

ABSTRACT

Fiber Reinforced Concrete (FRC) is a composite material consisting of a mixture of binding agent like cement, mortar or concrete and fibers of various size, shape and orientation. The use of fiber reinforced concrete improves the structural properties and increase the strength, durability of concrete structure in terms of its compressive strength, split tensile strength, workability, flexural strength, etc. The mechanical properties of concrete are important factors to evaluate the durability and structural integrity of building materials. In this research, the comparison between normal or conventional concrete and fiber reinforced concrete (FRC) was evaluated experimentally. Steel fiber with prescribed aspect ratio and with various percentages of the total weight of cement (0.25%, 0.50%, 0.75%, and 1.0%) was incorporate in the concrete. The results of the lab inquiry showed that the incorporation of steel fibers in concrete improved its mechanical properties positively. Compressive strength and split tensile test were conducted and the data obtained was observed. For all fiber content the test value increased though the maximum compressive strength and split tensile strength after 7 days of curing were observed for 1% fiber content and the values are 14.22 MPa and 2.86 MPa respectively. The strength was improved after 28 days of curing as well with a maximum value of 1% of fiber and the compressive and split tensile strengths obtained are 25.04 MPa and 3.71 MPa respectively. The experimental findings draw a comprehensive conclusion regarding the fact that the incorporation of steel fiber remarkably enhances the mechanical properties of conventional concrete.