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EXPREMENTAL WORKS ON BACTERIAL CONCRETE

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Abstract: When cement concrete is subjected to significant shrinkage and settling, the existence of voids in the material may cause a decrease in performance. This study concentrated on using bacteria to decrease concrete voids and increase performance. It was discovered that the Bacillus family of bacteria were the concrete's greatest healers. In the current investigation, Bacillus megaterium bacteria from the Bacillus family were used at a concentration of 108 CFU. After seven and twenty-eight days of curing, a total of forty-eight specimens were cast and examined for mechanical strength and water absorption. In comparison to conventional M30 grade, the test results show that after 28 days of curing, the compressive, split tensile, and flexural strengths increased to 12.91%, 10.28%, and 9.02%, respectively.

Keywords: Bacterial concreate, Bacteria with cement,

I. INTRODUCTION

Despite its propensity for fracture development, concrete is a material that is frequently utilized in the building industry because of its affordability and accessibility. As a result, there has been a sharp increase in interest in self-healing materials, especially those with the ability to repair in green and sustainable concrete materials. Over the last 20 years, several researchers have presented various approaches to this problem. But selecting the best strategy is challenging since every research organization uses a different set of tests to determine how well healing occurs. Self-healing concrete (SHC) has the ability to mend itself, reducing the need for outside assistance in identifying and fixing internal damage (such as cracks).

II. METHODOLOGY

Mix design of conventional concrete. IS Code: 10262 1982
Selection of bacteria from bacteria family
To check workability of concrete
To prepare concrete blocks (150 ><150>< 150 mm).
To do curing the block 7days, 14days, 28 days.
To determine compression strength of bacterial concrete.

III. MODELING AND ANALYSIS

Figure1: Baciwin bacteria .

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IV. RESULTS AND DISCUSSION

❖ Comparison Of Compressive Strength For 7 Days

S.No	Mix Type	Ml Of Bacteria	Load (Kn)	Compressive Strength N/Mm2
1	M1	0ml	270	12
2	M2	10ml	280	12.67
3	M3	20ml	350	15.55
4	M4	30ml	375	16.67

Table no 01 Compressive Strength For 7 Days

❖ Compressive Strength For 14 Days

S.No	Mix Type	Ml Of Bacteria	Load (Kn)	Compressive Strength In N/Mm2
1	M1	0ml	295	13.11
2	M2	10ml	340	15.11
3	M3	20ml	410	18.22
4	M4	30ml	550	24.44

Table no 02 Compressive Strength For14 Days

❖ Compressive Strength For 28 Days

S.No	Mix Type	Ml Of Bacteria	Load(Kn)	Compressive Strength In N/Mm2
1	M1	0ml	490	21.78
2	M2	10ml	595	26.43
3	M3	20ml	660	29.32
4	M4	30ml	750	33.32

Table no 03 Compressive Strength For 28Days

V. CONCLUSION

- Concrete plays a major role in the construction industry. For a durable structure, good quality
- concrete must be used. A Self-Healing Concrete for the Future which says a common soil
- bacterium was used to induce calcite precipitation which is highly desirable because the mineral.

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