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Synthesis and Characterization of Strontium Doped Graphene Oxide Nanocomposite for the Electrochemical Decoloration of a Textile Dye from Aqueous Medium

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Abstract: Strontium-GO composites were synthesized by a facile one-pot approach. Microstructures of the constituent elements of the prepared composite were studied by scanning electron microscopy and X-ray diffraction (XRD) and energy dispersive spectroscopy (EDS). The characterization of the Sr/GO composites suggested that the disorderly, folded sheet-like accumulation in the graphene matrix. The stoichiometry of elements was estimated and presented in the inset from the area intensity of the peaks in the EDX spectrum. Electrochemical decoloration of an aqueous solution of a textile dye Violet 5BN was investigated under different experimental conditions by using carbon electrodes. Our findings revealed that the electrodes evidenced great dye decoloration abilities to treat solutions containing this dye, in the presence of the synthesized nanocomposite. The influence of the synthesized nanocomposite was remarkable in the electrochemical dye decoloration process and ~100% color removal was found by the addition of 0.004g nano composite per 250 mL of the dye solution.

Keywords: Carbon Electrodes, Electrochemical Decoloration, Nanocomposite, Textile Dye

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