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New technique to repair surface cracks in concrete

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New Delhi, April 08: Cracks in concrete not only lead to problems such as seepage but also cause weakening of concrete structures. Microbially induced calcium carbonate precipitation can be used to improve the compressive strength of cement mortar and decrease in water permeability. Existing technology uses urease enzyme or heterotrophic bacteria for in situ production of carbon dioxide from urea, leading to calcium carbonate deposition.

The techniques developed through this study uses photoautotrophic cyanobacteria which use light and atmospheric carbon dioxide for growth, with simultaneous precipitation of calcium carbonate. This can be carried out at lower cost than the other techniques since complex growth media are not required and no ammonia is produced. This can pave the way for cost-effective technology for repairing of surface cracks and waterproofing of concrete surfaces.

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