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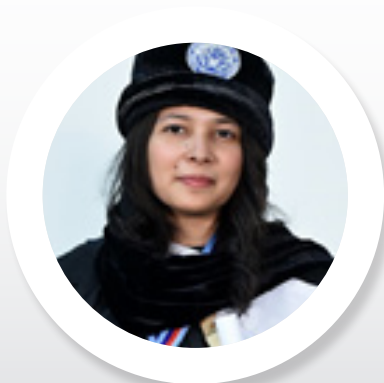
Mechanical, barrier and morphological characterization of biodegradable PolyPropylene (pp)-starch compatibilized blends for food packaging applications

Biodegradable polymers are recommended as a solution of the problems posed by the commodity plastics because of their property to degrade in the environment. However, the low mechanical stability and high permeability of short molecules (air and water) of biodegradable polymer lessen its applications in food packaging. A blend of biodegradable polymer (starch) with a commodity polymer (polypropylene) having enough mechanical strength and biodegradability, was prepared using a biodegradable additive as compatibilizer for food packaging application. Fatty Alcohol Ethoxylate (FAE) was used as a bridging molecule between starch and polypropylene (PP) and blends were prepared using melt extrusion technique. Starch was varied in PP matrix and the concentration of FAE was constant. The mechanical, morphological, permeability and biodegradability of prepared sheets were studied. Results showed that for 10 % compatibilizer, 20 % and 25 % starch in PP matrix showed highest mechanical strength that is 17.5 MPa. Highest biodegradation that is 14.56 % weight loss was observed after 90 days in the blend that contain 40 % starch. Air and water vapor permeability of all blends was much higher in contrast to pure PP. But addition of compatibilizer reduced the permeability to water and air molecules by increasing the uniformity in the sheets.

Biography

Asra has completed her Masters level education at the age of 25 years from National University of Sciences and Technology, Islamabad, Pakistan as President Gold Medalist. She did her Bachelor studies in Polymer Engineering from National Textile University, Pakistan as Gold Medalist. She is currently serving as junior Lecturer in Department of Materials, National Textile University, Pakistan. She is also the incharge of Polymer Characterization Lab that holds many thermal and chemical analysis instruments. She has published more than 17 papers in reputed journals and contributed to three renowned Books.

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