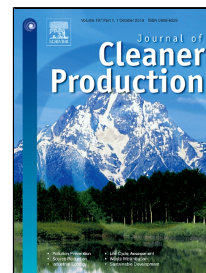


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# Comparative environmental life cycle assessment of fiber reinforced cement panel between kenaf and glass fibers

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**Abstract:** A large quantity of resources consumed by the construction industry and the resultant pollution has inspired the need to study eco-friendly materials, such as kenaf fibers, that can be used for construction applications. Kenaf fibers were used to reinforce cement by fabricating fiber reinforced cement composites that exhibited outstanding mechanical and thermo-physical properties. A considerable interest has arisen in investigating the use of natural fiber to replace synthetic fiber for different composite products to alleviate the environmental impact from the traditional construction materials. In order to evaluate the environmental performances of glass fiber reinforced cement wall panels and kenaf fiber reinforced cement wall panels, this study conducted a comparative life cycle assessment (LCA) on the fiber reinforced cement wall panels between kenaf fiber and traditional glass fiber. The structural function and thermal insulation function of the wall panels were considered as two separate functional units. The LCA results showed that the environmental impact could be significantly reduced using kenaf fiber to replace glass fiber as reinforcement in the cement wall panels in regards to both structural and insulation functions. The major contribution to the environmental impact for the fiber reinforced wall panels was from cement and the production of the

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