

Mechanical Behaviour of Sisal Fibre Reinforced Cement Composites

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Abstract : Emphasis on the advancement of new materials and technology has been there for the past few decades. The global development towards using cheap and durable materials from renewable resources contributes to sustainable development. An experimental investigation of mechanical behaviour of sisal fiber-reinforced concrete is reported for making a suitable building material in terms of reinforcement. Fibre reinforced composite is one such material, which has reformed the concept of high strength. Sisal fibres are abundantly available in the hot areas. The sisal fiber has emerged as a reinforcing material for concretes, used in civil structures. In this work, properties such as hardness and tensile strength of sisal fibre reinforced cement composites with 6, 12, 18, and 24% by weight of sisal fibres were assessed. Sisal fiber reinforced cement composite slabs with long sisal fibers were manufactured using a cast hand layup technique. Mechanical response was measured under tension. The high energy absorption capacity of the developed composite system was reflected in high toughness values under tension respectively.

Keywords : sisal fibre, fiber-reinforced concrete, mechanical behaviour, composite materials

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020