

# Natural Fiber Composites as Potential External Strengthening Material – A Review

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## Abstract

Synthetic Fiber Reinforced Polymer (FRP) composites have been widely accepted by the construction industries as an effective external strengthening material to rehabilitate the existing structures deficiencies. These materials possess outstanding performances like high strength-to-weight ratio, resistance to corrosion, and lightness. However, the drawbacks include high costs during the manufacturing and end-life services, less environmental-friendly and cause adverse effects to human health. Environmental issues on global warming have triggered rapid development of natural fibers as sustainable materials for the strengthening of Reinforced Concrete (RC) structures. This paper presents a detailed review on the potential use of natural fibers as reinforcement in polymeric strengthening materials. A comparison was made between various types of fibers in terms of their chemical and mechanical properties. Bamboo fiber has demonstrated great potential among other natural fibers due to its superior physico-mechanical and thermal properties.

**Keywords:** Bamboo Fiber, External Strengthening, Natural Fiber, Natural Fiber Composites, Structural Application