



The Effect of pH on the Synthesis and Characterization Hydroxyapatite from Bamboo Shell (*Sollen spp.*) with Emulsion Method

Wulandari, Diana Vanda Wellia and Novesar Jamarun*

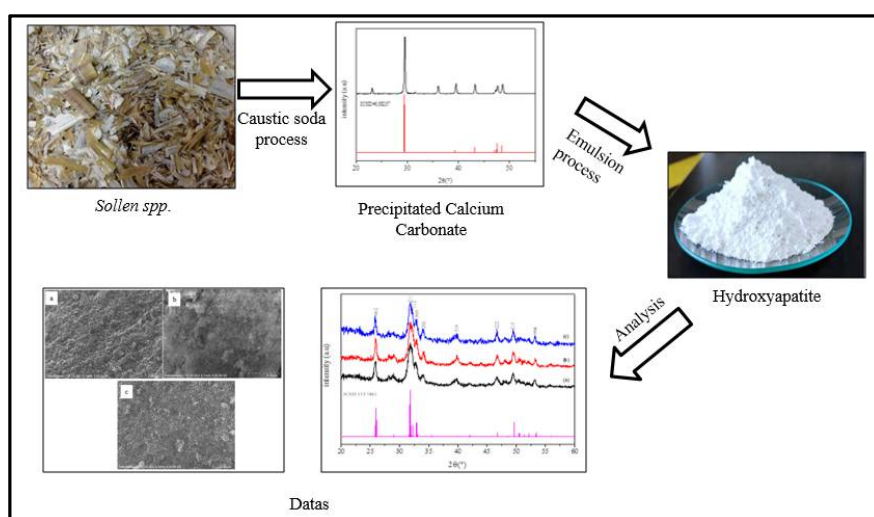
Department of Chemistry, Faculty of Mathematics and Natural Sciences,
Andalas University, Padang, West Sumatera, **INDONESIA**
Email: novesarjamarun@sci.unand.ac.id

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ABSTRACT

The present study, reports synthesizes of hydroxyapatite (HAp) material from bamboo shell waste (*Sollen spp.*) as Ca^{2+} ions biosource. The HAp was synthesized through emulsion method, using Span20, Tween80, and cyclohexane as the surfactants and oil phase. X-Ray Diffraction, Fourier Transform Infrared, and Scanning Electron Microscope-Energy Dispersive X-Ray characterizations were carried out to reveal the effect of pH on the synthesized HAp material. The XRD pattern confirmed that single-phase HAp was formed at pH 9, 10, and 11. Using the Scherrer equation, the smallest crystal size was 5.30 nm at pH 10. The SEM-EDS results showed the HAp had morphology with agglomerated particles with a Ca/P ratio of 1.82. Overall characterization results showed that pH had an insignificant effect on the crystallinity and morphology.

Graphical abstract



Keywords: Hydroxyapatite, *Sollen spp.*, Precipitated calcium carbonate, Emulsion method.