

INTISARI

Kanker menempati urutan kedua penyebab kematian di Amerika Serikat setelah penyakit kardiovaskular. Saat ini, penelitian yang ada cenderung mengembangkan obat-obat antikanker yang berasal dari tanaman. Salah satu tanaman yang akan digunakan untuk terapi antikanker adalah rumput teki (*Cyperus rotundus* L.). Di negara Cina penggunaan rumput teki sebagai salah satu alternatif terapi antikanker sudah mulai dilakukan.

Penelitian ini termasuk penelitian eksperimental dengan rancangan acak lengkap pola satu arah. Penelitian ini bertujuan untuk mengetahui aktivitas sitotoksik fraksi protein umbi teki (*Cyperus rotundus* L.) FP₂₀, FP₄₀, FP₆₀, dan FP₈₀ terhadap kultur sel myeloma dan sel Vero. Protein umbi teki diendapkan dengan penambahan amonium sulfat dalam konsentrasi yang berbeda. Uji sitotoksitas dilakukan dengan metode MTT {3-(4,5-dimetil-tiazol-2-il)-2,5-difeniltetrazolium bromida}. Hasil uji berupa persentase kematian sel dianalisis secara statistik dan harga LC₅₀ dihitung menggunakan analisis probit. Harga LC₅₀ kemudian dianalisis lebih lanjut menggunakan uji *t-independent*.

Hasil uji sitotoksitas menunjukkan bahwa fraksi protein umbi teki (*Cyperus rotundus* L.) mempunyai aktivitas sitotoksik terhadap kultur sel myeloma dan sel Vero. Nilai LC₅₀ dari FP₂₀, FP₄₀, FP₆₀, dan FP₈₀ untuk kultur sel myeloma berturut-turut adalah 72,15 µg/ml, 144,77 µg/ml, 150,19 µg/ml, dan 168,69 µg/ml. Sedangkan LC₅₀ untuk sel Vero adalah 35,1 µg/ml, 27,4 µg/ml, 14,7 µg/ml, dan 16,4 µg/ml. Fraksi protein umbi teki mempunyai efek sitotoksik yang lebih besar terhadap sel Vero dibandingkan terhadap sel myeloma.

Kata kunci: umbi teki, fraksi protein, aktivitas sitotoksik, sel myeloma, sel Vero

Cytotoxicity of Nutgrass Tuber (*Cyperus rotundus* L.) Protein Fraction : PF₂₀, PF₄₀, PF₆₀, and PF₈₀ against Myeloma Cell Culture

ABSTRACT

Cancer is the second only to cardiovascular disease to cause of mortality in USA. Nowadays, the current research develops anticancer agents from plants. One of these plants that can be used as an anticancer agent is nutgrass (*Cyperus rotundus* L.). In China, nutgrass has been used as an alternative for cancer treatments.

This research is an experimental research with one way pattern complete random design. This research is aimed to determine the cytotoxic activity of nutgrass tuber protein fraction : PF₂₀, PF₄₀, PF₆₀, and PF₈₀ against myeloma and Vero cell culture. The protein fraction of nutgrass tuber was precipitated by adding ammonium sulfate in various concentration. The cytotoxic activity was determined using the MTT method {3-(4,5-dimethyl-thiazole-2-yl)-2,5-dipheniltetrazolium bromide} method. The results which were in percentage of death were analyzed statistically. The values of LC₅₀ were calculated using probit analysis. The values of LC₅₀ were then analyzed using t-independent test.

The results of cytotoxicity test determined that nutgrass tuber protein fractions had cytotoxicity activities against myeloma and Vero cell culture. The values of LC₅₀ of PF₂₀, PF₄₀, PF₆₀, and PF₈₀ for myeloma cell culture respectively are 72,15 µg/ml, 144,77 µg/ml, 150,19 µg/ml, and 168,69 µg/ml. While for Vero cell culture respectively are 35,1 µg/ml, 27,4 µg/ml, 14,7 µg/ml, and 16,4 µg/ml. The nutgrass tuber protein fraction has the bigger cytotoxic activity against Vero cell culture than myeloma cell culture.

Keywords : nutgrass tuber, protein fraction, cytotoxic activity, myeloma cell culture, Vero cell culture