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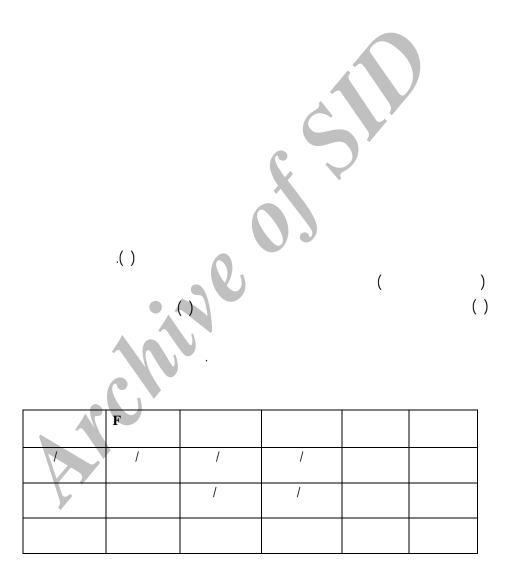
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•	٣۵	97/9	WP		
%∆	٣۵	۵۷/۴	WP/E%		
%√/∆	٣۵	۵۴/۹	WP/E% /		
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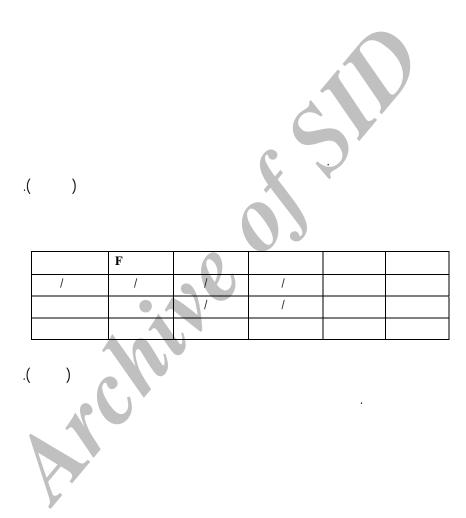
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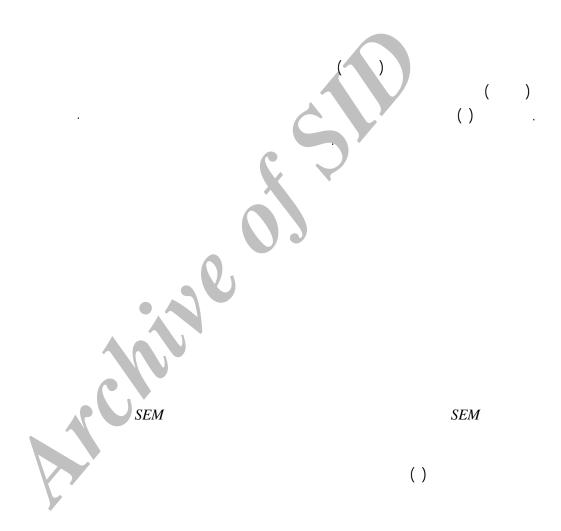
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## Mechanical Properties, and Morphology of Impact Modified Polypropylene Cellulose Fiber Composites

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## **Abstract**

The objective in this study was to investigate the effect of a combination of impact modifiers on the mechanical properties as well as morphology of cellulose fiber polypropylene composite. The impact modifier was EPDM (Ethylene – Propylene Dien Copolymer) while the fibers being of alphacellulose and wastepaper origin. The elastomer (modifier) was mixed with composite at 5, 7.5 and 10 percent by weight. The fillers were mixed with Polypropylene at 35% (by weight).

Results indicated that notched impact strength, tensile and bending strains increased when the elastomer added, but tensile strength, bending strength and modulus of elasticity decreased. The impact modifier did not affect hardness. Adding the fibers improved tensile strength, bending strength, hardness, and modulus of elasticity, but impact strength, tensile and bending strains decreased.

In fact, the highest impact strength was obtained by adding 10% elastomer to the composites, however, the highest values for tensile strength, bending strength, hardness and modulus of elasticity were related to treatments with no elastomer (except the pure polymer)

Also, to examine the fibers and polymer interfacial surface as well as dispersion of the fibers within the matrix, the samples were studied through scanning electron microscopy (SEM)

**Key word:** Cellulose fibers, Impact modifier (Elastomer), Alpha-cellulose, Composite, Polypropylene, Wastepaper fibers, Morphology, Interface.

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