Pengaruh Pemberian Ekstrak Etanol Biji Delima (Punica granatum) terhadap Ekspresi Protein Siklooksigenase-2 (COX-2) pada Sel HCT116 = The Effect of Ethanol Pomagranate (Punica Granatum) Extract to Expression of Cyclooxygenase-2 (COX-2) on HCT116 Cells

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Abstrak

Terdapat sebanyak 14,1 juta kasus kanker didiagnosis dan sebanyak 8,2 juta individu meninggal setiap tahunnya dari total ±32,6 juta pengidap kanker, menurut GLOBOCAN 2012. Kanker kolorektal memberikan 9,7% dalam kasus kanker dan insidesinnya pada usia <50 tahun menjadi meningkat 13% (2000-2014). Ekspresi siklooksigenase-2 (COX-2) yang berlebihan merupakan salah satu meaknisme yang terlibat dalam patogenesis kanker kolorektal. Sayangnya, pengobatan kanker menggunakan inhibitor enxim COX, NSAID, memiliki beberapa efek samping yang prominen seperti perdarahan gastointestinal, komplikasi kardiovaskular, dan nefrotoksisitas yang diinduksi NSAID. Dalam beberapa tahun terakhir, tanaman herbal telah mengundang perhatian banyak peneliti karena mudah didapat, murah, memiliki potensi dalam pencegahan kanker, dan memiliki toksisitas yang rendah. Hal ini memicu peneliti untuk mencari apakah ekstrak etanol biji delima mampu menurunkan ekspresi COX-2 pada sel HCT116.
Ektrak biji delima (Punica granatum) dimaserasi dalam etanol. Satu kelompok tidak mendapatkan perlakuan (kontrol negatif) sementara tiga kelompok lainnya diberi ekstrak ekstrak biji delima dalam tiga dosis berbeda (50, 100, dan 200 ppm). Pengaruh pemberian ekstrak etanol biji delima pada ekspresi COX-2 dalam sel HCT116 dinilai melalui perhitungan H-score dari pewarnaan imunositokimia.
Ekstrak etanol biji delima (Punica granatum) menunjukkan hasil dapat menurunkan ekspresi COX-2 yang ditunjukkan melalui penurunan nilai H-score dengan rerata nilai H-score sebesar 159,07 . Dan nilai p < 0,005
Penelitian ini membuktikan bahwa terjadi penurunan ekspresi protein COX-2 pada sel HCT116 setelah pemberian ekstrak etanol biji delima (Punica granatum).
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14.1 million new cancer cases are diagnosed annually in 2012. And about 8.2 million people are dying every year worldwide while 32.6 million people are living and afflicted with cancer, according to GLOBOCAN. Colorectal cancer (CRC) contributes to 9.7% of all cancer cases and in population <50 years old its incidence increased by 13% (2000-2014). Excessive expression of COX-2 plays a role in the pathogenesis of CRC. Unfortunately, current cancer treatment using COX enzyme inhibitor, NSAIDs is known for its multiple adverse effects, including gastrointestinal bleeding, cardiovascular complications, and NSAID induced nephrotoxicity. In recent years, medicinal herbs have become popular among researchers for its easily obtainable nature, cheap, promising cancer preventing properties, and low toxicity. Thus, reseacher would like to investigate whether ethanol extract from pomegranate seed can reduce the expression of COX-2 in HCT116 cell.
Ethanol extract from pomegranate (Punica granatum) seed was prepared for maceration in ethanol. One group was given no treatment (negative control) while the other three groups were given ethanol extract from pomegranate seed in three different doses (50, 100, 200 ppm). The effect of ethanol extract of

pomegranate seed on inhibition of COX-2 expression in the HCT116 cell was then assessed by counting the H-score from immunocytochemistry staining.

The ethanol pomegranate (Punica granatum) extract was shown able to decrease expression of COX-2, which was shown by decresing the H-score with average H-score 159.07. P <0,05

This study revealed there is a decrease in COX-2 protein expression in HCT116 cells after administration of ethanol pomegranate.