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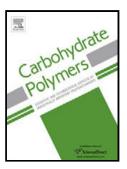
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Adsorption study of Methyl orange by Chitosan/Polyvinyl Alcohol/Zeolite Electrospun

Composite Nanofibrous Membrane.

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Highlights

The chitosan/PVA/zeolite nanofiber was electrospun for dye degradation.

Addition of zeolite results increased tensile strength of nanofibrous membrane.

Most notable result of this study is the high adsorption rate.

Adsorption capacity was decreased with increasing pH value.

Abstract

The chitosan/polyvinyl Alcohol/zeolite electrospun composite nanofibrous membrane was

fabricated for adsorption of methyl orange. The EDX, TGA and tensile test were carried out

for the characterization of the membrane. The Young's Modulus of the nanofibrous membranes

increased by more than 100% with the addition of zeolite to chitosan/PVA. The batch

adsorption tests were conducted by varying the initial concentration of methyl orange, contact

time and pH of the dye solution. UV-vis results showed that most of the dye was adsorbed

within 6 min. An adsorption kinetic study was carried out using the pseudo-second-order

kinetic model, Lagergren-first-order model and intra particle diffusion model. The adsorption

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