

Growth, Optical, Structural, FTIR and Dielectric studies on Pure and succinic acid doped γ -glycine single Crystals

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Abstract

Single crystals of pure and succinic acid doped γ -glycine were grown by slow evaporation technique. Many interesting results on several properties of pure and succinic acid doped γ -glycine single crystals have been reported. Succinic acid doped γ -glycine shows various morphology. The effect of doping on the growth, optical, dielectric and hardness properties has also been investigated. The presence of functional groups has been estimated by FTIR analysis. The lattice parameters of the grown crystals were studied by single crystal X-ray diffraction technique. Powder X-ray diffraction studies confirm the diffraction planes of the grown crystals. The UV-visible spectrum shows the cut-off wavelength at 220 nm. A study on the thermal properties has also been carried out. The photoconductivity study was carried out to know the conducting nature of the crystal. The NLO(Non-Linear Optical) property of the grown crystals was confirmed by SHG(Second Harmonic Generation) studies. The laser damage threshold was measured using Q-switched Nd:YAG laser (1064 nm). It was found that dopant concentration decreases the NLO property and proves to be a good material for photonic device fabrication.

Keywords: γ -glycine, succinic acid, Dielectric study, NLO Property