

# Pengaruh Ekstrak Kedelai Kaya Lunasin pada Ekspresi Vascular Endothelial Growth Factor (VEGF) Jaringan Kolon Mencit yang Diinduksi AOM/DSS = Effect of Lunasin-Rich Soybean Extract on Vascular Endothelial Growth Factor (VEGF) Expression on Colonic Tissue of AOM/DSS-Induced Mice

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## Abstrak

Kanker kolorektal merupakan kanker penyebab kematian kedua tertinggi di dunia. Pengobatan kanker kolorektal memiliki kelemahan dari segi biaya, toksisitas, dan efektivitas. Lunasin mampu menghambat kanker secara in vitro sehingga lunasin dapat menjadi solusi terapi yang efektif biaya untuk kanker kolorektal. Penelitian ini menyelidiki pengaruh ekstrak kedelai kaya lunasin (EKKL) pada ekspresi vascular endothelial growth factor (VEGF) yang berperan dalam proses angiogenesis pada kanker kolorektal. Tiga puluh mencit Swiss Webster dibagi menjadi enam kelompok. Semua kelompok kecuali kelompok normal diinduksi dengan azoxymethane (AOM) dan dextran sodium sulfate (DSS). Kelompok kontrol negatif diberikan larutan garam fisiologis, sedangkan kelompok kontrol positif diberi aspirin. EKKL diberikan kepada ketiga kelompok percobaan dengan dosis yang berbeda (250 mg/KgBB, 300 mg/KgBB, dan 350 mg/KgBB). Pada minggu kelima, setelah mencit diterminasi, jaringan kolon distal mencit diambil dan diwarnai imunohistokimia, kemudian diamati di bawah mikroskop dan dianalisis menggunakan IHC profiler pada ImageJ. Indeks yang diperoleh dari IHC profiler dihitung untuk mendapatkan indeks H-score. Ekspresi VEGF menurun secara signifikan pada kelompok EKKL dosis 300 mg/KgBB ( $p=0,031$ ) dengan penurunan rata-rata skor 33,202% dan 350 mg/KgBB ( $p=0,003$ ) dengan penurunan rata-rata skor 43,334%. Namun, tidak ditemukan adanya perbedaan yang signifikan secara statistik antara kedua kelompok tersebut.

.....Colorectal cancer is the world's second highest cause of cancer death. Current treatments for colorectal cancer lack in cost, toxicity, and effectivity. Lunasin has the effect of inhibiting cancer in vitro, hence lunasin might offer the solution of cost-effective therapy for colorectal cancer. We investigate the effect of lunasin-rich soybean extract (LSRE) on vascular endothelial growth factor (VEGF) expression which is responsible for angiogenesis in colorectal cancer. Thirty Swiss Webster mice were divided into six groups. All groups except the normal group were induced by azoxymethane (AOM) and dextran sodium sulfate (DSS). Negative control group received normal saline solution, whereas positive control group were treated with aspirin. LSRE were given to three experimental groups, each with different dosing (250 mg/KgBW, 300 mg/KgBW, and 350 mg/KgBW). On the fifth week, after the mice were terminated, the distal colon tissues were obtained and received immunohistochemistry staining, then observed under a microscope and analyzed using IHC profiler in ImageJ. Index acquired from IHC profiler were calculated to achieve H-score. VEGF expression was significantly decreased in 300 mg/KgBW ( $p=0.031$ ) and 350 mg/KgBW ( $p=0.003$ ) of EKKL by an average reduction of 33.202% and 43.334% respectively. However, there was no statistically significant difference between both groups.