

## Synthesis of poly(2,5-dimethoxyaniline)-SnO<sub>2</sub> nanocomposites and their structural, optical and electrochemical properties

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Nanocomposites have gained much importance in different fields, commercially and technologically, due to the possibilities in tuning the properties. In the present work, poly(2,5-dimethoxyaniline)/tin oxide (PDMA/SnO<sub>2</sub>) nanocomposites were synthesized in the presence of sulphuric acid solution by the chemical oxidative polymerization of 2,5-dimethoxyaniline using potassium peroxodisulfate as the oxidant. The prepared samples were characterized by using X-ray diffraction (XRD), infrared spectroscopy (FT-IR), UV-Vis spectroscopy and scanning electron microscope (SEM). The result reveals that prepared composite is crystalline in nature along with improved stability. We report the structural and morphological properties, and electrochemical behaviour of PDMA/SnO<sub>2</sub> nanocomposite. Given the importance of the optical properties of SnO<sub>2</sub>, also describe the optical absorbance and photoluminescence of PDMA/SnO<sub>2</sub> nanocomposite materials.

**Keywords:** Poly(2,5-dimethoxyaniline), SnO<sub>2</sub>, nanocomposite, SEM, photoluminescence.