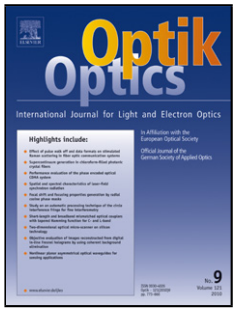

Title: Growth by free evaporation method and physico – chemical properties of calcium succinate single crystals

Authors: D.S. Christy, C.K. Mahadevan, X. Sahaya Shajan

PII: S0030-4026(17)30890-2
DOI: http://dx.doi.org/doi:10.1016/j.ijleo.2017.07.065
Reference: IJLEO 59461

To appear in:

Received date: 27-4-2016
Revised date: 28-7-2017
Accepted date: 30-7-2017

Please cite this article as: D.S.Christy, C.K.Mahadevan, X.Sahaya Shajan, Growth by free evaporation method and physico – chemical properties of calcium succinate single crystals, Optik - International Journal for Light and Electron Opticshttp://dx.doi.org/10.1016/j.ijleo.2017.07.065

Growth by free evaporation method and physico - chemical properties of calcium succinate single crystals

D. S. Christy, C. K. Mahadevan and X. Sahaya Shajan*

School of Basic Engineering and Sciences, PSN College of Engineering and Technology, Tirunelveli – 627 152, Tamilnadu, India.

*Corresponding author e-mail: **shajan89@gmail.com**

Abstract

Calcium succinate single crystals were grown by adopting the free evaporation method for the first time and characterized. Powder X-ray diffraction, FTIR spectral and thermo-gravimetric measurements were carried out to characterize the grown crystals structurally, chemically and thermally. Optical characterization has been done by UV – Vis – NIR spectral and second harmonic generation efficiency measurements. Microhardness and dielectric measurements were carried out to characterize mechanically and electrically. The results obtained indicate that the grown crystals exhibit good crystallinity, triclinic lattice structure, reasonable thermal stability (up to 68 °C), good transmittance (in the wavelength range from 240 – 1200 nm), second harmonic generation, mechanical softness and normal dielectric behavior.

Keywords: Crystal growth, Powder X-ray diffraction, Thermal analysis, NLO material, Microhardness, Dielectric properties.

1. Introduction