

## ABSTRACT

### BIOACTIVITY ASSAY OF ETHANOL EXTRACT, N-HEXANE, ETHYL ACETATE, BUTANOL AND AQUEOUS FRACTIONS FROM *ELAEOCARPUS SERRATUS* L LEAVES IN STIMULATING BONE MASS (ALP ENZYME ASSAY)

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Osteoporosis or often referred to as bone loss is one of the diseases with the highest prevalence at the age of postmenopausal with the number of sufferers of approximately 200 million people worldwide. Treatment using conventional medicines to treat osteoporosis has many side effects. Therefore, alternatives are sought by using plants that have potential as antiosteoporosis to minimize the side effects of conventional medicines. This study aimed to study the antiosteoporosis activity of 96 % ethanol extract and the fractions of *n*-hexane, ethyl acetate, butanol, and aqueous of *Elaeocarpus serratus* L leaves. The extract and fractions were tested on 7F2 osteoblasts cells to determine viability and proliferation. Based on the results, the highest proliferation activity found on the butanol fraction with the value of  $136.62 \pm 12.48$  at 10  $\mu\text{g/ml}$ ;  $143.64 \pm 12.45$  at 100  $\mu\text{g/ml}$  and aqueous fraction with the value of  $131.79 \pm 2.94$  at 10  $\mu\text{g/ml}$ ;  $144.51 \pm 15.19$  at 100  $\mu\text{g/ml}$ . It expressed by the % stimulation of ALP enzymes on osteoblast cells because it represents an easy and cheap method to assess bone formation that increasing bone mass. The phytochemical screening results showed that the fractions contained flavonoid, terpenoid, polyphenol, and anthraquinone compounds. So, the aqueous and butanol fractions of *Elaeocarpus serratus* L leaves to be the candidates as an antiosteoporosis drug by increasing bone mass through an increase in the ALP enzyme. Thus, the subsequent studies are suggested to isolate active compounds from the aqueous and butanol fractions of *Elaeocarpus serratus* L. that have antiosteoporosis activity from the plant *Elaeocarpus serratus* L.

**Keywords:** Bone mass, 7F2 Cell, Osteoblast, *Elaeocarpus serratus* L.