



Synthesis, Growth and Characterization Studies of Novel Semi Organic Nonlinear Optical Bisthiourea lithium oxalate single crystals

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Abstract : Optically good quality single crystals of novel semi organic material, bisthiourea lithium oxalate (BTLO) have been grown from aqueous solution by slow evaporation technique. The lattice parameters for the grown crystals were determined by the single crystal X-ray diffraction analysis. The presence of functional groups was estimated qualitatively by using Fourier Transform Infra-red (FT-IR) and Raman analysis. The UV-Vis studies have been carried out and the cut off wavelength λ is found to be 295 nm. The energy gap is calculated as 3.217 eV. Mechanical strength of the title compound was analyzed by Vicker's micro hardness tester. The thermal stability of BTLO was studied by TGA/DTA thermal analyzer. The nonlinear optical property of the grown crystal was confirmed by Kurtz-Perry powder technique and hence suggests that the grown crystal was well suited for nonlinear optical applications.

Keywords : Crystal growth, FT-IR, FT Raman, Thermal studies, Micro hardness, SHG.

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