

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 lele 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 lele terhadap ekspresi *Runt-Related Transcription Factor-2* (*RUNX2*) sel osteoblas dalam proses *remodeling* tulang alveolar pasca pencabutan gigi.

Penelitian dilakukan secara *Experimental Laboratories* dengan *Post test only control group design* yang dilakukan pada tikus wistar jantan. Sampel sebanyak 10 ekor tikus wistar jantan yang dibagi menjadi kelompok kontrol dan kelompok perlakuan (diberi serbuk tulang ikan lele). 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 lele dan kelompok kontrol pada hari ke-7 sebanyak $111,5200 \pm 20,46294$ dan $119,9600 \pm 8,52690$. Berdasarkan uji *Independent sampel t-test* menunjukkan bahwa tidak terdapat perbedaan bermakna dengan nilai $p=0,419$.

Kesimpulan dari penelitian ini, serbuk tulang ikan lele dapat memberikan pengaruh pada ekspresi *RUNX2* (*Runt Related Transcription Factor 2*) *remodelling* tulang alveolar pasca pencabutan gigi namun tidak dapat memberikan perbedaan yang bermakna antara kelompok kontrol dan kelompok perlakuan.

Kata Kunci : Serbuk tulang ikan lele, *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. Catfish bones contained calcium phosphate that could be synthesized into hydroxyapatite. Then, it can be used as an alternative bone graft material. The purpose of this research was to determine the effect of catfish 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 10 samples that were divided into control group and treatment group. RUNX2 expression measurement was done on the 7th 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 catfish bone powder and control group on the 7th day were $119,9600 \pm 8,52690$ and $111,5200 \pm 20,46294$. Based on T-test showed that there were no significant difference with the value of $p = 0.419$.

The conclusions of the research, there was the effect of catfish bone powder can influence the expression of RUNX2 (Runt Related Transcription Factor 2) of bone remodeling but cannot provide a significant difference between the control group and the treatment group.

Keyword : catfish bone powder, RUNX2, bone remodelling.