

**MORTAR BLOCKS WITH RICE HUSK ASH (RHA)
AS ADMIXTURE**

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BIOGRAPHICAL SKETCH

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ABSTRACT

EVANGELISTA, SHERRYLYN V., Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **JUNE 2019, MORTAR BLOCKS WITH RICE HUSK ASH (RHA) AS ADMIXTURE.**

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Rice Husk Ash are considered an agricultural waste which affiliates the massive quantity causing difficulty in storage and transportation. This assessment has led in tracing the present problems or factors affecting the environment in terms of lack of disposal and storage for bulky quantities of Rice Husk Ash. On the contrary, RHA are considered pozzolan and can alternatively blended with ordinary portland cement (OPC) that enhance its workability, durability, and significantly reduce the cost of materials. Generally, this study aims to produce mortar blocks with the determination on the effects of replacing different amounts of RHA to cement material in terms of physical and mechanical properties.

The ashes produced from biomass power generation plant in Nueva Ecija were used as replacement for cement in different percentages (0%, 20%, 30% and 40%) in the production of mortar blocks. The mortar blocks samples were subjected to different duration of curing in order to determine its effects in the produced blocks. Different test were conducted to evaluate their physical (water absorption and density), and mechanical (compressive strength) properties.

The water absorption test of mortar blocks is not affected by the amounts of RHA replacements, however the number of curing days showed significant effect on its capacity

to absorb water. It was also found out that percentage of RHA showed significant effect to the density of mortar blocks, where 0% RHA resulted to the highest mean density value regardless of different curing days. The Compressive strength of mortar blocks was found to be affected by the interaction effects of RHA percentage and duration of curing days. Moreover, lesser amount of RHA (20%) tended to be stronger than those blocks with greater amount of RHA (30% and 40%). The cost of production of mortar blocks showed noticeable reduction with the addition of RHA compared to conventionally mixed mortar used in the construction site.

RHA addition reduced the density resulting to lightweight material with accompanying increase in the compressive strength and improved the workability at up to 20% replacement by volume for the production of mortar. The Rice Husk Ash as waste material further reduces the cost of production of mortar blocks.

Keywords: Rice Husk Ash (RHA); mortar blocks; water absorption; density; compressive strength

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