

## ABSTRACT

### OSTEOGENIC EXPRESSION AFTER TOOTH EXTRACTION INDUCED BY COMBINED THERAPY OF ZINC OXIDE AND TURMERIC RHIZOME LIQUID EXTRACT

**Introduction:** Bone tissue damage in the socket due to tooth extraction can lead to resorption of alveolar bone. The socket preservation material is applied right after tooth extraction procedure to prevent excessive resorption. Periodontal dressing materials that are often used, namely zinc oxide eugenol, have analgesic and antibacterial properties, but can cause hypersensitivity reactions. Turmeric, a plant that has the active ingredient of curcumin, has been used as cooking spices and medicinal plants, is not toxic and expected to replace the function of eugenol. Turmeric is known to help bone regeneration in patients with spinal cord injury. The combination of turmeric and zinc oxide rhizome extract is known to have a high anti-inflammatory effect, it is hypothesized to accelerate repair of damaged bone tissue.

**Study objectives:** To analyse osteogenic expression in the extraction socket after the administration of a combination of zinc oxide and turmeric rhizome liquid extract.

#### **Methods and subjects:**

**Study design and setting:** Analytic true experimental post-test only control group design was utilized. Sixty Wistar rats were divided into 5 groups, negative control group, positive control group (zinc oxide eugenol), and treatment group (zinc oxide-turmeric) 10%, 20%, and 40%. After the incisors were removed, the material was applied and the mucosal tissue is sutured. After 3 days and 7 days, rats were sacrificed for analysis. **Results:** In all treatment groups there was an increase in the expression of RUNX2, ALP, osteoblasts, and decreased osteoclasts, both on day 3 and day 7. The treatment group of 40% had the highest effect of increasing RUNX2, ALP, and osteoblasts at all times, but was not significantly different from the positive control group. **Conclusion:** The combination of turmeric and zinc oxide rhizome extract can increase the osteogenic expression of extraction sockets.

**Key words:** socket preservation, turmeric rhizome liquid extract, zinc oxide, osteogenic expression, tooth extraction