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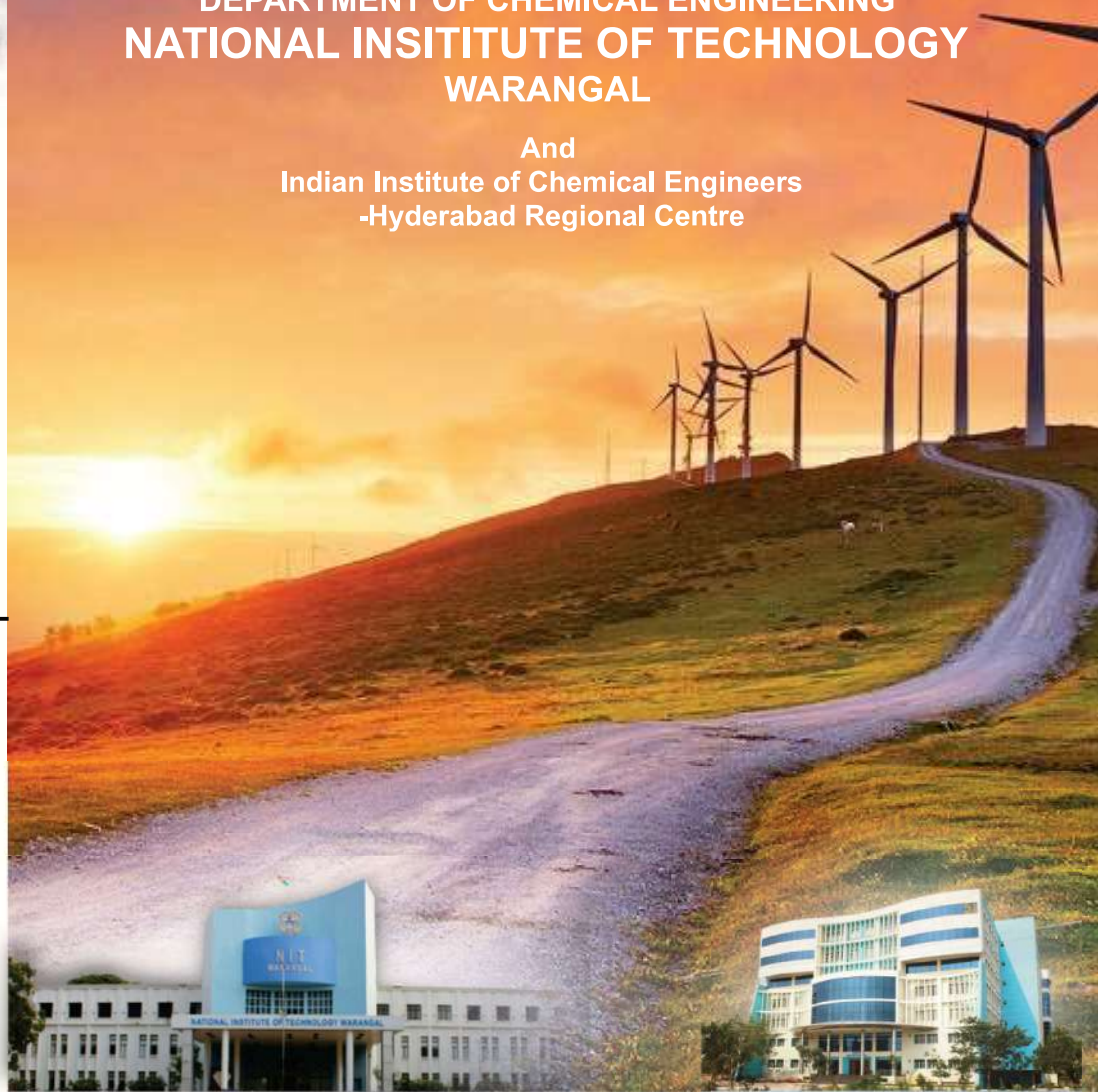

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ABSTRACT: BBDN01

Studies on Production of Self-Healing Concrete using Immobilized Spores of Bacillus Cohnii through MICP Process

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Abstract
Bio-concrete is receiving perceptible heed in the construction sector for its long-lasting and expeditious crack healing potential with much significance to sustainability, which is inevitable. However, the self-healing construction materials are expensive and hence face the current limitation for the commercialization of bio concrete. In this study, we aim to demonstrate the potential of bio concrete to self-heal its cracks using a heterotrophic bacterium, Bacillus cohnii. The MICP study was conducted to determine the rate of calcite precipitated in different pH ranges. The concentration of calcium ion present in the sample is found by complexometric titration method and the result showed a linear relationship between the volume of EDTA with calcium ion concentration. The experimental values reveal that pH in the alkaline range (10-12) is favourable for the growth and calcite precipitation, which also ensures that the spore suspension used is capable of precipitating at this pH, resulting in the self healing process.

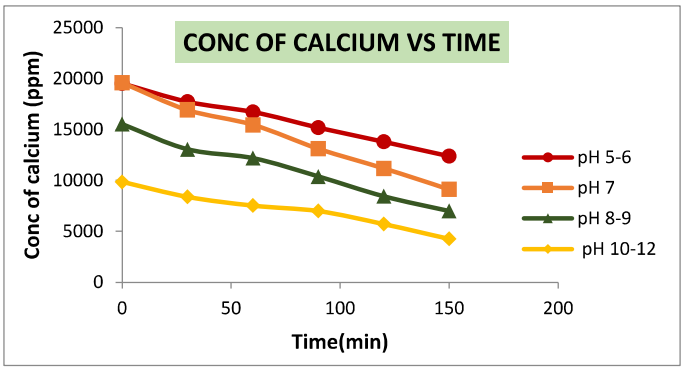

Figure 1: Conc of calcium vs time graph at different pH ranges

Keywords: Bio concrete, Self healing, Microbially Induced Calcite Precipitation, Bacillus cohnii