VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590018

PROJECT REPORT ON

"A COMPARATIVE STUDY ON STRENGTH AND DURABILITY OF BACTERIAL CONCRETE WITH NORMAL CONCRETE"

Submitted in partial fulfillment of the requirements for the award of degree

BACHELOR OF ENGINEERING
IN
CIVIL ENGINEERING

Submitted By

PRAKASH R	4AL15CV067
SAHANA M KAKUBAL	4AL15CV087
IRANNA M MUDUR	4AL16CV407
NAVEEN KUMAR N	4AL16CV412

Under the Guidance of

Mr. Santhosh K

ASSISTANT PROFESSOR

DEPARTMENT OF CIVIL ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

MOODBIDRI – 574225

2018-19

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(A Unit of Alva's Education Foundation, Moodbidri)

"Shobhavana", Mijar, Moodbidri – 574225, D.K.

DEPARTMENT OF CIVIL ENGINEERING

Certificate

PRAKASH R	4AL15CV067
SAHANA M KAKUBAL	4AL15CV087
IRANNA M MUDUR	4AL16CV407
NAVEEN KUMAR N	4AL16CV412

This is to certify that above students have submitted Project Report on the topic "COMPARATIVE STUDY ON STRENGTH AND DURABILITY OF BACTERIAL CONCRETE WITH NORMAL CONCRETE" for VIIIth semester B.E in Civil Engineering during the academic year 2018 -19. The Project has been approved as it satisfies the academic requirements in report of Project work prescribed by Visvesvaraya Technological University for the award of degree in Bachelor of Engineering Degree.

Mr. Santhosh K	Dr.H. Ajith Hebbar	Dr. Peter Fernandes
Project Guide	Head of the Department	Principal

H.O.D.
Dept. of Civil Engineering
Alva's Institute of Engg. & Technology
Mijar, Moodbidri - 574 225

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, Moodbidri - 574 225, D.K

Name of the Examiners Signature with Date

1. .....

2. .....

ABSTRACT

In recent years, there is increasing interest in the phenomenon of mechanical property recovery in concrete construction using self-healing concrete. The study was motivated by the need to find a solution for the problem of cracking approaching the concept of self-healing concrete. The study was carried out on a bacteria based self-healing concrete using Bacillus Subtilis bacteria .An investigation on the strength assessment of the bacteria-based self-healing concrete by finding out the optimum amount of bacterial content to be added to obtain maximum strength. Bacterially induced calcium carbonate precipitation has been proposed as an alternative and environmental friendly crack repair technique. It is found that microbial mineral precipitation as a result from metabolic activities of favourable bacteria in concrete improved the overall behaviour of concrete. It is expected that further development of this techniques will result in a more durable, sustainable and crack free concrete that can be used effectively for constructions in wet atmospheres where corrosion of reinforcement affects the durability, permeability and strength of concrete.

Therefore, it is decided to carry out an investigation of determining optimum dosages of bacterial solution required for concrete by forming various concrete cube and Cylinder samples having variations of bacterial solution 20 ml, 30 ml, 40 ml, and 50 ml. Further these various samples are tested under various laboratory methods. Slump cone test, compressive strength testing, ultrasonic pulse velocity test, and scanning electron microscopes thereby an optimum dosage required is computed. Bacterial concrete is found to be superior as compare to that of conventional concrete in all the aspects of durability. Among the different specimen incorporated it shows that bacterial concrete containing 40ml solution is the optimum dosage required, after which the strength found to be stable ordecreased..

Keywords: Bacillus Subtilis, Mechanical Strength, UPV, SEM