

Sintesis dan karakterisasi hidroksiapatit dengan metode hidrotermal = Synthesis and characterization of hydroxyapatite by hydrothermal method

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Abstrak

[ABSTRAK

Hidroksiapatit (HA) mempunyai peran penting dalam bidang medis karena komposisi kimia dan strukturnya yang mirip dengan tulang manusia. Material ini disintesis melalui metode hidrotermal dengan prekursor $\text{Ca}(\text{NO}_3)_2$, CaO dan NH_3PO_4 . Variasi temperatur hidrotermal pada 150 °C dan 300 °C, temperatur sintering pada 900 °C selama 3 jam. Endapan yang diperoleh diuji dengan XRD dan SEM-EDX. Morfologi partikel hasil karakterisasi SEM berbentuk batangan memanjang dan melingkar teraglomerasi dan hasil uji EDX menunjukkan rasio Ca/P yang lebih besar dari 1.67. Uji XRD menunjukkan adanya fasa kalsium difosfat, fluorapatit dan apatit karbonat tipe- A di dalam endapan yang meningkatkan rasio Ca/P.

ABSTRACT

Hydroxyapatite (HA) possesses significant role in medical application due to its similarity in chemical and structure to human bones. This material was synthesized through hydrothermal method using $\text{Ca}(\text{NO}_3)_2$, CaO and NH_3PO_4 . Hydrothermal temperature varied on 150 °C and 300 °C, sintering temperature on 900 °C for 3 hours. Sample was characterization by XRD and SEM-EDX.

Morphology observed by SEM is agglomerated round- spherical- shape particle with Ca/P ratio more than 1.67 measured by EDX. Calcium diphosphate, fluorapatite and carbonated type- A presence is observed by XRD.; Hydroxyapatite (HA) possesses significant role in medical application due to its similarity in chemical and structure to human bones. This material was synthesized through hydrothermal method using $\text{Ca}(\text{NO}_3)_2$, CaO and NH_3PO_4 . Hydrothermal temperature varied on 150 °C and 300 °C, sintering temperature on 900 °C for 3 hours. Sample was characterization by XRD and SEM-EDX. Morphology observed by SEM is agglomerated round- spherical- shape particle with Ca/P ratio more than 1.67 measured by EDX. Calcium diphosphate, fluorapatite and carbonated type- A presence is observed by XRD., Hydroxyapatite (HA) possesses significant role in medical application due to its similarity in chemical and structure to human bones. This material was synthesized through hydrothermal method using $\text{Ca}(\text{NO}_3)_2$, CaO and NH_3PO_4 . Hydrothermal temperature varied on 150 °C and 300 °C, sintering temperature on 900 °C for 3 hours. Sample was characterization by XRD and SEM-EDX. Morphology observed by SEM is agglomerated round- spherical- shape particle with Ca/P ratio more than 1.67 measured by EDX. Calcium diphosphate, fluorapatite and carbonated type- A presence is observed by XRD.]