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Experimental Investigation of the Effects of Naoh and KOH Solution on the Behavior of Concrete Square Columns Reinforced By JFRP Composites

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Abstract **-** The objective of this experimental study is to evaluate the effect of untreated and treated Jute fibers, on the behavior of concrete members. The first category of Jute fibers fabrics is treated in the alkaline treatment of 4% of NaOH solution and the second one in 2% of the Potassium hydroxide solution, during 24h in a liquor ratio of 10:1. In the case of specimens reinforced by treated fibers in 4% of NaOH have noted an increase of 25% compared to unreinforced specimens and 10.93% compared to untreated specimens. This concludes that the mechanical properties of the composite are enhanced by the treatment of the Jute fibers in 4% of NaOH. They become more compatible with the matrix, which increases the maximum load capacity of the reinforced specimens. On the other hand, it has seen that the treatment of fibers by 2% of Potassium hydroxide decreases the maximum load capacity of specimens reinforced by treaded fibers compared to untreated specimens. This means that the treatment by 2% of KOH has a negative effect on the properties of the Jute fibers fabrics.

Keywords**:** KOH solution, NaOH solution, reinforcement, adhesion, concrete, JFRP composites, epoxy resin.