

# Uji Antiproliferasi Senyawa Hasil Amidasi Metil 12-Hidroksistearat Dengan Dietanolamina Terhadap Sel HeLa = Antiproliferative Assay Of Amidation Product Of Methyl 12-Hydroxystearate With Diethanolamine Against HeLa Cells

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## Abstrak

Kanker serviks adalah penyebab paling umum kematian akibat kanker pada wanita. Kanker serviks sering dikaitkan dengan human papilloma virus. Pengembangan senyawa yang berasal dari asam risinoleat banyak dilakukan karena diketahui memiliki berbagai manfaat seperti antioksidan, antibakteri dan salah satunya adalah antikanker. Penelitian ini bertujuan untuk menguji aktivitas antiproliferasi terhadap sel HeLa senyawa alkanolamida (R)-12-hidroksi-N,N-bis(2-hidroksietil)stearamida. Pertama-tama metil risinoleat direduksi dengan gas H<sub>2</sub> dan katalis Pd/C. Selanjutnya dilakukan reaksi amidasi dengan dietanolamina untuk menghasilkan senyawa alkanolamida dan dilanjutkan dengan pemurnian menggunakan kromatografi kolom dan dimonitor dengan kromatografi lapis tipis (KLT). Diperoleh %rendemen senyawa alkanolamida dari hasil amidasi sebesar 97,85%. Berdasarkan hasil karakterisasi dengan FTIR, munculnya puncak dari gugus C-N pada bilangan gelombang 1135 cm<sup>-1</sup>, gugus C=O pada 1735 cm<sup>-1</sup>, dan O-H (regangan) berupa jangkauan dari 3700-3000 cm<sup>-1</sup>, dan O-H (tekuk) pada 1250 cm<sup>-1</sup>. yang mengkonfirmasi produk alkanolamida berhasil terbentuk. Selanjutnya senyawa alkanolamida (R)-12-hidroksi-N,N-bis(2-hidroksietil)stearamida diuji aktivitas antiproliferasinya menggunakan metode MTT terhadap sel HeLa, untuk menguji aktivitasnya sebagai agen antikanker. Diperoleh nilai IC<sub>50</sub> sebesar 114,9  $\hat{I}$ ¼M, menunjukkan bahwa senyawa (R)-12-hidroksi-N,N-bis(2-hidroksietil)stearamida memiliki aktivitas antiproliferasi yang termasuk dalam kategori toksik lemah.

.....Cervical cancer is the most common cause of death from cancer in women. Cervical cancer is often associated with the human papillomavirus. The development of compounds derived from ricinoleic acid is widely carried out because it is known to have various benefits such as antioxidants, antibacterials and one of them is anticancer. This study aims to examine the antiproliferative activity of HeLa cells with the alkanolamide compound (R)-12-hydroxy-N,N-bis(2-hydroxyethyl)stearamide. First of all, methyl ricinoleate is reduced with H<sub>2</sub> gas and Pd/C catalyst. Furthermore, the amidation reaction was carried out with diethanolamine to produce alkanolamide compounds and continued with purification using column chromatography and monitored by thin layer chromatography (TLC). The % yield of alkanolamide compounds from amidation was 97.85%. Based on the results of characterization with FTIR, the emergence of peaks from the C-N group at wave number 1135 cm<sup>-1</sup>, the C=O group at 1735 cm<sup>-1</sup>, and O-H (stretch) are in the range of 3700-3000 cm<sup>-1</sup>, and O-H (bending) at 1250 cm<sup>-1</sup>. which confirmed that the alkanol amide product was successfully formed. Furthermore, the alkanolamide compound (R)-12-hydroxy-N,N-bis(2-hydroxyethyl)stearamide was tested for its antiproliferation activity using the MTT method against HeLa cells, to test its activity as an anticancer agent. The IC<sub>50</sub> value of 114.9  $\hat{I}$ ¼M was obtained, indicating that the compound (R)-12-hydroxy-N,N-bis(2-hydroxyethyl)stearamide has an antiproliferative activity which is included in the weak toxic category.