Chemical synthesis and characterization of polyaniline: Water depollution efficiency and effectiveness

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This study focuses on the chemical synthesis of polyaniline (PANI) in the presence of sodium persulfate in a hydrochloric acid medium. The characterization of synthesized PANI was carried out using scanning electron microscopy (SEM), infrared spectroscopy (IR), X-ray diffraction (XRD), X-ray photoelectrons spectroscopy (XPS) and thermal analysis. Adsorption experiments of organic and inorganic water pollutants (pharmaceutical products, dyes, derivatives of humic acids and heavy metals) were carried out in a batch reactor. The obtained results indicate that the synthesized PANI led to an almost complete removal (~100%) of these compounds from aqueous solution.

Keywords: Adsorption; Chemical synthesis; Polyaniline; Polymerization; Water treatment.

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