

ABSTRACT

Tissue engineering technology, is one of the most advanced procedures in tissue healing methods which are able to initiate and maintain the regeneration process by involving cell regeneration, growth factors, and scaffold. The purpose of this study is to determine the effectiveness incorporation of Platelet Rich Plasma in scaffolds with gelatin-CaCO₃ 5:5, 4:6 and 10:0 membrane concentrations.

The research Is a kind of experimental laboratories, with total samples of 9 scaffolds with 3 scaffold samples from each membrane concentration ratio. Each scaffold is 30µl of Platelet Rich Plasma. Calculation of the number of Platelet Rich Plasma using a binocular microscope.

The results of Platelet Rich Plasma calculations were statistically by One-Way ANOVA test with the results of the difference in membrane concentration of 5: 5 ($p = 0.001$), concentration of 4: 6 ($p = 0.000$) and concentration of 10: 0 ($p = 0.001$). The results showed an average value of Platelet Rich Plasma in each scaffold with a concentration of 5:5 as many as 970.33, a concentration of 4:6 as many as 1,173.66 and a concentration of 10:0 as much as 740.33 so that there was a significant difference ($p < 0.05$). The conclusion of this study is that there are differences in the number of Platelet Rich Plasma that has been incorcated in the scaffold with a comparison of the concentration of gelatin-CaCO₃ 5: 5, 4: 6 and 10: 0 membranes.

Keywords : Tissue Engineering, Platelet Rich Plasma, Scaffold, Porosity.

INTISARI

Teknologi rekayasa jaringan atau yang biasanya disebut sebagai *tissue engineering* merupakan salah satu prosedur dalam metode penyembuhan jaringan yang cukup mutakhir dimana mampu menginisiasi serta mempertahankan proses regenerasi dengan melibatkan regenerasi sel, *growth faktor*, dan *scaffold* (perancah). Tujuan dari penelitian ini adalah untuk mengetahui efektivitas inkorporasi *Platelet Rich Plasma* pada perancah dengan konsentrasi membran gelatin-CaCO₃ 5:5, 4:6 dan 10:0.

Jenis penelitian ini adalah eksperimental laboratoris, dengan jumlah seluruh sampel 9 buah perancah dengan 3 sampel perancah dari masing-masing perbandingan konsentrasi membran. Setiap perancah diinkorporasikan *Platelet Rich Plasma* sebanyak 30µl. Perhitungan jumlah *Platelet Rich Plasma* menggunakan mikroskop binokuler.

Hasil perhitungan *Platelet Rich Plasma* dianalisa secara statistik dengan uji *One-Way ANOVA* dengan hasil uji perbedaan konsentrasi membran 5:5 ($p=0.001$), konsentrasi 4:6 ($p=0.000$) dan konsentrasi 10:0 ($p=0.001$). Hasil menunjukkan nilai rerata jumlah *Platelet Rich Plasma* pada masing-masing perancah dengan konsentrasi 5:5 sebanyak 970.33, konsentrasi 4:6 sebanyak 1,173.66 dan konsentrasi 10:0 sebanyak 740.33 sehingga menunjukkan terdapat perbedaan secara signifikan ($p<0,05$). Kesimpulan penelitian ini adalah terdapat perbedaan jumlah *Platelet Rich Plasma* yang telah diinkorporasikan pada perancah dengan perbandingan konsentrasi membran gelatin-CaCO₃ 5:5, 4:6 dan 10:0.

Kata kunci : *Tissue engineering*, *Platelet rich plasma*, Perancah, Porositas.