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Partial Replacement of Cement With Corn Cob Ash in Concrete Production

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The research investigated the effects of partial replacement of cement with corncob ash (CCA). Physical properties of the aggregates and mechanical properties of CCA cement concrete at 0.5 water–cement ratio and mix ratio of 1:2:4 were examined. Sixty concrete (60) cubes of size 150x150x150mm with different percentages by mass of corncob ash to Portland cement in order of 0%, 3%, 6%, 9% and 12% corncob ash were cast and crushed. The specific gravity of corncob ash was 1.16, while a twenty eight (28) day compressive strength of 29.4N/mm was obtained at 3% replacement level, which shows that the 3% CCA replacement for cement is the optimum. While 12% CCA replacement for cement offers the lowest strength (18.6N/mm). Hence, the use of supper plasticizers and accelerators may be required to enhance the strength and workability at this replacement level. Collapse

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