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## Feasibility of using Ground Water to Grow Bacteria in Bacterial Concrete

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**Abstract** : Cracks in concrete are a common problem .cracks are the result for ingress of water and other deleterious substances<sup>1</sup>. Cracks if not treated, it would lead to corrosion of reinforcement due to the entry of water and deleterious substances<sup>2,4</sup>. Hence, there is a need to treat cracks and increase the durability of concrete.so, self-healing of concrete cracks with calcite precipitating bacteria has been proposed as a bio-based and pollution –free method. Bacterial strains namely bacillus licheniformis were selected based on their urease activity ability to form endospores, and ability to precipitate calcium carbonate .concrete mix of M25 grade was designed. Prepared bacterial solution is mixed with normal water in various % and compressive strength, split tensile strength, flexural strength for 7,14 and 28 days was found. Weekly inspection of cracked beam specimen was seen to quantify the self-healing of cracks with bacterial self-healing agent. Flexural strength and complete healing of cracks was observed in concrete specimen casted with bacillus licheniformis bacteria. The enhancement of strength and healing of cracks can be attributed to the filling of cracks in concrete by calcite was visualized by SEM,X-RAY and EDAX analysis results.

Keywords : Bacterial Concrete, Bacillus Licheniformis, Strength, Healing of Cracks.

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