Sintesis Senyawa Analog Kurkumin Monokarbonil Bermotif 1,2,3-Triazol serta Uji Aktivitas Penangkapan Radikal Bebas = Synthesis and Radical Scavenging Activity of Monocarbonyl Curcumin Analogs with 1,2,3-Triazole Motif

Muhammad Ridho Hardhani, author

Abstrak

Kurkumin merupakan senyawa metabolit sekunder golongan flavonoid yang dapat ditemukan secara alami pada bagian rizoma tanaman kunyit (Curcuma longa). Triazol merupakan senyawa heterosiklik yang mengandung atom nitrogen dan banyak dimanfaatkan dalam senyawa obat. Kedua senyawa tersebut telah menunjukkan aktivitas farmakologis dan biologis yang baik sehingga pada penelitian ini dilakukan sintesis tiga senyawa analog kurkumin monokarbonil yang memiliki cincin heterosiklik triazol menggunakan zingeron, dehidrozingeron, dan dehidrozingeron demetoksi sebagai senyawa prekursor. Senyawa hasil sintesis dimurnikan dengan kromatografi kolom dan telah dibuktikan pembentukannya melalui identifikasi kromatografi lapis tipis. Struktur senyawa hasil sintesis berhasil dikonfirmasi menggunakan karakterisasi FTIR, NMR, dan LC-MS. Hasil sintesis senyawa produk akhir triazol zingeron menghasilkan rendemen sebesar 92%, senyawa triazol dehidrozingeron menghasilkan rendemen sebesar 85%, dan senyawa triazol dehidrozingeron demetoksi menghasilkan rendemen sebesar 98%. Aktivitas penangkapan radikal bebas senyawa hasil sintesis ditinjau menggunakan metode DPPH. Diperoleh nilai persen inhibisi radikal senyawa triazol zingeron sebesar 24,97%, senyawa triazol dehidrozingeron sebesar 32,04%, dan senyawa triazol dehidrozingeron demetoksi sebesar 23,67%.

.....Curcumin is a secondary metabolite compound of the flavonoid class which can be found naturally in the rhizome of turmeric plant (Curcuma longa). Triazoles are heterocyclic compounds containing three nitrogen atoms and has been widely used in medicinal drugs. Both compounds have shown decent pharmacological and biological activity. Thus, during this part of my B.Sc. project, three monocarbonyl curcumin analogs bearing triazole heterocycles have been designed and synthesized from three different precursors: zingerone, dehydrozingerone, and dehydrozingerone demethoxy. The synthesized compounds were purified by silica-gel column chromatography and proven by identification with thin layer chromatography. The structure of the synthesized compounds was confirmed by FTIR, NMR, and LC-MS characterization. The yield of obtained products were 92%, 85%, and 98% for triazole zingerone, triazole dehydrozingerone, and dehydrozignerone demethoxy, respectively. Free radical scavenging activity of the resulting compounds was evaluated using DPPH assay. The radical inhibition percentage value of triazole zingerone was obtained by 24.97%, triazole dehydrozingerone was 32.04%, and triazole dehydrozingerone demethoxy obtained 23.67%.