to living organisms than the trivalent chromium. The Cr (VI) has also been classified as a group A carcinogen by USEPA based on its chronic effects. Strong exposure of Cr (VI) causes cancer in the digestive tract and lungs and many cause epigastric pain, nausea, vomiting, severe impacts on aquatic species. In the present study chromium (VI) tolerant bacterial strains were isolated from the tannery effluent of Park circus area. Most of the bacterial isolates were Gram negative while few were Gram positive. 6 bacterial strains were tested for their Cr tolerance capacity of which S6 showed maximum Cr tolerance of

Microbial Pigments as Natural Colorants and More: A Review

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Abstract

Biological pigments or bio-chromes, are natural organic compounds produced by living organisms have recently been drawn great attention within the market because of their increasing acceptability as they replace synthetic colorants so as to fulfill consumer demands for more natural products. Synthetic pigments often cause serious environmental pollution and adverse toxicological side effects. While, microbial pigments have various advantageous biological activities over synthetic pigments and thus it is now becoming the choice for industrial usage with huge economic potential. In this review focuses has been given on the different pigment producing microorganisms (bacteria, fungi, algae, actinomycetes and yeast) and their wide range of industrial applications.

Introduction

Microorganisms are the most versatile creatures on this planet as these are responsible for the process of fermentation related products, be a source of food in the form of single cell proteins (SCP), therapeutics and food supplements in the form of pigments, vitamins, amino acids, enzymes and organic acids. The natural pigments extracted from microorganism are termed as "microbial

THE ECOLOGY OF HEALTH: *Present Scenario and Approaches*

Editors
Nirmalya Kumar Sinha
Dr. Deba Prasad Sahu



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