

**ISOLATION, CHARACTERIZATION AND OPTIMIZATION OF CALCITE  
PRODUCING BACTERIA**

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## **ABSTRACT**

### **ISOLATION, CHARACTERIZATION AND OPTIMIZATION OF CALCITE PRODUCING BACTERIA**

Concrete had always been the choices in constructing the building and houses because of its low price and abundance in nature. However the crack problem usually happen to old building and sometimes it had been cause by the carelessness of the builders in mixing the mixture during construction works. The calcite producing bacteria with biomineralization activity could possibly is the solution to the problem and help in enhancing the concrete properties. Thus the objectives are to isolate, screen, characterize the calcite producing bacterium and determine the effect of initial inoculum on calcite precipitation. Pure culture bacteria are obtained with series dilution of samples and characterize through colony, cell observation and biochemical test. Calcium carbonate precipitation medium (CCP) was used to screen and evaluate the ability of the selected bacteria to produce calcite. There are six different isolates namely as S1, S2, ST2, ST3, ST5 and STSL. All the isolates are gram positive rods bacteria except for S2 gram negative rods bacteria. S1, ST2, ST3 and ST5 were bacteria with capsule. All bacteria are aerobic and show urealytic activity except for STSL. S1, ST2, ST3 and ST5 are bacteria that produce clear zone solubilisation on CCP medium. The high concentration of the initial inoculum was able to produce high mass weight of the calcite. Among those 4 bacteria, S1 is the most prominent calcite producing bacteria.

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