ABSTRACT

The increasing scarcity of natural sand due to environmental concerns has necessitated the exploration of alternative materials in concrete production. This study investigates the potential of Sugarcane Bagasse Ash (SBA) and Rice Husk Ash (RHA) as a partial replacement for fine aggregate in Self-Compacting Concrete (SCC). SBA and RHA is a natural by-product is used to replace 10% of fine aggregate by volume. The SCC mix design incorporates fly ash as a mineral admixture, in accordance with EFNARC guidelines, and Aura Mix 400 polycarboxylate ether-based superplasticizer to achieve high workability.

The objective of this research is to evaluate the durability properties of SCC with RHA and SBA. An experimental program is conducted to assess the water absorption, acid resistance, sulphate resistance, and sorptivity of the SCC mixtures. Further micro structural properties of SCC mixes also studied with SEM images. The results are compared with conventional SCC to determine the impact of SBA and RHA on the durability performance of SCC.