Sintesis Senyawa Derivat Tiazol Berbasis Monoterpen Kamfor dan Uji Aktivitas Sebagai Antioksidan = Synthesis of Camphor-based Thiazole Derivatives and Its Activity as Antioxidant

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Abstrak

Senyawa turunan tiazol merupakan senyawa heterosiklik yang memiliki beberapa aktivitas biologis seperti antioksidan. Pada penelitian ini menggunakan (+)- camphor sebagai prekursor dalam mensintesis senyawa turunan tiazol. Senyawa turunan tiazol disintesis dengan mereaksikan senyawa tiazol berbasis kamfor yang terbentuk dengan senyawa aldehid aromatik yaitu 2-hidroksi benzaldehid dan sinamaldehida. Senyawa hasil sintesis dimurnikan, diidentifikasi menggunakan KLT, dan diuji titik lelehnya, serta dikarakterisasi menggunakan Fourier-transform infrared spectroscopy, ultraviolet-visible spectroscopy, nuclear magnetic resonance spectroscopy, dan LC-MS. Setelah itu, senyawa hasil sintesis diuji aktivitas antioksidannya dengan menggunakan metode DPPH. Pada penelitian ini, diperoleh hasil sintesis senyawa camphor thiosemicarbazone sebesar 81,54%, senyawa camphor tiazolidin-4-on sebesar 32,538%, dan senyawa turunan camphor tiazolidin-4-on 1 dengan persen yield campuran sebesar 98,7%. Potensi aktivitas antioksidan ditinjau dengan menggunakan metode DPPH dan diperoleh nilai IC50 senyawa camphor thiosemicarbazone sebesar 103,08 ppm, senyawa camphor tiazolidin-4-on sebesar 26978,16 ppm, dan senyawa turunan camphor tiazolidin-4-on sebesar 3909,14 ppm.
.....Thiazole derivatives compounds are heterocyclic compounds that have several biological activities such as antioxidants. In this study, (+)-camphor was used as a precursor in the synthesis of thiazole derivatives. Thiazole derivative compounds were synthesized by reacting the thiazole based camphor compound with aromatic aldehyde compounds, namely 2-hydroxy benzaldehyde and cinnamaldehyde. The synthesized compound purified and identified using TLC, and tested for their melting points, and characterized using fourier-transform infrared spectroscopy, ultraviolet-visible spectroscopy, nuclear magnetic resonance spectroscopy, and Liquid Chromatography-Mass Spectrometer. After that, the synthesized compounds were tested for their antioxidant activity using DPPH method. In this study, percent yield of the synthesis of camphor thiosemicarbazone compounds were 81,54%, camphor thiazolidine-4-on were 32,538%, and camphor thiazolidine-4-on derivatives were 98,7% as a mixed compounds. The potential antioxidant activity was monitored using DPPH method and the IC50 value of camphor thiosemicarbazone was 103,08 ppm, camphor thiazolidine-4-on was 26978,16 ppm, and camphor thiazolidine-4-on derivatives compound was 3909,14 ppm.