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## Fabrication, spectral characterization, XRD and SEM studies on some organic acids doped polyaniline thin films on glass substrate (Article) [\(Open Access\)](#)

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### Abstract

Recently, the applications of conducting polymers are widely used in vast areas, due to their low cost, light weight, flexibility and the ability to deposit on various substrates. Among these, polyaniline (PANI) is the most important conducting polymers because of its environmental stability, easy way to fabricate and its cost-effectivity. In this paper, synthesis of conducting material namely, polyaniline thin film was carried out with different organic acids as dopants viz oxalic, benzoic and salicylic acids by dip coating method on a glass substrate with various dipping time (3, 6, 12 and 24 h) in the presence of ammonium peroxydisulphate (oxidant). The synthesized PANI thin films were structurally characterized by various physico-chemical and spectral methods (UV-visible spectra, Photoluminescence, XRD and SEM). Oxalic acid doped PANI thin film compounds show better transparency with low band gap value than other compounds and also the observed band gap energy values decrease with rise in dipping time. The superior photoluminescence emission wavelengths were observed in oxalic acid doped PANI thin film at 24 h that illustrates that the thin films have good photoluminescence as well as electroluminescence in nature. The conductivity nature of oxalic acid doped PANI thin film shows higher values at 24 h dipping time than other compounds. Further, the XRD and SEM analyses reports show that the oxalic acid doped PANI thin film compounds have high crystalline nature with homogeneous surface morphology. © 2018 The Authors

### Author keywords

[Conducting PANI thin film](#) [Electrical properties](#) [Glass substrate](#) [Organic acid dopants](#) [Spectral characterization](#)  
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