

## **Review of mechanical performance of oil palm fiber and coconut fiber as an additional material in concrete**

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### **ABSTRACT**

Waste can be categorized as organic waste and chemical waste. Organic waste generated from agriculture industry had been proofed to be use in concrete production to enhance the concrete performance. The main purpose of adding the fiber in concrete structure is to control cracking due to plastic shrinkage and to drying shrinkage. Besides, it can also reduce the permeability of concrete, thus, reduce the bleeding of water. Some types of fibers produce greater impact, abrasion, and shatter resistance in concrete. Therefore, this paper reviewed the mechanical properties of concrete containing oil palm and coconut fiber as an additional material in concrete. Coconut fiber length is longer than oil palm fiber. Therefore, in comparison, by adding coconut fiber in concrete up to 5% may reduce the flexural and tensile strength of the concrete due to agglomerate effect of the fiber. In contrast, for oil palm fiber, beyond 5% of addition in concrete will improve the flexural and tensile strength of the concrete due to the length effect of the fiber. By discussing both organic fiber as an additional material to strengthen the concrete, it can contribute to the body of knowledge in term of reducing cracks in concrete. Besides, it will give a better understanding to readers regarding the function of the materials in concrete.

### **KEYWORDS**

Coconut fiber; Mechanical performance; Oil palm fiber; Waste material

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