

DIP-COATING SENYAWA KALSIMUM FOSFAT DARI BATU KAPUR BUKIT TUI MELALUI METODE SOL-GEL

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ABSTRACT

Preparation of Dip-Coating Calcium Phosphate via sol-gel method using natural limestone Bukit Tui as calcium precursors and diammonium hydrogen phosphate as phosphorus precursors with sol-gel process has been investigated. Ethanol was used as solvent and DEA (diethanolamine) was used stabilizing agent. The powder were prepared by calcinated the sol at 950 °C. The products were characterized by Fourier Transform Infra Red, X-Ray Diffraction and Scanning Electron Microscopy. FTIR results showed that the vibration form was PO_4^{3-} , $\text{P}_2\text{O}_7^{4-}$, O-H and CO_2 . XRD patterns of powder with various Ca/P mol ratio showed that the product of calcium phosphate was $\text{Ca}_2\text{P}_2\text{O}_7$ and also found the hydroxyapatite $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ in Ca/P mol ratio 1,7. SEM images of powder calcium phosphate revealed that their morphology were spheric and homogen. The coating process was done at glass substrate with coating speed 20 cm/min by calcinations at 400 °C. XRD patterns of thin layer showed that the product was $\text{Ca}_2\text{P}_2\text{O}_7$ and SEM images of thin layer revealed that their morphology were bulk.

Keywords: Natural limestone, calcium phosphate, hydroxyapatite, sol-gel, dip-coating

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