INTISARI

Penanganan periodontitis tidak cukup hanya menggunakan *scaling* dan *root planning* melainkan perlu pemberian antibiotik untuk menangani bakteri patogen. Metronidazole merupakan antibiotik yang dapat menangani bakteri anaerob penyebab periodontitis. Aplikasi metronidazole membutuhkan material pembawa yang bersifat biokompatibel, biodegradabel, serta mampu mengakomodasi obat yang dibawanya. Salah satu contoh material pembawa obat yang ideal yaitu gelatin. Di sisi lain, periodontitis juga menimbulkan kerusakan tulang alveolar. Dikalsium fosfat dihidrat ($CaHPO_4.2H_2O$) merupakan material yang memiliki sifat osteokonduktif yang membantu regenerasi tulang. Kombinasi antara gelatin dengan dikalsium fosfat dihidrat ($CaHPO_4.2H_2O$) diharapkan dapat menjadi material pembawa obat metronidazole.

Membran gelatin-dikalsium fosfat dihidrat ($CaHPO_4.2H_2O$) dengan 6 rasio komposisi yang berbeda dipersiapkan dalam sediaan membran. Kemudian dilakukan perendaman membran selama 24 jam pada suhu 37^oC. Larutan metronidazole diencerkan 200 kali dengan konsentrasi 0.1% dan diukur menggunakan *Uv-Vis Spectrophotometer* (λ) 319 nm. Data persentase muatan metronidazole dianalisis menggunakan ANAVA satu jalur.

Hasil penelitian menunjukkan bahwa tidak terdapat pengaruh rasio komposisi membran gelatin-dikalsium fosfat dihidrat ($CaHPO_4.2H_2O$) terhadap persentase muatan metronidazole ($p>0.05$). Membran gelatin-dikalsium fosfat dihidrat dengan rasio komposisi 10:0 memiliki persentase muatan metronidazole tertinggi. Kesimpulan dari penelitian ini adalah rasio komposisi membran gelatin-dikalsium fosfat dihidrat ($CaHPO_4.2H_2O$) tidak berpengaruh terhadap persentase muatan metronidazole.

Kata kunci: Gelatin, Dikalsium fosfat dihidrat ($CaHPO_4.2H_2O$), Metronidazole, Persentase muatan.

ABSTRACT

Treatment of periodontitis includes scaling and root planning (SRP). Metronidazole is an effective bactericide antibiotic for periodontitis bacterial. Gelatin has been used as drug delivery material because of its biocompatibility and biodegradability. Periodontitis induces alveolar bone eruption. Dicalcium phosphate dyhidrate ($CaHPO_4.2H_2O$) is material that provides osteoconductivity by supporting regeneration. Combination of gelatin-dicalcium phosphate dyhidrate ($CaHPO_4.2H_2O$) was expected to be metronidazole's delivery material.

Gelatin-$CaHPO_4.2H_2O$ membrane was prepared in 6 different compositions. Each membrane was cut into 6 mm diameters. Metronidazole 0,1% was prepared by dissolving metronidazole in PBS pH 7,4. Membrane was immersed into metronidazole solution for 24 hours in 37^oC. After being immersed the metronidazole solution was diluted 200 times with PBS 7,4. Diluted solution was measured by UV-Vis Spectrophotometer in 319 nm. Loading percentage of each membrane was analyzed with One Way ANOVA.

The result showed that there was no significant difference of gelatin-dicalcium phosphate dyhidrate ($CaHPO_4.2H_2O$) ratio compositions towards metronidazole loading percentage ($p>0.05$). The membrane with gelatin-dicalcium phosphate dyhidrate ratio composition 10:0 was found to have highest metronidazole loading percentage. The conclusion of this research is the ratio of the composition of the gelatin-dicalcium phosphate dihydrate (CaHPO4.2H2O) membrane does not affect the percentage of metronidazole loading.

Key words: Gelatin, Dicalcium phosphate dihydrate (CaHPO4.2H2O), Metronidazole, Loading percentage.