**ABSTRACT**

A series poly (Acrylamide -co-2-acrylamido-2-methyl-1- propane sulfonate-Ionic Liquid)/OMMT and MMT Nanocomposites (NC) were prepared using ammonium persulfate (APS) as an initiator and N, N’-methylenebisacrylamide (MBA) as the cross-linker. The nanocomposite hydrogels were prepared via in situ polymerization using OMMT and MMT nano clay. The synthesized nanocomposites were characterized by FT-IR, SEM, XRD and TGA techniques. The parameters of swelling and diffusion in water and dye solution were calculated. It was observed that poly (AMco-AMPS-IL) MMT have higher adsorption than poly (AM-co-AMPS-IL) OMMT and poly (AM-coAMPS-IL) alone. The hydrogel nanocomposites showed up to 99.7% removal efficiency towards methylene blue dye adsorption study.