

Microstructure of Hydroxyapatite from Waste Eggshell Synthesized under Different Temperature.

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Hydroxyapatite, $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ were prepared by the reaction of calcium hydroxide from waste chicken eggshell and di-ammonium hydrogen orthophosphate solution and heated at different temperature from 200 to 700 °C for 4 hour. The crystal structure, function group and morphology of hydroxyapatite were investigated by X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR) and scanning electron microscopy (SEM), respectively. The structure was found to be hydroxyapatite phase at 200 to 600°C and the crystalline size increased with increasing temperature. However, the hydroxyapatite phase was transformed to tri-calcium phosphate phase completely at 700 °C. The morphology of hydroxyapatite were agglomerates and sphere particles. These experiments show that the hydroxyapatite could be synthesized from waste chicken eggshell and reduced time and cost for biomaterials application.

Author: Mr SANGMALA, Aekgaran (King Mongkut's University of Technology Thonburi (KMUTT)126 Pracha Uthit Rd., Bang Mod, Thung Khru, Bangkok 10140, Thailand)

Co-authors: Dr NAEMCHANTHARA, Kittisakchai (King Mongkut's University of Technology Thonburi (KMUTT)126 Pracha Uthit Rd., Bang Mod, Thung Khru, Bangkok 10140, Thailand); Prof. LIMSUWAN, Pichet (King Mongkut's University of Technology Thonburi (KMUTT)126 Pracha Uthit Rd., Bang Mod, Thung Khru, Bangkok 10140, Thailand)

Presenter: Mr SANGMALA, Aekgaran (King Mongkut's University of Technology Thonburi (KMUTT)126 Pracha Uthit Rd., Bang Mod, Thung Khru, Bangkok 10140, Thailand)

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