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Behavior of Oil Palm Shell Reinforced Concrete Beams Added with Kenaf Fibres

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Abstract : The present article reports the findings of a study into the behavior of oil palm shell reinforced concrete (OPSRC) beams with the addition of kenaf fibres. The work aim is to examine the potential of using kenaf fibres to improve the strength and ductility of the OPSRC beams and also observe its potential in serving as part of shear reinforcement in the beams. Two different arrangements of the shear links in OPSRC beams with a selection of kenaf fibres (amount of [10kg/m] ^3 and [20kg/m] ^3) content are tested under monotonic loading. In the first arrangement, the kenaf fibres are added to the beam which has full shear reinforcement to study the structural behavior of OPSRC beams with fibres. In the second arrangement, the spacing between the shear links in the OPSRC beams are increased by 50% and experimental work is carried out to study the effect of kenaf fibres without compromising the beams strength and ductility. The results show that the addition of kenaf fibres enhanced the load carrying capacity, ductility and also altered the failure mode of the beams from a brittle shear mode to a flexural ductile one. Furthermore, the study depicts that kenaf fibres are compatible with OPSRC and suggest prospective results.

Keywords : oil palm shell reinforced concrete, kenaf fibres, peak strength, ductility
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