

## Preparation and Characterization of POAP/Fe<sub>2</sub>O<sub>3</sub> Magnetic Nanocomposite in One-Step Method

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In this paper, composite of poly ortho-aminophenol containing Fe<sub>2</sub>O<sub>3</sub> with nanosize particles was synthesized by a simple and one-step method. The characteristics of products such as morphology, magnetic properties and electrical conductivity were studied. The scanning electron microscopy (SEM) and X-Ray Diffraction (XRD) studies indicated controllable morphology and the effect of the presence of Fe<sub>2</sub>O<sub>3</sub> phase in the nanocomposit. The synthesized nanocomposite has good conductivity and magnetic properties, depended on the presence of iron oxide nanoparticles in the range of 30-60 nm. For the conducting nanocomposite the saturation magnetization (M<sub>S</sub>) was 0.539 emu/g and the electrical conductivity was 0.37 S/cm, which are measured by vibrating sample magnetometer (VSM) and four-probe technique, respectively.

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**Keywords:** Conducting polymer, Poly ortho-aminophenol, Iron oxide, Nanocomposites.

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