

UTILIZATION OF GOSSYPIMUM AND COCOS NUCIFERA CELLULOSE FIBRES FOR REINFORCED ECO-CONCRETE. (HARVESTING STRENGTH)

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ABSTRACT:

Concrete is one of the major material used in the building construction. One of Concrete's main weakness is the development of cracks under tensile forces. Concrete that has cracks is more susceptible to harsh weather condition because water and toxic substances from the surroundings environment area can seep in. Because of the autogenous self-healing Property concrete can partially seal its crack on its own even though it is prone to cracking. Only few studies have done on replacing fibre reinforced composites. This experiment aims to evaluate the healing and concrete reinforced with plant cellulose fibre's water permeability. Two types of Materials were examined; Normal concrete and plant fibre based cellulose which is extracted from the seeds of Gossypium and husk fibre of Cocos Nucifera. Compressive strength and textural texts were performed to examine the Mechanical Properties of the Normal Concrete and Plant fibre based cellulose concrete and Water permeability test was used to evaluate the Co-efficient of Permeability and self-healing performance was examined by Ultrasonic Pulse velocity test. The results indicate that the Water Permeability coefficient decreased and whereas the healing ratio also increased at high rate for Initial days of healing when cellulose fibres were added in the mix. Plant fibre reinforced cellulose increase in the flexural strength and demonstrate a higher self-healing ratio based on Ultrasonic pulse velocity test.

Keywords: ultrasonic pulse velocity, Gossypium cellulose, Cocos Nucifera, autogenous property.