Pengaruh waktu sintering terhadap kemurnikan kristal hidroksiapatit pada metode hidrotermal = Effect of sintering time on hydroxyapatite crystal s purity with hydrothermal method

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Abstrak

[ABSTRAK
Hroksiapatit merupakan jenis biomaterial sintetis yang mempunyai fasa yang paling stabil dibandingkan dengan senyawa kalsiun fosfat lainnya, selain itu hidroksiapatit memiliki tingkat kemiripan yang tinggi dengan tulang, sehingga hidroksiapatik banyak diaplikasikan sebagai bone graft sintetis. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh waktu sintering terhadap kemurnian kristal hidroksiapatit yang dihasilkan. Hidroksiapatit dari prekursor kimia CaCO3 dan (NH4)2HPO4 disintesis dengan menggunakan metode hidrotermal pada temperatur 150oC dan 300oC. Hasil dari sintesis hidroksiapatik dikarakterisasi dengan menggunakan X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM), dan Energy Dispersive Analysis X-Ray (EDX). Hasil karakterisasi XRD memperlihatkan intensitas tertinggi rata-rata berada pada sudut 2θ yaitu, 25.898o, 31.789o, 32.216o, 32.922o, 46.729o, dan 49.524o. Hasil dari SEM memperlihatkan morfologi dari sampel bebrbetuk nanoroot dan hasil dari EDX menunjukan rasio Ca/P sebesar 1.8.
ABSTRACT
Hydroxyapatite is the most phase-stable syntetic biomaterial compared to another calcium phospate material. Hydroxyapatite also has high similarity with bone which make it has wide application as syntetic bone graft. Purpose of this research is to study the effect of sintering time towards hydroxyapatite crystal?s purity. Hydroxyapatite made from chemical precursor CaCO3 and (NH4)2HPO4 was synthesized using hydrothermal method on 150oC and 300oC. Synthesized hydroxyapatite was characterized using X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM), and Energy Dispersive Analysis X-Ray (EDX). The result of characterization showed that highest average intensity on 2θ were: 25.898o, 31.789o, 32.216o, 32.922o, 46.729o, and 49.524o.;Hydroxyapatite is the most phase-stable syntetic biomaterial compared to another calcium phospate material. Hydroxyapatite also has high similarity with bone which make it has wide application as syntetic bone graft. Purpose of this research is to study the effect of sintering time towards hydroxyapatite crystal?s purity. Hydroxyapatite made from chemical precursor CaCO3 and (NH4)2HPO4 was synthesized using hydrothermal method on 150oC and 300oC. Synthesized hydroxyapatite was characterized using X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM), and Energy Dispersive Analysis X-Ray (EDX). The result of characterization showed that highest average intensity on 2θ were: 25.898o, 31.789o, 32.216o, 32.922o, 46.729o, and 49.524o.;Hydroxyapatite is the most phase-stable syntetic biomaterial compared to another calcium phospate material. Hydroxyapatite also has high similarity with bone which make it has wide application as syntetic bone graft. Purpose of this research is to study the effect of sintering time towards hydroxyapatite crystal?s purity. Hydroxyapatite made from chemical precursor CaCO3 and (NH4)2HPO4 was synthesized using hydrothermal method on 150oC and 300oC. Synthesized hydroxyapatite was characterized using X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM), and Energy Dispersive Analysis X-Ray (EDX). The result of characterization

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