**INVESTIGATIONS ON THE STRUCTURAL OPTICAL MECHANICAL AND THERMAL PROPERTIES OF PYRIDINIUM OXALATE SINGLE CRYSTALS**

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**ABSTRACT**

 A promising organic non-linear optical single crystal of Pyridinium oxalate have been successfully grown by slow evaporation technique at room temperature. Single crystals X-ray Diffraction (SXRD) studies confirm the lattice parameter of the grown crystal. The functional groups present in the synthesized crystal were analyzed by FTIR analysis. VU-visible adsorption spectral studies were carried out to analyze the optical absorption of the grown crystal and found that the absorption is very low in the wavelength region between 280 nm-1100 nm. The melting point and thermal stability of the grown crystal was studied by using Thermo Gravimetric and Differential Thermal Analysis (TG/DTA). The mechanical strength of the grown crystals was analyzed by using Vicker’s microhardness test. Second Harmonic Generation was confirmed by Kurtz and Perry powder technique.

Keywords: slow evaporation technique, SXRD, FTIR, TG/DTA