Studi Pengaruh Konsentrasi Ekstrak Bajakah Tampala (Spatholobus littoralis Hassk.) terhadap Viabilitas dan Ultrastruktur Sel HeLa = Study of Concentration Effect of Bajakah Tampala (Spatholobus littoralis Hassk.) Extract on Viability and Ultrastructure of HeLa Cell

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Abstrak

Kanker serviks merupakan salah satu jenis kanker yang paling banyak diderita wanita di Indonesia. Pengobatan kanker serviks seperti operasi, kemoterapi, dan radioterapi masih terus diupayakan, namun tingkat kesembuhan penderita kanker serviks masih rendah, yaitu dengan 1-year survival rate hanya sekitar 10-20%. Salah satu tanaman terapeutik di Indonesia yang memiliki aktivitas antikanker adalah bajakah tampala (Spatholobus littoralis Hassk). Nanopartikel bajakah tampala dilaporkan memiliki sitotoksisitas sedang terhadap sel HeLa. Namun, belum diketahui konsentrasi optimal ekstrak bajakah tampala terhadap sel HeLa berdasarkan viabilitas dan ultrastruktur sel. Tujuan dari penelitian ini adalah mengetahui pengaruh variasi konsentrasi ekstrak bajakah tampala (100, 150, 200 dan 250 µg/mL) terhadap viabilitas sel HeLa menggunakan trypan blue dan ultrastruktur sel HeLa dengan scanning electron microscope (SEM). Hasil analisis statistik dengan tingkat kepercayaan 0,05 menunjukkan terdapat perbedaan signifikan nilai persentase viabilitas sel antara kontrol dan perlakuan konsentrasi ekstrak bajakah tampala. Hasil pengamatan ultrastruktur dengan scanning electron microscope menunjukkan terdapat perbedaan ultrastruktur sel HeLa antara sampel kontrol dengan perlakuan. Hasil tersebut menunjukkan bahwa konsentrasi ekstrak bajakah tampala 100 Î¼g/mL, 150 Î¼g/mL, 200 Î¼g/mL dan 250 Î¼g/mL memiliki pengaruh terhadap viabilitas dan ultrastruktur sel HeLa. Konsentrasi 200 Î¼g/mL cenderung lebih mampu menekan viabilitas sel dan menunjukkan karakteristik apoptosis secara ultrastruktur.

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Cervical cancer is one of the cancer that most women suffer from in Indonesia. Treatment for cervical cancer such as surgery, chemotherapy and radiotherapy is still being attempted, but the cure rate for cervical cancer sufferers is still low, with a 1-year survival rate of only around 10-20%. One of the therapeutic plants in Indonesia that has anticancer activity is bajakah tampala (Spatholobus littoralis Hassk.). Bajakah tampala nanoparticles were reported to have moderate cytotoxicity against HeLa cells. However, the optimal concentration of bajakah tampala extract for HeLa cells is not yet known based on cell viability and ultrastructure. The aim of this research was to determine the effect of varying concentrations of bajakah tampala extract (100, 150, 200 and 250 µg/mL) on HeLa cell viability using trypan blue and HeLa cell ultrastructure using a scanning electron microscope (SEM). The results of statistical analysis with a confidence level of 0.05 show that there is a significant difference in the percentage value of cell viability between the control and the bajakah tampala extract concentration treatment. The results of ultrastructural observations using a scanning electron microscope showed that there were differences in the ultrastructure of HeLa cells between control and treated samples. These results indicate that the concentrations of bajakah tampala extract of 100 Î¼g/mL, 150 Î¼g/mL, 200 Î¼g/mL and 250 Î¼g/mL have an influence on the viability and ultrastructure of HeLa cells. A concentration of 200 Î¼g/mL tends to be more capable of

suppressing cell viability and shows ultrastructural characteristics of apoptosis.