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Coconut Fibre Reinforced Concrete

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Abstract: *Sustainability is a wide accepted concept in modern construction scenario. Even though the construction industry is revolutionizing in a significant manner in terms of both equipment and materials used, the cost of construction has skyrocketed along with the deteriorative impact on environment. This resulted in the adoption of a more balanced approach with the environment as its nerve centre to create a better world to live in. This has led to the adoption of a natural fibre like Coconut for the strength enhancement in concrete Coconut fibre is available in abundance at the test site, which makes it quite viable as are inforcement material in concrete. Further, it acts as an source of income for the coconut producer who gets the benefits of the new demand generated by the construction industry. In addition to this, it is an effective method for the disposal of coir mattress waste which will reduce the demand for additional waste disposal infrastructure and decrease the load on existing landfills and incinerators. The problem of high rate of water absorption of the fibre could be reduced by coating the fibres with oil. Moreover the fibres being natural in origin is ecologically sustainable and can bring down the global carbon footprint quite effectively. This study aimed at analyzing the variation in strength of coconut fiber (oil coat draw and oil coated processed fibres) reinforced concrete at varying fibre contents and to compare it with that of conventional concrete. The various strength aspects analyzed are the flexural, compressive and tensile strength of the coconut fiber reinforced concrete at varying percentages (4%,5%,6% by the weight of cement) of fibre. The influence of shape of fibre on strength is also studied by testing on coconut fibre mesh of predetermined dimensions. The optimal percentage of both the processed fibre strands and raw fibre meshes were found out by trial and error and the optimum percentage of super plasticizer needed for the required workability was also determined*

Keywords: Compressive strength, Tensile strength, Flexural strength, CFRC, Fibre mesh

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