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Title

Role of Filamentous Cyanobacteria Isolated from Sundarbans in Environmental Clean up

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Abstract

Colours give delightful pleasure to eyesight but at the same time they may act as serious pollutants when their origin is dyes and dyestuffs. The dyes are stable and difficult to be degraded due to their synthetic origin and complex aromatic molecular structures. During the synthesis of dyes and other processes it is estimated that about 10-15% of the total production of colorants is lost. The most obvious indicator of water pollution is the coloured industrial effluent. Moreover the presence of heavy metals collectively make the textile effluent highly toxic. The discharge of highly coloured synthetic dye effluents cause considerable damage to the aquatic and human life and is aesthetically very unpleasant. In this project we have isolated Cyanobacteria from the water samples collected from Sundarbans, the land of the mangroves, declared as the World Heritage site in 1987. We have proceeded with the filamentous Cyanobacteria for the purpose of decolourisation of textile dyes Direct Blue and Reactive Pink. For Direct Blue (90%) decolourisation occurred but was quite less for Reactive pink. Microscopic and viability studies were performed. This filamentous Cyanobacteria showed maximum uptake of cadmium and chromium at a concentration of 100mg/l and 200mg/l respectively. Effect of heavy metals on the chlorophyll of Cyanobacteria was also studied. Thus the filamentous Cyanobacteria isolated from the collected water samples of Sundarbans effectively decolourises textile dyes and also reduces the harmful toxicity of heavy metals released from the industrial effluents making the aquatic bodies less toxic for the survival of the living organisms.

Poster

