Efek Sitotoksik Campuran Ekstrak Etanol Daun Plectranthus scutellarioides dan Quercetin terhadap Sel Kanker HeLa = The Cytotoxic Effect of Mixture of Plectranthus scutellarioides Leaf Ethanolic Extract and Quercetin on HeLa Cancer Cell Line

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Abstrak

Kanker serviks merupakan penyakit akibat infeksi Human Papilloma Virus dengan prevalensi tinggi dan survival rate yang rendah pada wanita. Keterbatasan terapi konvensional, biaya yang tinggi, dan berbagai efek sampingnya mendorong upaya eksplorasi bahan alami sebagai alternatif pengobatan kanker serviks. Iler (Plectranthus scutellarioides) adalah tanaman yang melimpah di Indonesia dan telah diteliti mengandung kadar flavonoid yang tinggi. Salah satu flavonoid, quercetin, diketahui mampu membunuh sel HeLa. Tingginya flavonoid iler dan sitotoksisitas quercetin berpotensi menghasilkan agen antikanker yang kuat. Penelitian ini bertujuan menguji efek sitotoksik campuran ekstrak etanol daun iler dan quercetin terhadap sel HeLa. Penelitian ini dilakukan secara eksperimental in vitro dengan mengekstrak daun iler menggunakan pelarut etanol. Tujuh serial konsentrasi ekstrak (1.625, 3.125 ppm, 6.25 ppm, 12,5 ppm, 25 ppm, 50 ppm, 100 ppm) dicampur dengan 12.5 ppm quercetin, lalu diinkubasi bersama sel HeLa selama 24 jam. Sebagai kontrol positif, dilakukan perlakuan yang sama menggunakan doksorubisin dengan tiga kali pengulangan untuk setiap konsentrasi. Inhibisi sel diuji dengan metode MTT melalui pengukuran absorbansi pada ELISA reader 595 nm. Data tersebut dianalisis untuk menentukan nilai IC50 dan membandingkan inhibisi sel antara kelompok ekstrak, kontrol negatif, dan doksorubisin. Nilai IC50 Campuran ekstrak etanol daun iler dan quercetin terhadap sel HeLa adalah 26.57 µg/mL. Terdapat perbedaan persentase inhibisi yang bermakna antara kelompok ekstrak dan doksorubisin pada konsentrasi 25 ppm (p=0.005). Campuran ekstrak etanol daun iler dan quercetin memiliki sitotoksisitas moderat terhadap sel HeLa dengan IC50 sebesar 26.57 µg/mL, meskipun lebih lemah dibandingkan doksorubisin.

.....Cervical cancer is a disease caused by Human Papilloma Virus infection with high prevalence and poor survival rate in women. The facts of limited conventional therapies, its expensive cost, and various side effects encourage the exploration of natural sources as alternative treatments of cervical cancer. Iler (Plectranthus scutellarioides) is an abundant plant in Indonesian and has been studied for its high flavonoid content. One of the flavonoids, quercetin, has been known to have an ability in killing HeLa cells. The facts of high flavonoid content in iler and cytotoxicity of quercetin, are potentiate in generating potent anticancer agents. This study aims to assess the cytotoxic effect of mixture of iler leaf ethanolic extract and quercetin on HeLa cells. This experimental study was conducted in vitro through ethanolic extraction of iler leaf. Seven serial concentrations of extract (1.625, 3.125 ppm, 6.25 ppm, 12,5 ppm, 25 ppm, 50 ppm, 100 ppm) were mixed with 12.5 ppm of quercetin and then incubated with HeLa cells for 24 hours. As a positive control, the same treatment was done using doxorubicin with three reduplications for each concentration. Cell inhibition was evaluated using MTT method through measuring the absorbance on ELISA reader 595 nm. The data were analyzed to calculate the IC50 value and comparing the cell inhibition between extract group, negative control, and positive control. The IC50 value of mixture of iler leaf ethanolic extract and quercetin on HeLa cell is 26.57 µg/mL. There is a significant difference of inhibition percentage between

extract group and doxorubicin in 25 ppm concentration ($p=0.005$). The mixture of iler leaf ethanolic extract and quercetin has a moderate cytotoxicity on HeLa cells with IC50 value of 26.57 µg/mL, despite a weaker activity than doxorubicin.