

Biochemical profiling and optimization of conditions of selected micro organisms for softening and brightening of coir fibre

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Abstract

Lignin is the second most abundant aromatic polymer in nature, next to cellulose. Lignin, the main constituent of coir fibre is responsible for its hardness and dark colour. Isolation and identification of environmental friendly bacteria for the degradation of lignin in coir fibre is inevitable to make better quality fibre. The importance of ligninolytic bacteria raised, because lignin-degrading bacteria have wider tolerance of temperature, pH and oxygen limitation than fungus. Moreover the application of fungus in bio softening of coir fibre is not feasible due to the structural hindrance caused by fungal mycelium. Bacterial strains isolated from Chiryankkeezhu coir retting area were identified and characterised. A total of 250 bacteria were identified out this 13 isolates having significant characteristics were used for profiling studies. Total 13 isolates of lignin degrading microbes were isolated using nutrient agar containing lignin as sole carbon source and lignolytic activities were preliminarily screened by testing with methylene blue indicator dye containing LB medium. The study aimed to exploit the high potential of lignin degrading enzyme from isolated strains Further characterization of the enzyme will benefit the coir industry for better quality fibre

Keywords: Lignin, Bacillus sp, Pseudomonas, lignolytic activity