

1.1 INTRODUCTION

In concrete, cracking is a common phenomenon due to the relatively low tensile strength. Durability of concrete is also impaired by these cracks. For crack repair, a variety of techniques is available but traditional repair systems have a number of disadvantageous aspects such as different thermal expansion coefficient compared to concrete and environmental and health hazards. Therefore, bacterially induced calcium carbonate precipitation has been proposed as an alternative and environmental friendly crack repair technique. Micro-cracks are the main cause to structural failure.

The use of biological approach in concrete is also considered as a green technology as its production does not involve greenhouse gas emission, therefore bacterial induced CP has been proposed an alternative and environment friendly way for improvement of strength of building materials. Humans have the ability to precipitate minerals in the form of bones and teeth continuously. This ability is not only confined to human beings; even a common soil bacterium *B.Pasteruii* continuously precipitates calcite .SHC is mostly defined as the ability of concrete to repair its small cracks autonomously or on its own. This is also true in case trees and animals. The purpose is to enhance the serviceability, durability and safety of structure.

“Bacterial Concrete” can be made by embedding bacteria in the concrete that are able to constantly precipitate calcite. This phenomenon is called microbiologically induced calcite precipitation. The bacteria based concrete proposed here could substantially reduce maintenance, repair and premature structure degradation what not only saves money but also reduces atmospheric CO₂ emissions considerably as less cement is needed for this type of self-healing concrete.