

## Utilization of Nipa Palm Fibers (*Nypa fruticans*) and Asian Green Mussels Shells (*Perna viridis*) as an Additive Material in Making a Fiber-Reinforced Concrete

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**Abstract :** A utilization of Nipa palm fibers (*Nypa fruticans*) and Asian green mussel shells (*Perna viridis*) as additive materials in making fiber-reinforced concrete was carried out. The researchers collected Asian green mussel shells and Nipa palm fibers as additive materials in the production of fiber-reinforced concrete and were used to make 3 Setups containing 20g, 15g, and 10g of Nipa palm fiber varying to 10g, 20g, 30g of Asian green mussel shell powder and a traditional concrete with respect to curing period 7, 14, and 28 days. The concrete blocks were delivered to the UP Institute of Building Materials and Structures Laboratory (CoMSLab) following each curing test in order to evaluate their compressive strength. Researchers employed a Two-Way Analysis of Variance (ANOVA) and determined that curing days, concrete mixture, and the combined curing days with concrete have an effect on the compressive strength of concrete. ANOVA results indicating significant differences had been subjected to post hoc analysis using Tukey's HSD. These results then yielded the comparison of each curing time and different concrete mixtures with traditional concrete, which comes to the conclusion that a longer curing period leads to a higher compressive strength and Setup 3 (30g Asian green mussel shell with 10g Nipa palm fiber) has the larger mean compressive strength, making it the best proportion among the fiber-reinforced concrete mixtures and the only proportion that has significant effect to traditional one. As a result, the study concludes that certain curing times and concrete mix proportions of Asian green mussel shell and Nipa palm fiber are critical determinants in determining concrete compressive strength.

**Keywords :** Asian green mussel shells (*Perna viridis*), Nipa palm fibers (*Nypa fruticans*), additives, fiber-reinforced concrete

**Conference Title :** ICACE 2024 : International Conference on Architectural and Civil Engineering

**Conference Location :** Sydney, Australia

**Conference Dates :** March 25-26, 2024