INTISARI

Terapi alternatif yang mulai digunakan untuk penyakit kanker adalah dengan daun mimba (*Azadirachta indica* A. Juss). Hasil penelitian sebelumnya fraksi protein daun mimba hasil pengendapan dengan amonium sulfat 30% dan 60% memiliki efek sitotoksik terhadap kultur sel HeLa. Tujuan dari penelitian ini adalah untuk mengetahui sitotoksisitas fraksi protein daun mimba FP_{10}, FP_{20}, FP_{30} dan FP_{40} terhadap kultur sel HeLa dan sel Vero.

Penelitian ini adalah penelitian eksperimental murni rancangan acak lengkap pola satu arah. Fraksi protein diendapkan menggunakan amonium sulfat dalam berbagai tingkat kejenuhan dan konsentrasi. Uji sitotoksisitas dilakukan terhadap sel HeLa dan sel Vero secara *in vitro* menggunakan metode MTT (3-(4,5-dimetil-tiazol-2-il)-2,5-dipheniltetrazolium bromide). Hasil uji berupa prosentase kematian sel. Analisis statistik dengan analisis probit dilakukan untuk mengetahui nilai LC_{50} dan uji t-*independent sample* untuk membandingkan sitotoksisitas fraksi protein daun mimba terhadap sel HeLa dan sel Vero.

Hasil uji sitotoksisitas menunjukkan bahwa FP_{10}, FP_{20}, FP_{30} dan FP_{40} sitotoksik terhadap sel HeLa dan sel Vero. Nilai LC_{50} FP_{10}, FP_{20}, FP_{30} dan FP_{40} terhadap sel HeLa berturut-turut sebesar $1{,}5.10^{7}$ µg/ml; 6.10^{-3} µg/ml; $3{,}7.10^{-13}$ µg/ml dan $1{,}8.10^{-2}$ µg/ml; sedangkan terhadap sel Vero berturut-turut sebesar $1{,}2.10^{-3}$ µg/ml; $1{,}2.10^{4}$ µg/ml; $1{,}2.10^{-2}$ µg/ml dan $2{,}3.10^{11}$ µg/ml. Uji t-*independent sample* menunjukkan bahwa seluruh fraksi protein daun mimba memiliki perbedaan sitotoksisitas yang tidak signifikan antara sel HeLa dan sel Vero. FP_{10}, FP_{20}, FP_{30} dan FP_{40} daun mimba tidak berpotensi untuk dikembangkan sebagai antikanker.

Kata kunci : daun mimba, sitotoksisitas, fraksi protein, LC_{50}, sel HeLa, sel Vero

ABSTRACT

Neem leaves (*Azadirachta indica* A. Juss) is now being used as alternative therapy for cancer. Previous research showed that protein fraction of neem leaves which were precipitated using ammonium sulphate in concentration of 30% and 60% had cytotoxic activity against HeLa cells. This research aim to investigate the cytotoxicity of protein fraction of neem leaves PF_{10}, PF_{20}, PF_{30}, and PF_{40} against HeLa and Vero cells (normal cells).

This research was pure experimental research with the complete random and one way design. Protein fractions were precipitated with ammonium sulphate in various saturation grades. The cytotoxicity test was determined against HeLa cells and Vero cells in vitro using MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide) method. Data collected was cell death percentage. Data were statistically analysis by probit analysis to determined the LC_{50} values and independent samples t-test was used to identify whether the protein fractions have selectivity to HeLa cells.

The result indicated that PF_{10}, PF_{20}, PF_{30}, and PF_{40} of neem leaves show cytotoxic activity to HeLa and Vero cells. LC_{50} of PF_{20}, PF_{30}, and PF_{40} against HeLa cells are $1{,}5.10^{7}$ µg/ml; 6.10^{-3} µg/ml; $3{,}7.10^{-13}$ µg/ml and $1{,}8.10^{-2}$ µg/ml respectively; whereas LC_{50} of PF_{10}, PF_{20}, PF_{30} and PF_{40} against Vero cells are $1{,}2.10^{-3}$ µg/ml; $1{,}2.10^{4}$ µg/ml; $1{,}2.10^{-2}$ µg/ml and $2{,}3.10^{11}$ µg/ml. The results of independent samples t-test showed that all protein fraction of neem leaves have no significant difference of cytotoxicity between HeLa and Vero cells. In conclusion, PF_{10}, PF_{20}, PF_{30}, and PF_{40} of neem leaves were not recommended to be developed as anticancer.

Keywords: neem leaves, cytotoxicity, protein fraction, LC_{50}, HeLa cells, Vero cells