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# Synthesis of Highly Crystalline Polyaniline Nanoparticles by Simple Chemical Route

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## Abstract

We report on a simple chemical route for the synthesis of highly crystalline polyaniline nanoparticles. The method of synthesis presented here has an edge over surfactant or template assisted techniques. The nanoparticles are polycrystalline in nature and show well defined crystallographic lattices. The particles exhibit unique supramolecular behavior and tend to arrange in a more stable fibrillar structure. Nanostructured composite coating with a loading of 2 wt.% graphene showed a decline in corrosion current of mild steel up to ~2 orders of magnitude in 0.1 M HCl.

## Keywords

Polyaniline nanoparticles; In-situ Polymerization; Conducting Polymer; Polycrystalline;

Supramolecular Assembly; Crystallographic Lattices in Polyaniline

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