

Scaffold komposit karbonat apatit/alginate/chitosan/kalsium alumina ferrit : sintesis karakterisasi dan viabilitas sel = Carbonate apatite/chitosan alginate/calcium aluminate ferrite composite scaffold : synthesis, characterization and cell viability

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Abstrak

[ABSTRAK

Multifungsi untuk terapi kanker tulang dan regenerasi jaringan tulang mulai dipelajari dengan menggunakan scaffold komposit biopolimer dan magnetik. Penelitian ini bertujuan menyintesis dan mengarakterisasi scaffold karbonat apatit/kitosan/alginate/partikel magnetik kalsium alumina ferrit serta menganalisis viabilitas selnya. Pertama disintesis karbonat apatit kemudian dicampurkan dengan kitosan, alginate dan kalsium alumina ferrit kemudian di freeze drying untuk mendapatkan scaffold. Hasil menunjukkan terbentuknya struktur komposit. Kalsium alumina ferrit berbentuk irregular dan berukuran 0,5-2 μm. Magnetisasi partikel kalsium alumina ferrit dan scaffold magnetik ditunjukkan dengan magnetisasi saturasi, medan koersivitas dan magnetisasi remanen. Scaffold tersebut teramati tidak mempengaruhi viabilitas sel HaCaT.

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ABSTRACT

Multifunction for bone cancer therapy and bone tissue regeneration has been studied using biopolymers and magnetic composite scaffolds. The aim of stud was to synthesize and characterize the carbonate apatite/chitosan/alginate/calcium aluminate ferrite composite scaffold as well as to analyze the cell viability. Firstly, carbonate apatite was synthesized and then was mixed with chitosan, alginate and calcium aluminate ferrite. Then the resulted gel was freeze dried to obtain the

scaffold. Results indicated the formation of a composite structure. Calcium aluminate ferrite particle were irregular in shape and 0.5-2 μm in size. Magnetizations of the calcium aluminate ferrite particle and the magnetic scaffolds were demonstrated in the saturation magnetization, coercivity field and remanent magnetization. The produced scaffold was observed did not affect the viability of HaCaT cells.,

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