Potensi Antiproliferative Analog Kurkumin Pentagamavunon Terhadap Sel Kanker Payudara T47D*)

Muhammad Da'I, Nurul Mutmainah, Kun Harismah

Fakultas Farmasi Universitas Muhammadyah Surakarta

Abstrak

Untuk meningkatkan stabilitas dan aktivitas kurkumin, disintesis dan dikembangkan analog kurkumin pentagamavunon-0 (PGV-0) dan pentagamavunon-1 (PGV-1). Kedua senyawa diharapkan memiliki aktivitas antikanker. Kurkumin dan analognya diuji aktivitas penghambatan terhadap sel kanker payudara T47D dengan pengamatan profil pertumbuhan sel menggunakan metoda MTT. Induksi apoptosis oleh senyawa uji diamati dengan metoda pengecatan ganda menggunakan etidium bromideacridin orange dan DAPI. Pengamatan terhadap protein regulator apoptosis dilakukan dengan menggunakan metoda *western blot* terhadap caspase-3 dan subtratnya (PARP). PGV-1 2,5 μM terbukti memiliki aktivitas paling kuat dalam menghambat pertumbuhan sel. Kurkumin dan analognya mampu menginduksi terjadinya apoptosis melalui aktivasi caspase-3 dan menghasilkan cleavage PARP. Hasil menunjukkan PGV-1 memiliki potensi menghambat pertumbuhan sel kanker payudara T47D lebih baik dibanding PGV-0 dan kurkumin.

Kata kunci : Analog kurkumin, anti-kanker, apoptosis

Abstract

Pentagamavunon-0 (PGV-0) and pentagamavunon-1 (PGV-1) have been synthesized and developed to increase the stability and activities. Both of compound are hoped to possess anti-cancer activity. Curcumin and analogues were observed the ability to inhibit the T47D cells growth by observing growth profile of the cells. The MTT method was used to observe the growth profile of T47D cells induced by the compounds. Apoptosis cells (induced by the compounds) were observed by using double staining (ethidium bromide and acrydine orange) and DAPI staining. The protein of apoptosis regulators were examined by using western blot method to caspase-3 and the substrate PARP. The resul indicated that PGV-1 2.5 μM has the strongest inhibitor to T47D cells. Curcumin and analogues have ability to induce apoptosis via caspase-3 activation and resulted cleavage PARP. Taken together, PGV-1 has the best potency to inhibit T47D cells growth.

Key words : Curcumin analogues, anti-cancer, apoptosis