

The Use of Plant-Based Natural Fibers in Reinforced Cement Composites

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Abstract : Plant-based natural fibers are used more increasingly in construction materials. It is done to reduce the pressure on the built environment, which has been increased dramatically due to the increases world population and their needs. Plant-based natural fibers are abundant in many countries. Despite the low-cost of such environmental friendly renewable material, it has the ability to enhance the mechanical properties of construction materials. This paper presents an extensive discussion on the use of plant-based natural fibers as reinforcement for cement-based composites, with a particular emphasis upon fiber types; fiber characteristics, and fiber-cement composites performance. It also covers a thorough overview on the main factors, affecting the properties of plant-based natural fiber cement composite in it fresh and hardened state. The feasibility of using plant-based natural fibers in producing various construction materials; such as, mud bricks and blocks is investigated. In addition, other applications of using such fibers as internal curing agents as well as durability enhancer are also discussed. Finally, recommendation for possible future work in this area is presented.

Keywords : natural fibres, cement composites, construction materia, sustainability, strength, durability

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