# Analisis Total dan Profil Protein dalam Kultur Medium Sel Osteoblas setelah Pajanan Hidroksiapatit-Gelatin-Propolis (In Vitro) = Total and Profile Protein Analysis on Osteoblast Medium Culture After Hydroxyapatite- Gelatin- Propolis Exposure (In Vitro)

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Abstrak

Latar Belakang: Tulang terus memperbaharui jaringannya dengan mengandalkan keseimbangan resorpsi tulang oleh osteoklas dan deposisi tulang oleh osteoblas. Namun, hal ini dapat terhambat pada kondisi kerusakan tulang yang rumit dan ekstensif. Bone tissue engineering telah berpotensi menjadi alternatif dalam mengatasi masalah regenerasi tulang, salah satunya menggunakan material hidroksiapatit dan gelatin yang bersifat biokompatibel dan osteokonduktif. Pada studi ini, penulis ingin mengetahui pengaruh penambahan propolis pada material hidroksiapatit-gelatin terhadap sekresi protein sel osteoblas.

Tujuan: Menganalisis total dan profil protein pada medium kultur sel osteoblas setelah pajanan elusi hidroksiapatit, gelatin, dan propolis untuk melihat aktivitas sel osteoblas.

Metode: Medium kultur sel osteoblas diberikan pajanan berupa elusi hidroksiapatit-gelatin-propolis 6% dan diambil sampelnya pada hari ke- 3, 7, 14, dan 21. Kemudian dilakukan uji Bradford untuk melihat total protein dan uji SDS-PAGE untuk melihat profil protein.

Hasil: Terdapat perbedaan total protein pada semua kelompok dan ditemukan adanya profil protein berupa COL1A1, bone sialoprotein, RUNX2, dan osteonectin.

Kesimpulan: Hasil penelitian menunjukkan terdapat perbedaan antara total dan profil protein medium kultur sel osteoblas pada pemberian elusi hidroksiapatit-gelatin-propolis 6% dibanding kelompok kontrol pada hari ke- 3, 7, 14, dan 21 setelah pajanan.
.....Background: Bone continue to renew their tissue during life that relies on the correct balance between resorption by osteoclasts and deposition by osteoblasts. However, this can be hindered in conditions of complex and extensive bone destruction. Bone tissue engineering has potential to be an alternative in overcoming the problem of bone regeneration, one of which uses hydroxyapatite and gelatin materials that are biocompatible and osteoconductive. The authors wanted to determine the effect of adding propolis to the hydroxyapatite-gelatin material on the protein secretion of osteoblast cells.

Objectives: To analyse total and profile protein on medium culture of osteoblast cells after exposure to elution of hydroxyapatite, gelatin, and propolis to see the activity of osteoblast cells.

Methods: Osteoblast cell culture medium was exposed to hydroxyapatite-gelatin-propolis 6% elution and samples were taken on days 3, 7, 14, and 21. Then the Bradford test was performed to see the total protein and SDS-PAGE test to see the protein profile.

Results: There were differences of total protein in all groups and found the presence of profile protein, such as COL1A1, bone sialoprotein, RUNX2, and osteonectin.

Conclusion: The results showed that there was a difference between the total and protein profile of the osteoblast cell culture medium in the administration of hydroxyapatite-gelatin-propolis 6% elution compared to the control group on days 3, 7, 14, and 21 after exposure.