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Editorial

# Chitosan-graft-poly (acrylonitrile-co-acrylic acid) to treatment the waste water

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## Editorial

Chitosan is a biodegradable natural based polymer obtained from chitin (N-deacetylated derivative), the second most abundant polysaccharide after cellulose and soluble in most organic acids. Graft copolymerization of poly (acrylonitrile-co-acrylic acid) onto chitosan has been successfully carried out using potassium per sulfate as initiator in an aqueous medium. The PAN and PAA homopolymer formed during the reaction were removed from the Chitosan grafted copolymer by Soxhlet extraction using ethanol as the solvent. The prepared graft copolymerization was characterized by Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD), and scanning electron microscopy (SEM) to confirm the formation of copolymer. The prepared chitosan-g-copolymer was treated with metal solutions containing cadmium and lead at different concentration, times and pH at room temperature. The results revealed that the chitosan-g-copolymer prepared was excellent in removing the heavy metals than the copolymer alone. Hence, chitosan-g- copolymer could open way for wastewater treatment in industrial level. The results revealed that the chitosan-g-copolymer prepared was excellent in removing the heavy metals than the copolymer alone. Hence, chitosan-g- poly- AN-co-AA could open the way for wastewater treatment. The thermal stability and the electrical conductivity for all prepared samples before and after graphing were measured. By studying the thermal stability at the different ratio of AN and AA in samples co1, co2, co3, it was found that the most thermal stability sample ratio is co3 due to increasing the ratio of AN. While in sample co1 with a high ratio of AA, the thermal stability decrease according to the fast decomposition of –COOH of acrylic acid. The conductivity was 3.85x10-7 which is more than the copolymer without chitosan, which increases the electron density of the copolymer through the end group effect. As the result of σ has a range 10-8 S/cm-1 10-6 S/cm-1so, all the prepared sample can be used as an electrostatic dissipation application. Introduction Biopolymers were very interested in the removal of heavy metals from aqueous solution as an adsorbent . Chitosan, in particular, is regarded as excellent applicants as it is environmentally friendly, low cost, and a broad source. However, its use as an efficient adsorbent is limited by the disadvantages of lousy chemical resistance and elevated crystallinity . The number of chemical modifications dedicated to the application of chitosan materials using cross-linking, functional group grafting, and blending polymer or inorganic to remove metals and dyes from wastewater has increased rapidly. Several carboxylated chitosan products have been recorded due to the significant chelating impacts of carboxyl groups. As a modifier material, polyacrylic acid (PAA) has drawn growing attention as it includes a carboxyl group in each repeated unit and favors metal ion adsorption In a homogeneous system, biodegradable and ultra-high content grafted chitosan-g-poly (acrylic acid) powder has been effectively synthesized and used as adsorbents to remove Cu (II) in aqueous solution. The peak adsorption capability of the Langmuir model was 210,13 mg / g, showing a remarkable increase in chitosan adsorption ability after polygrafting (acrylic acid).