

## Iron Doped Biomaterial Calcium Borate: Synthesis and Characterization

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**Abstract :** Colemanite is the most common borate mineral, and the main source of the boron required by plants, human, and earth. Transition metals exhibit optical and physical properties such as; non-linear optical character, structural diversity, thermal stability, long cycle life and luminescent radiation. The doping of colemanite with a transition metal, bring it very interesting and attractive properties which make them applicable in industry. Iron doped calcium borate was synthesized by conventional solid state method at 1200 °C for 12 h with a systematic pathway. X-ray diffraction (XRD), Fourier transform infrared (FTIR) spectroscopy, scanning electron microscopy/energy dispersive analyze (SEM/EDS) were used to characterize structural and morphological properties. Also, thermal properties were recorded by thermogravimetric-differential thermal analysis (TG/DTA).

**Keywords :** colemanite, conventional synthesis, powder x-ray diffraction, borates

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