

Uji aktivitas antikanker ekstrak etanol daging buah mahkota dewa [Phaleria macrocarpa (Scheff.) Boerl.] terhadap tumor kelenjar susu mencit C3H = The anticancer activity study of ethanol extract of mahkota dewa mesocarp fruit [Phaleria macrocarpa (Scheff.) Boerl.] using in vivo experiment model of c3h mouse mammary tumor induced by transplantation

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Abstrak

Latar Belakang: Mahkota dewa, [Phaleria macrocarpa (Schaff.) Boerl.] merupakan tumbuhan asli Indonesia yang berasal dari Papua. Tumbuhan ini dikenal di Indonesia, secara empiris banyak digunakan untuk mengobati berbagai penyakit. Uji in vitro menunjukkan bahwa mahkota dewa dapat menghambat pertumbuhan set HeLa dan leukemia.

Tujuan : Meneliti aktivitas antikanker ekstrak etanol daging buah mahkota dewa [Phaleria macrocarpa (Schaff) Hoed.] terhadap tumor kelenjar susu mencit C3H, yang diinduksi dengan cara transplant.

Rancangan penelitian : 32 mencit C3H dibagi secara acak dalam 4 kelompok, yaitu kelompok kontrol dan ketiga kelompok uji yang diberikan ekstrak etanol 70 % daging buah mahkota dewa dengan dosis Di (20 kali dosis manusia), D2 (40 kali dosis manusia), dan D3 (80 kali dosis manusia) per oral selama 30 hari berturut-turut, setelah transplantasi tumor. Pertumbuhan tumor diamati dengan mengukur volume dan berat tumor. Proliferasi set tumor diketahui dengan menghitung butir-butir AgNOR setelah dipulas dengan perak nitrat koloidal. Set yang mengalami apoptosis diketahui dengan menghitung indeks apoptosis setelah dipulas dengan Tunel. Luas area nekrosis dianalisis dari pulasan FEE.

Hasil dan Kesimpulan : Hasil analisis varian menunjukkan bahwa secara statistik tidak terdapat perbedaan bermakna pada volume tumor, berat tumor, nilai AgNOR, dan area nekrosis antara kelompok kontrol dengan ketiga kelompok uji ( $p > 0,05$ ) kecuali pada indeks apoptosis, menunjukkan perbedaan bermakna antara kelompok 80 kali dosis manusia dibandingkan kontrol ( $p < 0,05$ ).

Disimpulkan bahwa pemberian ekstrak etanol daging buah mahkota dewa dengan dosis 20 kali, 40 kali dan 80 kali dosis manusia selama 30 hari berturut-turut setelah transplantasi tumor, tidak menghambat pertumbuhan tumor kelenjar susu mencit C3H yang diinduksi dengan cara transplant ( $p > 0,05$ ) namun terjadi peningkatan apoptosis secara bermakna ( $p < 0,05$ ) pada dosis 80 kali dosis manusia.

**Background:** Mahkota dewa, [Phaleria macrocarpa (Scheff.) Boerl.] is an Indonesian indigenous plant from Papua. This plant is famous in Indonesia, empirically used to treat many diseases. In vitro study indicated that mahkota dewa could inhibit the growth of HeLa and leukaemic cells.

**Aims :** The present study was designed to investigate the anticancer activity of ethanol extract of mahkota dewa mesocarp fruit [Phaleria macrocarpa (Scheff.) Boerl.] , using in vivo experiment model of C3H mouse mammary tumor induced by transplantation.

Design :Thirty two C3H mice were randomly divided into 4 groups i.e. control and 3 groups of mice orally treated with 70 % ethanol extract of mahkota dewa mesocarp fruit, D1 (equivalent to 20 times human dose), D2 (equivalent to 40 times human dose) and D3 (equivalent to 80 times human dose) for 30 consecutive days, after tumor transplantation. Body weight and tumor volume periodically measured every week. Tumor weight was measured after the animal was sacrificed, fixed in formaldehyde and embedded in paraffin for histological preparation. The proliferation activity of tumor cell was examined by counting the AgNOR deposits detected after colloidal AgNOR staining. Index apoptosis was assessed by mean of Tunel method, and the width of necrotic area was identified by hematoxyllin eosin of the histological specimen.

Result and Conclusion : The result of analysis of variants showed that there were no statistical differences in tumor volume, tumor weights, AgNOR values and in the necrotic area among control and the three treated groups ( $p>0,05$ ), except in the index apoptosis between control and D3 groups ( $p<0,05$ ).

It can be concluded that oral administration of 3 doses of ethanol extract of mahkota dewa mesocarp fruit [*Phaleria macrocarpa* (Scheff.) Boerl.] 20, 40 and 80 times human dose for 30 consecutive days did not prevent the C3H mouse mammary tumor growth induced by transplantation ( $p>0,05$ ) but there was the increased apoptosis in the group of receiving the fruit extract of 80 times human dose ( $p<0,05$ ).