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Review

A critical review on the utilization of coir (coconut fiber) in cementitious materials

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Abstract

Environmental problems such as the depletion of natural raw materials and the discarding of solid and gaseous wastes into the atmosphere drive modern communities towards green construction. Artificial fibers like steel, glass, and polypropylene have been used in concrete due to their unique advantages, such as a crack-arresting mechanism and enhanced toughness. Large-scale production of artificial fibers causes adverse environmental impacts due to CO_2 emissions. Therefore, significant efforts are being made to appraise other eco-friendly fiber alternatives such as waste and natural fibers. Coir is a natural lightweight fiber having the highest toughness among all-natural fibers. It is one of the most widely investigated natural fibers in cementitious materials compared to other natural fibers (i.e., jute fiber, sisal fiber, and banana fiber). In this