ABSTRAK

Pencabutan gigi merupakan suatu tindakan pengambilan gigi dari soketnya, secara fisiologis hal ini dapat memicu respon inflamasi dan resorpsi tulang alveolar. *RUNX2* (Cbfa1) merupakan faktor transkripsi *runt* domain yang berperan penting sebagai regulator dini bagi diferensiasi osteoblast. Proses penyembuhan tulang setelah pencabutan gigi dapat dipercepat dengan penambahan *bone graft.* Tulang ikan bandeng memiliki kandungan kalsium fosfat yang dapat disintesis menjadi hidroksiapatit sehingga dapat dijadikan alternatif material *bone graft.* Penelitian ini bertujuan untuk mengetahui pengaruh serbuk tulang ikan bandeng terhadap ekspresi *Runt-Related Transcription Factor-2*(*RUNX2*) sel osteoblas dalam proses *remodeling* tulang alveolar pasca pencabutan gigi.

Penelitian dilakukan secara *Laboratories Experimental* dengan *Post test only control group design* dilakukan pada tikus wistar jantan. Sampel sebanyak 10 ekor tikus wistar jantan namun 2 didroup out sehingga berjumlah 8 yang dibagi menjadi kelompok kontrol dan kelompok perlakuan (diberi serbuk tulang ikan bandeng). Pengukuran ekspresi *RUNX2* dilakukan pada hari ke-7. Data dianalisis menggunakan *Independent sampel t-test.*

Hasil penelitian menunjukkan rerata jumlah ekspresi *RUNX2* pada soket pencabutan gigi yang diberi serbuk tulang ikan bandeng dan kelompok kontrol pada hari ke-7 sebanyak 180,8500±22,05954 dan 130,7750±21,63814. Berdasarkan uji *Independent sampel t-test* menunjukkan bahwa terdapat perbedaan bermakna dengan nilai p=0,018.

Kesimpulan dari penelitian ini, terdapat pengaruh serbuk tulang ikan bandeng untuk mempercepat ekspresi *Runt-Related Transcription Factor-2(runx2)* sel osteoblas pada proses remodelling tulang alveolar.

Kata Kunci : Serbuk tulang ikan Bandeng, *RUNX2, remodelling* tulang.

ABSTRACT

Tooth extraction is an act of removing teeth from the socket, physiologically can trigger an inflammatory response and resorption of alveolar bone. RUNX2(CBFA1) is a domain runt transcription factor that plays an important role as an early regulator for osteoblast differentiation. The process of bone healing after tooth extraction can be accelerated by addition of bone graft in the resorption of bone region. Milkfish bones contained calcium phosphate that could be synthesized into hydroxyapatite. Then,it can be used an alternative bone graft material. The purpose of this research was to determine the effect of milkfish bone powder on the expression of Runt-Related-Transcription-Factor-2 (RUNX2) osteoblasts in the process of alveolar bone remodeling.

The research was conducted on male wistar rats by experimental laboratories with post-test only control group design. There were 2 out of 10 samples were dropped out, hence there were 8 samples that were divided into control group and treatment group. RUNX2 expression measurement was done on the 7^{th} day. The data were analysed with independent sample t-test.

The results showed the average of RUNX2 expressions in tooth extraction sockets that were given milk fish bone powder and control group on the 7th day were 180.8500 ± 22.05954 and 130.7750 ± 21.63814. Based on T-test showed that there were significant differences with the value of p = 0.018.

The conclusions of the research, there was the effect of milkfish bone powder to increase the expression of Runt-Related Transcription Factor-2 (RUNX2) osteoblasts cell in the process of alveolar bone remodeling.

Keyword : ***milkfish bone powder, RUNX2, bone remodelling.***