

Effect of acryloylation on superabsorbency of starch copolymers

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Abstract. Starch is acryloylated and copolymerised without incorporating any vinyl monomer such as acrylic acid or acrylonitrile monomers to produce a superabsorbent copolymer. Fenton's initiation system was used to produce polyacryloylated starch ester with varying degree of substitution. The copolymer from starch ester exhibited improved solubility, and an impressive water, saline, and solvents uptake. The superabsorbency of the samples is affected by the number of acryloyl groups on starch backbone. The starch ester with degree of substitution 0.8 had the highest water absorbency (102 g/g) in this experiment. Fourier-transform infrared spectroscopy (FT-IR), scanning electron microscopy (SEM) and thermogravimetric (TGA) analyses were used to characterize the products.

Keywords: absorbency; acryloylated starch; copolymerization; degree of substitution.

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