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CHARACTERISTICS OF TiO₂-Cu THIN FILMS DEPOSITED VIA USING ELECTROSPRAY TECHNIQUE

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ABSTRACT- In this current research, TiO₂ thin films were deposited on the cleaning glass substrates via using Electrospray technique. Various deposition Electric potentials were utilized within the scope of 0-5 KV. To understand potential factors affecting TiO₂-Cu thin films, the structural, morphological, optical characteristics and the surface chemical composition were explored. The x-ray diffraction peaks showed that all TiO₂-Cu samples composed of an anatase phase with average crystallite size of 46 nm. TiO₂-Cu films were uniform surface and particle structures such as a spherical size with a thickness of approximately 260 nm. PL spectroscopy was used to analyze the optical properties in order to confirm optical absorption in the visible light field. We provided nanoparticles insights into the enhanced properties of TiO₂-Cu thin films under different electric potential. The thin film offers a good performance for use as a biosensor.

Keywords: TiO₂-Cu, Thin film, PL spectra, Characterization.