



Effect of Sodium Acetate Trihydrate Addition on Structural, Optical, Dielectric and NLO Properties of Thiourea Single Crystal

B. Neelakantaprasad^{1*}, S. Masilamani² and B. Ravi³

¹Department of Physics, K.S.R. College of Engineering, Tiruchengode – 637 215, Tamil Nadu, India.

²Department of Physics, K.S Rangasamy College of Technology, Namakkal – 637 215, Tamil Nadu, India.

³Department of Physics, Vidyaa Vikas College of Engineering and Technology, Tiruchengode – 637 214, Tamil Nadu, India.

Abstract : Optically fine quality single crystals of pure thiourea (abbreviated as TU) $\text{CH}_4\text{N}_2\text{S}$ and sodium acetatetrihydrate doped thiourea (abbreviated as STATH) $\text{NaC}_3\text{H}_{13}\text{N}_2\text{SO}_5$ were effectively grown by slow evaporation method at room temperature from their aqueous solutions. The procured crystals were of average size $18 \times 12 \times 5 \text{ mm}^3$ (TU) and $17 \times 8 \times 5 \text{ mm}^3$ (STATH). Single and Powder X-ray Diffraction studies were consummated and the lattice specifications of the grown crystals have been assessed. Optical constants were appraised for both the samples by manipulating UV–Vis–NIR spectroscopy. Chemical composition of TU and STATH was scrutinized by EDX analysis. The dielectric response of both the samples was investigated in the frequency zone 100 Hz to 5 MHz besides solid state parameters were deliberated. The second harmonic generation (SHG) efficiency test manifests that STATH has the efficiency 1.506 times that of potassium dihydrogen phosphate (KDP).

Keywords : Crystal growth, Optical studies, EDX, Dielectric and NLO.

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