Komposisi fitokimia dan efek sitotoksik ekstrak makroalga eucheuma cottonii pada sel kanker serviks hela = Phytochemical composition and cytotoxic effect of makroalgae extract eucheuma cottonii against cervical cancer cells hela

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Abstrak

Kanker serviks merupakan salah satu jenis penyakit kanker dengan prevalensi dan mortalitas yang tinggi di Indonesia. Eucheuma cottonii merupakan salah satu jenis rumput laut yang banyak dijumpai di perairan laut Indonesia dan dapat dikembangkan sebagai agen anti kanker. Penelitian ini bertujuan untuk mengetahui komposisi fitokimia dan efek sitotoksik ekstrak makroalga Eucheuma cottonii terhadap sel kanker serviks HeLa yang dinyatakan dengan nilai IC50. Pada penelitian ini, Eucheuma cottonii diekstraksi masing-masing menggunakan pelarut etanol, etil asetat, n-heksana, dan kloroform. Ekstrak yang diperoleh kemudian diuji kandungan fitokimianya, dan menunjukkan hasil positif mengandung flavonoid. Sedangkan analisis kualitatif dengan kromatografi lapis tipis, menunjukkan bahwa ekstrak mengandung tiga hingga lima senyawa kimia. Selanjutnya, masing-masing ekstrak sebanyak 20 L dengan 5 variasi konsentrasi, yaitu 3,125 g/ml; 6,25 g/ml; 12,5 g/ml; 25 g/ml; dan 50 g/m, dimasukkan ke lini sel HeLa yang sudah ditambahkan 100 L DMEM dan diinkubasi selama 24 jam. Setelah diinkubasi selama 24 jam, dilakukan uji MTT assay dengan panjang gelombang 492 nm. Data yang diperoleh kemudian dianalisis sehingga diperoleh nilai IC50 untuk keempat ekstrak Eucheuma cottonii yang diujikan. Hasil menunjukkan bahwa keempat ekstrak Eucheuma cottonii memiliki nilai IC50.
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Cervical cancer is one kinds of cancer with high prevalence and mortality in Indonesia. Eucheuma cottonii is one kind of seaweed which is commonly found in Indonesian marine and can be developed as anticancer agent. This research aims to know the phytochemical composition and cytotoxic effect of extract of makroalgae Eucheuma cottonii on HeLa cervical cancer cells that is expressed by IC50 value. In this research, Eucheuma cottonii were extracted each using ethanol, ethyl acetate, n hexane, and chloroform. The obtained extracts were then tested for its phytochemical content, and showed positive result containing flavonoids. While qualitative analysis with Thin Layer Chromatography TLC , showed that the extract contains three to five chemical compounds. Furthermore, 20 L of each extract in five variation of concentration, i.e. 3,125 g ml 6,25 g ml 12,5 g ml 25 g ml and 50 g ml, inserted into the HeLa cell line that has been added 100 L of DMEM and incubated for 24 hours. After 24 hour incubation, MTT assay with a wavelength of 492 nm was performed to generate data which was then analyzed to obtain IC50 value for the four extracts tested of Eucheuma cottonii. The results showed that all four Eucheuma cottonii extract had IC50 values less than 100 g ml, so it can be concluded that all extracts have cytotoxic activity against HeLa cervical cancer cell HeLa. Among four extracts of Eucheuma cottonii, ethyl acetate extract has the lowest IC50 value and shows the most potent cytotoxic activity against HeLa cervical cancer cells. Thus, ethyl acetate extract of Eucheuma cottoniiis potential to be developed as an anticervical cancer agent.