

INTISARI

Kanker adalah penyakit yang paling ditakuti karena dapat berakibat kematian. Dewasa ini, banyak dikembangkan obat antikanker yang berasal dari tanaman dan pengobatan kanker mulai diarahkan ke pengobatan secara alternatif yang menggunakan tanaman obat. Rumput teki (*Cyperus rotundus L.*) secara empiris sudah mulai digunakan dalam pengobatan kanker di Cina. Dalam penelitian antikanker, sudah banyak mengarah ke penelitian mengenai daya sitotoksik dari protein tumbuhan sejenis *Ribosome Inactivating Protein* (RIP). Penelitian ini bertujuan untuk mengetahui sitotoksitas protein umbi teki dalam berbagai fraksi (FP₂₀, FP₄₀, FP₆₀, dan FP₈₀) terhadap kultur sel Raji dan sel Vero.

Penelitian ini termasuk penelitian eksperimental dengan rancangan acak lengkap pola satu arah. Fraksi protein umbi teki diendapkan dengan penambahan ammonium sulfat dalam kuantitas yang berbeda-beda sehingga diperoleh fraksi protein dalam berbagai konsentrasi. Uji sitotoksitas dilakukan dengan metode MTT (3-(4,5-dimetil-tiazol-2-il)-2,5-diphenyltetrazolium bromid). Data diperoleh dalam bentuk persen kematian. Harga LC₅₀ dihitung menggunakan analisis probit dan dianalisis lebih lanjut menggunakan uji-t.

Hasil uji sitotoksitas menunjukkan bahwa fraksi protein umbi teki mempunyai daya sitotoksik terhadap kultur sel Raji dan sel Vero. Harga LC₅₀ yang diperoleh pada FP₂₀, FP₄₀, FP₆₀, dan FP₈₀ untuk sel Raji berturut-turut adalah 189,7 µg/ml, 167,7 µg/ml, 236,7 µg/ml, 219,4 µg/ml, sementara untuk sel Vero berturut-turut adalah 35,1 µg/ml, 27,4 µg/ml, 14,7 µg/ml, 16,4 µg/ml. Hasil analisis uji-t menunjukkan bahwa fraksi protein umbi teki mempunyai daya sitotoksik yang lebih besar terhadap sel Vero dibandingkan sel Raji.

Kata Kunci: umbi teki, fraksi protein, LC₅₀, sel Raji, sel Vero

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

ABSTRACT

Cancer is the most frightened illness for it can cause death. Nowadays, anticancer medicines from plants have been quickly developed and the treatments of cancer are being shifted to alternative treatment using traditional medicines. In China, nutgrass (*Cyperus rotundus* L.) is being used empirically in cancer treatments. Many anticancer researches have been shifted to the cytotoxic activities of plants protein, in this case is *Ribosome Inactivating Protein* (RIP). This research is aimed to determine the cytotoxic activity of nutgrass tuber protein in various fractions: PF₂₀, PF₄₀, PF₆₀, and PF₈₀ against Raji and Vero cell culture.

This research is an experimental research with one way pattern complete random design. The protein fraction of nutgrass tuber was precipitated by adding ammonium sulfate in various concentrations. The cytotoxic activity was determined using the MTT (3-(4,5-dimethyl-tiazol-2-il)-2,5-diphenyltetrazolium bromide) method. The results were in percentage of death. The values of LC₅₀ were then calculated using probit analysis and analyzed using t-test.

The results of the cytotoxic test determined that nutgrass tuber protein fractions have cytotoxic activities against Raji and Vero cell culture. The values of LC₅₀ of PF₂₀, PF₄₀, PF₆₀, and PF₈₀ for Raji cell culture respectively are 189.7 µg/ml, 167.7 µg/ml, 236.7 µg/ml, and 219.4 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. Results of t-test determined that protein fractions of nutgrass tuber have larger cytotoxic activities against Vero cell rather than Raji cell.

Key words: nutgrass tuber, protein fraction, LC₅₀, Raji cell, Vero cell