Sintesis derivat camphor thiazole dari isolat tanaman dryobalanops aromatica serta bioaktivitasnya sebagai antioksidan dan antidiabetes terhadap enzim alfa glukosidase = Synthesis of camphor thiazole derivatives from isolates dryobalanops aromatica and its bioactivity as antioxidants and antidiabetics against alpha glucosidase enzyme

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Abstrak

Kristal minyak kapur diisolasi dari minyak Dryobalanops aromatica kemudian dioksidasi menjadi camphor. Camphor kemudian direaksikan dengan thiosemicarbazide, etil-2-chloroacetoacetate dan katalis NaOAc untuk membentuk camphor thiazole. Kemudian, senyawa tersebut direaksikan dengan hydrazine/phenylhydrazine. Kristal minyak kapur, kristal camphor, camphor thiazole, camphor thiazole hydrazine dan camphor thiazole phenylhydrazine berhasil disintesis dengan %yield masing-masing adalah 1,50%; 15,84%; 3,48%; 58,21% dan 32,65% serta dikarakterisasi menggunakan kromatografi lapis tipis (KLT), FT-IR, UV-Vis, dan GC-MS/LC-MS. Aktivitas antioksidan diukur menggunakan metode radikal bebas DPPH. Diketahui bahwa minyak kapur, Kristal minyak kapur, Camphor thiazole Hydrazine dan Camphor thiazole Phenylhydrazine memiliki aktivitas antioksidan dengan nilai IC50 secara berurutan sebesar 4293 ppm, >10.000 ppm, 6,93 ppm dan 8,80 ppm. camphor thiazole hydrazine memiliki aktivitas antioksidan paling kuat, krsital camphor tidak menunjukan aktivitas antioksidan, sedangkan camphor thiazole tidak cocok untuk dilakukan pengukuran antioksidan dengan menggunakan metode radikal bebas DPPH. Aktivitas antidiabetes diukur menggunakan enzim alfa glukosidase. Diketahui camphor thiazole, camphor thiazole hydrazine dan camphor thiazole phenylhydrazine memiliki nilai IC50 berurutan adalah 869,06 ppm, >2000 ppm dan 1893,40 ppm. Senyawa camphor thiazole diketahui memiliki aktivitas inhibisi yang paling baik terhadap enzim alfa glucosidase

.....Camphor crystals were isolated from Dryobalanops aromatica oil. Camphor were reacting with thiosemicarbazide, ethyl-2-chloroacetoacetate and NaOAc catalyst to form camphor thiazole. This compound then reacted with hydrazine/phenylhydrazine. D. aromatica crystals, camphor crystals, camphor thiazole, camphor thiazole hydrazine and camphor thiazole phenylhydrazine were successfully synthesized with %yields of 1.50%; 15.84%; 3.48%; 58.21% and 32.65%, respectively and characterized using Thin Layer Chromatography (TLC), FT-IR, UV-Vis, and GC-MS/LC-MS. Antioxidant activity was measured using the DPPH free radical method. It is known that D. aromatica oil, D. aromatica crystals, camphor thiazole hydrazine and camphor thiazole phenylhydrazine have antioxidant activity with IC50 values ââof 4293 ppm, >10,000 ppm, 6.93 ppm and 8.80 ppm, respectively. camphor thiazole hydrazine has the strongest antioxidant activity, camphor crystals do not show antioxidant activity, while camphor thiazole is not suitable for measuring antioxidants using the DPPH free radical method. Antidiabetic activity was measured using the alpha glucosidase enzyme. It is known that camphor thiazole, camphor thiazole hydrazine and camphor thiazole phenylhydrazine have IC50 values â 869.06 ppm, >2000 ppm and 1893.40 ppm, respectively. Camphor thiazole are known to have the best inhibitory activity against the alpha glucosidase enzyme.