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EXPERIMENTAL STUDY ON BACTERIAL CONCRETE AND IMPACT ON POLYPROPYLENE FIBER REINFORCEMENT

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ABSTRACT: In today's world concrete plays a vital role in major buildings. Due to severe exposure conditions concrete structure requires maintenance. Most of the structures are damaged due to formation of cracks which may be due to different parameters. One of the techniques used to prevent the cracks is by using Biological Concrete. Different types of bacteria are used in concrete construction namely Bacillus pasteurii, Bacillus sphaericus, Bacillus megaterium, Bacillus subtilis, In this investigation two types of concrete was used which consist of bacillus megaterium(30×10^5cfu/ml) and bacillus megaterium(30×10^5cfu/ml) with poly propylene fiber (2%). Both the analytical and experimental work was done to check the behavior of bacterial concrete in curing of pours in the structure and to check the bonding properties with the utilization polypropylene fiber in the bacterial concrete. Analytical work (ANSYS) shows the improvement in flexural behavior by 20% in the case of bacterial concrete and 22% in the case of bacterial concrete with polypropylene fiber compared to conventional concrete. Experimental work shows the increase in flexural behavior by 15% and 18% respectively. Beam with bacillus megaterium and polypropylene has shown a better behavior in various fields of tests. The comparison of both analytical and experimental work is done and behavior of bacterial concrete was observed. It was found that the utilization of B. megaterium and polypropylene fiber had a positive effect in improvement of structural strength.

Keywords: *:Concrete, Bacillus Megaterium, Polypropylene Fiber, Flexural Behavior*