

Synthesis of Hydroxyapatite through Ultrasound and Calcination Techniques

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Abstract. There is a growing demand for hydroxyapatite (HA) especially in medical applications, production of HA which is totally green is however a challenge. In this research, HA was produced from biowaste through ultrasound followed by calcination techniques. Pre-treatment of the biowaste was effectively achieved through the help of ultrasound. After calcination at 950°C, the obtained HA was characterized through Thermogravimetric (TGA) analysis, X-ray diffraction analysis (XRD) and Fourier transform infrared spectroscopy (FTIR). Spectrum of the produced HA was compared with standard HA index. The spectrum is in agreement with the standard HA as confirmed through FTIR, XRD and TGA result. Furthermore, morphological study of the HA through Field emission scanning electron microscope (FESEM) shows almost uniform spherical shape for the HA as expected. Based on the results obtained herein, combining ultrasound with calcination can help to produce pure HA with potential medical applications without the use of any organic solvent.

