Ekspresi Siklin D1 pada Jaringan Kanker Payudara Bagian Dalam Tikus yang Diinduksi DMBA akibat Pemberian Ekstrak Kedelai Kaya Lunasin = Effect of Lunasin-Rich Soybean Extract on the Expression of Cyclin D1 Protein in DBMA-Induced Rat Deep Breast Cancer Tissue

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Abstrak

Latar Belakang : Kanker payudara merupakan penyebab kematian kedua dari seluruh kanker di Indonesia yang salah satunya ditandai dengan siklin D1. Protein ini mengontrol proliferasi kanker payudara. Salah satu terapi yang digunakan saat ini, tamoksifen, menimbulkan berbagai efek samping dan resistensi. Telah banyak diteliti potensi antikanker pada tumbuh-tumbuhan, termasuk pada kedelai. Efek antikanker pada kedelai salah satunya dihasilkan dari kandungan lunasin di dalamnya. Penelitian ini bertujuan untuk mengetahui efek pemberian ekstrak kedelai kaya lunasin terhadap ekspresi protein siklin D1. Metode : Penelitian ini merupakan penelitian eksperimental in vivo menggunakan sediaan jaringan kanker payudara bagian dalam tikus tersimpan yang diberikan lima perlakuan yaitu kelompok normal, kontrol negatif, kontrol positif (pemberian tamoksifen dosis 10 mg/kg BB), adjuvant (kombinasi lunasin dan tamoksifen), dan lunasin kuratif (pemberian lunasin dosis 500 mg/kgBB). Jaringan payudara bagian dalam kemudian diambil dan diwarnai imunohistokimia untuk melihat ekspresi protein siklin D1. Penilaian ekspresi protein siklin D1 dilakukan dengan menghitung H-score dengan bantuan aplikasi ImageJ dan IHC Profiler. Hasil : Nilai H-score ekspresi protein siklin D1 tertinggi secara berurutan ditunjukkan oleh kelompok kontrol negative (165,7), kontrol positif (136,5), lunasin kuratif (136,1), adjuvan (129), dan kelompok normal (123,4). Setelah dilakukan uji SPSS, ditemukan perbedaan signifikan pada kelima kelompok uji (p=0,00). Kelompok pemberian lunasin lebih rendah secara signifikan dibandingkan kelompok negatif. Kesimpulan: Pemberian ekstrak kedelai kaya lunasin dengan dosis 500 mg/kg BB mampu menurunkan ekspresi protein siklin D1 pada sel kanker payudara tikus yang diinduksi DMBA.

.....Introduction : Breast cancer is the second leading cause of death from all cancers in Indonesia, one of which is characterized by overexpression of cyclin D1. This protein controls the proliferation of breast cancer. One of the therapies currently used, tamoxifen, causes various side effects and resistance. There have been many studies on the anticancer potential of plants, including soybeans. One of the anticancer effects of soybeans is due to the lunasin content in it. The aim of this study was to determine the effect of administration of lunasin-rich soybean extract on the expression of cyclin D1 protein. Methods : This study is an in vivo study using Sprague-Dawley (SD) rats that were divided into five test groups. Those five test groups consist of normal group, negative group group, positive control group (tamoxifen at a dose of 10 mg/kg BW), the lunasin group (lunasin at a dose of 500 mg/kgBW), and the group given a combination of tamoxifen with lunasin (adjuvant). Deep breast cancer tissue was taken and stained with immunohistochemistry to detect cyclin D1. The expression of cyclin D1 was assessed by H-score using the application Image J with IHC Profiler plugin. Results : The highest H-score values of cyclin D1 expression was respectively shown by the negative control group (165.7), positive control (136.5), curative lunasin (136.1), adjuvant (129), and normal group (123.4). After performing the SPSS test, significant differences were found in the five test groups (p=0.00). The expression of cyclin D1 of lunasin group was significantly

lower than the negative group. Conclusion : Lunasin-rich soybean extract at a dose of 500 mg/kg BW was able to inhibit the expression of cyclin D1 protein in DMBA-induced rat deep breast cancer tissue.