

# Pengaruh Pemberian Ekstrak Kedelai Kaya Lunasin terhadap Ekspresi Protein Bcl-2 Sel Kanker Payudara Tikus yang Diinduksi DMBA = The Effect of Lunasin-Rich Soybean Extract Administration on Bcl-2 Protein Expression in DMBA-induced Mice Breast Cancer Cells

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## Abstrak

Latar Belakang: Potensi lunasin dari ekstrak kedelai telah banyak diketahui memberikan manfaat dalam terapi kanker melalui efek antiproliferatifnya. Bcl-2 merupakan protein antiapoptosis yang ekspresinya meningkat pada kanker payudara dan dapat mencegah kejadian apoptosis dari sel kanker. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh pemberian ekstrak kedelai kaya lunasin terhadap ekspresi protein Bcl-2 sel kanker payudara tikus yang diinduksi DMBA.

Metode: Penelitian menggunakan bahan biologi tersimpan dari jaringan kanker payudara tikus jenis Sprague-Dawley (SD) yang telah diberi perlakuan dalam 5 kelompok percobaan dan dipulas dengan pewarnaan imunohistokimia. Identifikasi ekspresi Bcl-2 dilakukan dengan aplikasi ImageJ dan dikuantifikasi menggunakan metode H-score untuk dianalisis secara statistik.

Hasil: Hasil H-score setiap kelompok secara berurutan dari tertinggi adalah kontrol negatif (171,61%), lunasin kuratif (156,28%), kontrol positif (147,92%), adjuvan (142,12%), dan kelompok normal (127,22%). Terdapat perbedaan bermakna pada uji perbandingan tiap dua kelompok kecuali pada kelompok normal-adjuvan, kontrol positif-adjuvan, kontrol positif-kuratif, serta adjuvan-kuratif.

Kesimpulan: Pemberian ekstrak kedelai kaya lunasin mampu menurunkan ekspresi protein Bcl-2 sel kanker payudara payudara tikus yang diinduksi DMBA. Tidak terdapat perbedaan yang signifikan secara statistik antara kelompok lunasin dengan tamoksifen. Kelompok adjuvan lebih efektif dalam menurunkan ekspresi Bcl-2 dengan hasil yang tidak berbeda secara statistik dengan kelompok normal.

.....Background: The potential of lunasin from soybean extract has been widely known to provide benefits in cancer therapy through its antiproliferative effect. Bcl-2 is an antiapoptotic protein whose expression increases in breast cancer and can prevent apoptosis in cancer cells. The purpose of this study was to determine the effect of administration of lunasin-rich soybean extract on the expression of Bcl-2 protein in DMBA-induced rat breast cancer cells.

Methods: The study used stored biological material from breast cancer tissue of Sprague-Dawley (SD) rats that had been treated in 5 experimental groups and stained immunohistochemically. Identification of Bcl-2 expression was carried out using ImageJ application and quantified using the H-score method for statistical analysis.

Results: The results of the H-scores of each group sequentially from the highest were negative control (171.61%), curative lunasin (156.28%), positive control (147.92%), adjuvant (142.12%), and group normal (127.22%). There were significant differences in the comparison test of each of the two groups except for the normaladjuvant, positive-adjuvant control, positive-curative control, and adjuvant-curative group.

Conclusion: The administration of lunasin-rich soybean extract was able to reduce the expression of Bcl-2 protein in DMBA-induced rat breast cancer cells. There was no statistically significant difference between the lunasin and tamoxifen groups. The adjuvant group was more effective in reducing Bcl-2 expression with

results that were not statistically different from the normal group.