

ABSTRACT

**ROLE OF PAPAYA SEED ETHANOL EXTRACT (CARICA PAPAYA LINN)
ON IL-1 β EXPRESSION, OSTEOCLAST AND OSTEOBLAST
PERIODONTITIS RAT**

Background. Periodontitis produces an inflammatory response mediated by macrophages producing cytokines which are a normal response, but chronic inflammation with excessive cytokine production results in periodontal tissue damage. IL-1 β , osteoblasts and osteoclasts which are responsible in progression of periodontitis can inhibit by papaya seed ethanol extract, presumably by its bioactive polyphenols (flavonoids and phenolic acids) through inhibiting I κ B phosphorylation, HAT activity, and activating HDAC, resulting in inhibition of IL-1 β expression, also inhibit transcriptional activity and nuclear translocation of NF- κ B nuclei resulting in increase of osteoblastogenesis and suppresses osteoclasts. **Purpose.** This study aims to prove the role of papaya seed ethanol extract in decreasing IL-1 β expression, decrease osteoclast number, increase osteoblast number and prove the difference between dose of papaya seed extract in rat periodontitis. **Method.** The research design is *in vivo* experimental study. 35 male wistar rats were divided into 5 groups randomly (each group n=7). One of the groups did not induce and given normal diet (control). The first group of Periodontitis (P1) induced by LPS *P.gingivalis* + ligature, given normal diet. The remaining three groups (P2, P3, P4) induced by LPS *P.gingivalis* + ligature were then given 200 mg / kgBW, 300mg / kgBW and 400mg / kgBW ethanol extract of papaya seeds respectively. A transversal cutting of the alveolar bone is performed around the mandibular incisors, then processed in a laboratory for histopathology and immunohistochemistry analysis. **Result.** Statistical analysis with One Way Anova test showed that papaya seed ethanol extract decreased expression of IL-1 β number, osteoclast number and increased osteoblast number (p <0.05). **Conclusion.** This experimental study proves that papaya seed ethanol extract plays a role in inflammatory mediator in animal model periodontitis.

Keyword. *Papaya seed ethanol extract, periodontitis, IL-1 β , osteoblast, osteoclast.*