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Growth and characterization of organic crystals: Urea L-malate and Zn(II) doped Urea L-malate

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Abstract: Urea L-malate and Zn(II) doped Urea L-malate crystals are grown from aqueous solution at room temperature. The influence of transition metal Zn(II) doping on the structural, optical, mechanical and dielectric properties of Urea L-malate has been investigated. Single crystal X-ray diffraction analysis reveals that both the pure and Zn(II) doped Urea L-malate crystals belong to monoclinic system with the space group $P2_1$. The FT-IR spectral study reveals the presence of functional groups and confirms the small distortion of the structure of the crystals due to doping. The optical absorption studies were carried out to analyze the optical absorption of the grown crystals and confirmed that the absorption is almost negligible in the visible and UV regions for both pure and doped crystals. Kurtz and Perry powder technique has been employed to identify second harmonic generation efficiency of the grown crystals. Hardness Studies were carried out to find the mechanical behavior of the grown crystals. Dielectric studies were employed to find the dielectric constant and dielectric loss of the grown crystals.

Keywords: Crystal growth, XRD, Optical, hardness, Dielectric.

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