**Pursuit of ZnO and SrO nanoparticles-based photoelectrodes in dye-sensitized solar cells**

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**Abstract:** The ZnO and SrO nanoparticles were prepared for the application of metal oxide photoelectrodes in Dye-Sensitized Solar Cells (DSSC). ZnO and SrO nanoparticles were prepared using Zinc acetate dihydrate (Zn (CH3COO) 2(H2O)2) and Strontium Chloride (SrCl2) by co-precipitation method. The size, crystal structure and composition of the ZnO and SrO nanoparticles were studied using X-ray diffraction. The surface properties were studied using a Scanning electron microscope, and the optical properties were investigated by UV-visible spectra, Fourier Transformation Infra-Red spectra (FT-IR) and Photo Luminescence Spectra (PL). The characteristic comparisons were made through structural and morphological changes. Photoelectrodes were made by using the prepared ZnO and SrO nanoparticles. The photovoltaic characteristics were performed under the illumination of light and photovoltaic parameters were analysed for the fabricated DSSC cells with ZnO and SrO photoelectrodes. The photoconversion efficiency of the ZnO electrode-based DSSC and SrO electrode-based DSSC was estimated. The activity of these electrodes in solar cells helps us to identify more suitable electrodes for the solar energy harvest.

**Keywords:** Photoelectrodes, Photovoltaic, Luminescence, Efficiency, Morphology.

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