

Mechanical behaviour on concrete of coconut coir fiber as additive

Abstract

Fiber is one of the famous waste material in this country and fibre also can be used in order to increase the mechanical properties of concrete. Mechanical properties of concrete will be testing such compression strength and splitting tensile strength. Concrete has low tensile strength due to the brittleness properties. The coconut coir fibre processed by using the fabricated. Then the coconut coir fibre will be a sink in sodium hydroxide for 1 week and in pure water for 2 weeks at room temperature. The authorities that are already going through under treatment gave coconut coir fibre and it had been cut into a size of 25mm to 30mm. Three different ratios used in this research, which is 3%, 4% and 5% of coconut coir fibre as an additive to the concrete. There will be two types of specimens, which are cube size of 100mm x 100mm and cylinder 100mm diameter with 200mm length. All the samples cured in a water tank for 7 and 28days. The rate that had been using for this compression strength and splitting tensile strength follow the British Standard (BS 1881-116:1983). This research outcome is the addition of coconut coir fibre with concrete to increase the compression strength of the cube sample but it has lower strength than normal concrete. Meanwhile, for the splitting tensile strength of this reinforced concrete with coconut coir fibre as an additive has higher strength than normal concrete. The result proved that the addition of fibre will increase the mechanical properties of concrete but at the same time, it will decrease the workability of concrete.