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## STUDY ON FLEXURAL BEHAVIOUR OF SUSTAINABLE CONCRETE WITH GRAPHENE AND CACTUS EXTRACT

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**ABSTRACT:** This experiment highlights the salient features of concrete under nanotechnology. Concrete production requires huge amount of cement and aggregates which eventually increases carbon emission and contaminates environment. Hence, incorporation of 'F' class fly ash partially replaced for cement, aggregate and cactus extract can be done which can reduce carbon emission and cost. However, incorporation of fly ash in ordinary Portland cement deviates its strength consequently. Hence, Graphene can be added as an additive to fill up the deviation, thereby increasing its workability and improving strengthening factor of concrete. In this mineral admixture such as Graphene were used to increase the strength of concrete and natural polymer substances such as cactus extract is used to increase the workability of concrete. For the binding material cement is replaced with the fly-ash with the percent of 30%, 40% and 50% respectively. In the investigation three specimen were casted say conventional, replacement of 30%, replacement of 40% and replacement of 50% and result of compressive and flexural strength were compared. The aim of this experiment is to maintain the economy and environmental effect.

**Keywords:** Graphene, Cactus Extract, Compressive Strength, Flexural Strength, Aggregate, Sustainable Concrete and Fly-ash

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