

POTENSI EKSTRAK BUAH BUNCIS (*Phaseolus vulgaris L.*) DALAM PENURUNAN KADAR β -CrossLaps TERHADAP PERBAIKAN MASSA TULANG TIKUS BETINA PREMENOPAUSE GALUR *Sprague dawley*

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Abstrak

Pada wanita, saat memasuki usia tua terjadi penurunan kadar hormon estrogen yang berdampak pada tulang. Terapi sulih hormon meningkatkan risiko kanker payudara dan penyakit kardiovaskular. Untuk mengatasi risiko tersebut, penelitian ini diarahkan pada penggunaan bahan alami. Tujuan penelitian ini untuk mempelajari efek potensi ekstrak buah buncis terhadap perbaikan massa tulang pada tikus betina premenopause. Penelitian ini menggunakan desain eksperimental murni dengan mengukur kadar β -CrossLaps serum tikus menggunakan teknik ELISA dan absorbansinya dihitung dengan spektrofotometer. Kurva absorbansi diubah menjadi satuan $\mu\text{g/mL}$. Penelitian membagi 5 kelompok yang terdiri dari, kelompok negatif (CMC 1%), tiga dosis perlakuan, dan kontrol positif (etinilestradiol). Hasil penelitian ini menunjukkan CMC 1% terdapat peningkatan selisih rata-rata kadar β -CrossLaps, penurunan selisih rata-rata kadar β -CrossLaps pada kelompok ekstrak buah buncis dengan dosis 0.325 mg/hari, 0.65 mg/hari, dan 1.3 mg/hari secara berturut-turut 0.0006 $\mu\text{g/mL}$, 0.0074 $\mu\text{g/mL}$, dan 0.0085 $\mu\text{g/mL}$, dan penurunan selisih rata-rata kadar β -CrossLaps pada kelompok etinilestradiol sebesar 0.0088 $\mu\text{g/mL}$. Hasil Uji *Kruskall-wallis* didapatkan signifikansi bernilai 0.031 (<0.05). Kesimpulan penelitian ini adalah ekstrak buah buncis dapat menurunkan β -CrossLaps, dan dosis terefektif pada dosis 1.3 mg/hari. Semakin tinggi dosis ekstrak buah buncis maka semakin tinggi penurunan kadar β -CrossLaps serum pada tikus premenopause, karena fitoestrogen dalam buah buncis mampu menduduki 17-beta estradiol pada reseptor estrogen.

Kata kunci : Osteoporosis, fitoestrogen, buncis, β -CrossLaps

POTENTIAL OF EXTRACT COMMON BEAN (*Phaseolus vulgaris L.*) IN β -CrossLaps TO IMPROVE BONE MASS IN PREMONOPAUSAL FEMALE RATS *Sprague dawley* STRAIN

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Abstract

In women, when entering old age estrogen hormone production is weakened. The decline of these are bones. The use of synthetic hormone replacement therapy could increase the risk of breast cancer and cardiovascular disease. To decrease the unfavorable risk of treatment of synthetic hormone, the research was focused on using natural materials. This study was designed to study the potential extract of common bean in premenopausal condition. This study uses an experimental design with the measurement of β -CrossLaps serum level in rats using ELISA technique and the absorbance quantified with spectrophotometer, the absorbance curve was converted into $\mu\text{g/mL}$. This study was divided up into 5 groups, that consist of, negative groups (CMC 1%), three doses intervention, and positive groups (etinilestradiol). The results of this study show that CMC 1% increased the difference of average β -CrossLaps, difference of average was decreased β -CrossLaps in three doses intervention groups extract of common bean dose of 0.325 mg/day, 0.65 mg/day, and 1.3 mg/day, regularly 0.0006 $\mu\text{g/mL}$, 0.0074 $\mu\text{g/mL}$, and 0.0085 $\mu\text{g/mL}$, and difference of average was decreased β -CrossLaps in etinilestradiol groups was 0.0088 $\mu\text{g/mL}$. *Kruskall-Wallis Test* results was 0.031 (<0.05) The conclusion of this study was extract of common bean could decrease β -CrossLaps, and the most effective dose was at 1.3 mg/day. It showed that higher dose, the higher to decrease of β -CrossLaps serum level in premenopausal rats, because common bean is a natural substance that contains phytoestrogen and capable of occupying at 17beta-estradiol of estrogen's receptors.

Key Words : Osteoporosis, phytoestrogen, common bean, β -CrossLaps