VARIASI PERBANDINGAN *SCAFFOLD* KITOSAN-GELATIN DAN HIDROKSIAPATIT TERHADAP *COMPRESSIVE STRENGTH*

ABSTRAK

Latar Belakang. Kitosan dan gelatin merupakan polimer alam yang banyak digunakan sebagai material *scaffold* karena sifat biokompatibel yang tinggi. Hidroksiapatit mempunyai struktur kristal seperti mineral tulang. Percampuran ketiga material tersebut berpotensi untuk mendapatkan sifat mekanis yang tinggi. **Tujuan.** Mengetahui perbedaan *compressive strength* antara *scaffold* kitosan-gelatin dan hidroksiapatit K-G:HA perbandingan 30:70 (w/w), 20:80 (w/w), dan 40:60 (w/w). **Metode.** *Scaffold* disintesis dari kitosan, gelatin, dan hidroksiapatit dengan 3 perbandingan K-G:HA yang berbeda yaitu 30:70 (w/w) sebagai kontrol, 20:80 (w/w), dan 40:60 (w/w) dengan metode *freeze-drying* selama 2x24 jam. Sampel diuji *compressive strength* dengan alat *autograph*. Data dianalisis dengan uji *Kolmogorov-smirnov*, kemudian dianalisis dengan uji *Kruskal-Wallis* dan dilakukan uji *Tukey* HSD. **Hasil.** Nilai uji *compressive strength scaffold* K-G:HA 30:70 (w/w) adalah 2.72 MPa, 20:80 (w/w) adalah 4.99 MPa, dan 40:60 (w/w) adalah 4.60 MPa. **Simpulan.** Nilai *compressive strength scaffold* K-G:HA 20:80 (w/w) menghasilkan nilai paling tinggi.

Kata kunci : *Scaffold* kitosan-gelatin dan hidroksiapatit, *compressive strength*

RATIO VARIATION OF CHITOSAN-GELATIN AND HYDROXYAPATITE TO COMPRESSIVE STRENGTH

Background. *Chitosan and gelatin is a natural polymer that is widely used as a scaffold material for high biocompatible properties. Hydroxyapatite has a crystal-like structure of bone mineral. Mixing between these three materials have potential to achieve ideal scaffold properties in terms of mechanical properties by compressive strength test that can be used as bone tissue engineering candidates.* ***Purpose***. *Knowing the value of compressive strength chitosan-gelatin and hydroxyapatite scaffold (K-G: HA) ratio of 30:70 (w / w), 20:80 (w / w) and 40:60 (w / w).* ***Method.*** *Scaffold synthesized from chitosan, gelatin, and hydroxyapatite with 3 different ratio K-G:HA 30:70 (w / w) as a control, 20:80 (w / w) and 40:60 (w / w) by the method of freeze-drying for 2x24 hours. Samples were tested compressive strength with autographs. Data were analyzed by Kolmogorov-Smirnov test, Kruskal-Wallis test, and Tukey HSD test.* ***Results***. *The value of compressive strength test of scaffold K-G: HA 30:70 (w / w) is 2.72 MPa, 20:80 (w / w) is 4.99 MPa and 40:60 (w / w) is 4.60 MPa.* ***Conclusions***. *Compressive strength value of scaffold K-G: HA 20:80 (w / w) showed the highest values.*

Key words : *Chitosan-gelatin and hydroxyapatite scaffold, compressive strength*