



ChemTech

## International Journal of ChemTech Research

CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555  
Vol.10 No.8, pp 232-237, 2017

### Effect of Using Bacteria in Different Combinations in Concrete

S.Krishnapriya\*, Shahinrahman K P

Department of Civil Engg., SNS College of Technology, Coimbatore, Tamilnadu, India.

**Abstract :** The objective of this research work is to isolate and identify calcite precipitating bacteria and to check the suitability of these bacteria for use in concrete to improve its strength. Bacteria to be incorporated in concrete should be alkali resistant to endure the high pH of concrete and endospore forming to withstand the mechanical stresses induced in concrete during mixing. They must exhibit high urease activity to precipitate calcium carbonate in the form of calcite. Bacterial strains were isolated from alkaline soil samples of a cement factory and were tested for urease activity, potential to form endospores and precipitation of calcium carbonate. . Experimental work was carried out to assess the influence of bacteria on the compressive strength and tests revealed that bacterial concrete specimens showed enhancement in compressive strength. The efficiency of bacteria toward crack healing was also tested. Substantial increase in strength and complete healing of cracks was observed in concrete specimens cast with *B. megaterium*, *B. licheniformis* and *B.pumilus*. This indicates the suitability of these bacterial strains for use in concrete. The enhancement of strength and healing of cracks can be attributed to the filling of cracks in concrete by calcite which was visualized by scanning electron microscope Water and other salts seep through these cracks, corrosion ,and thus reduces the life of concrete. So there was a need to develop an inherent biomaterial.

**Key Words :** Bacteria; Concrete; Compressive strength; Crack healing.

S.Krishnapriya *et al* /International Journal of ChemTech Research, 2017,10(8): 232-237.

\*\*\*\*\*