Evaluasi kekuatan scaffold kitosan/hidroksiapatit/kolagen dengan perendaman simulated body fluid penelitian in vitro untuk rekonstruksi di bidang bedah mulut = Strength evaluation of chitosan hydroxyapatite collagen as scaffold material by immersing in simulated body fluid in vitro studies for reconstruction in oral and maxillofacial surgery

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Abstrak

ABSTRAK
<hr>Latar belakang : Rekonstruksi defek jaringan tulang merupakan tantangan utama yang dihadapi ahli bedah mulut dan maksilofasial. Elemen dasar yang dibutuhkan dalam suatu rekayasa jaringan adalah sel, scaffold matriks serta molekul stimulan growth factors . Bagaimana sifat mekanik dari scaffold kitosan/hidroksiapatit/kolagen produksi BATAN, Jakarta, belum pernah diteliti. Tujuan : Menganalisa sifat mekanik scaffold kitosan/hidroksiapatit/kolagen produksi BATAN, Jakarta, sebelum dan setelah direndam dalam simulated body fluid selama 8 hari. Metode : Menyediakan scaffold komposit kitosan/hidroksiapatit/kolagen, kemudian merendam scaffold didalam simulated body fluid pada suhu 37 0C, selama 8 hari. Kemudian masing ndash; masing scaffold diangkat dan dikeringkan pada suhu ruang pada hari 0, 2, 4, 6, 8. Untuk diuji kekuatan tekan dan kekuatan tarik. Data yang diperoleh diolah dan dianalisa. Hasil : Variasi nilai kekuatan tekan dan kekuatan tarik dapat dihubungkan dengan beberapa hal , ukuran spesimen yang tidak seragam, komposisi scaffold, ukuran pori scaffold yang tidak sama dan adanya degradasi dari kandungan polimer. Kesimpulan : Scaffold kitosan/hidroksiapatit/kolagen tidak memiliki kekuatan tarik dan kekuatan tekan sebelum dan setelah perendaman masing ndash;masing hari dengan simulated body fluid.
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ABSTRACT
Background The reconstruction of bone tissue defect is a major challenge for the oral and maxillofacial surgeon. The basic elements needed in a tissue engineering is a cell, scaffold matrix and stimulant molecules growth factors . How mechanical properties the scaffold of chitosan hydroxyapatite collagen production BATAN, Jakarta, has never been in research. Purpose Analyze the mechanical properties the scaffold of chitosan hydroxyapatite collagen from BATAN, Jakarta, before and after immersion in simulated body fluid for 8 days. Method Provides a composite scaffold of chitosan hydroxyapatite collagen, then soaking the scaffold in SBF at 37 0 C, for 8 days. Then each scaffold is removed and dried at room temperature on the day of 0, 2, 4, 6, 8. To test the compressive strength and tensile strength. The data obtained were processed and analyzed. Results Variations in the value of the compressive strength and tensile strength can be attributed to several things, the size of the specimen which is not the same, the composition of the scaffold, scaffold pore size is not the same and the degradation of the content polimer. Summary Scaffold chitosan hydroxyapatite collagen does not have differences the tensile strength and compressive strength before and after immersion with simulated body fluid.