Uji aktivitas antifungi Lipoamida Asam Oleat Teroksidasi-Glisina dan Fenilalanina terhadap candida albicans = Antifungal activity test of Oxidized Oleic Acid-Glycine and Phenylalanine Lipoamide Against Candida albicans

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Abstrak

Indonesia merupakan salah satu negara beriklim tropis dan memiliki kelembaban udara tinggi. Kondisi ini memicu pertumbuhan Candida albicans dan menyebabkan infeksi jamur. Berbagai penelitian telah dilakukan untuk menemukan senyawa kandidat antifungi berbasis sumber daya alam seperti tumbuhan dan memiliki efek samping yang rendah, terutama turunan lipid seperti senyawa lipoamida. Pada penelitian ini, asam oleat telah diesterifikasi dengan dry methanol menggunakan katalis asam HCl menghasilkan metil oleat. Selanjutnya ikatan rangkap pada metil oleat dioksidasi menggunakan KMnO4 encer dalam suasana basa dan suhu 25oC. Keberhasilan oksidasi ditunjukkan dari penurunan bilangan iod dari 79,56 mg/g menjadi 4,82 mg/g. Selanjutnya, dilakukan reaksi amidasi dengan asam amino glisina dan fenilalanina. Produk – produknya diidentifikasi dengan Kromatografi Lapis Tipis (KLT), dan dikarakterisasi menggunakan FT-IR (Fourier Transform Infra Red). Hasil FTIR lipoamida menunjukkan adanya overlapping gugus - OH dan -NH stretch pada bilangan gelombang sekitar 3200 – 3500 cm-1, gugus C=O amida pada 1652 cm-1 dan 1666 cm-1, serta gugus C-N stretch pada 1326 cm-1dan 1248 cm-1 untuk lipoamida – glisin dan lipoamida – fenilalanin. Produk lipoamida tidak terdeteksi memiliki aktivitas antifungi terhadap Candida albicans pada konsentrasi 1000 ppm.
.....Indonesia is a country with tropical climate and has high humidity. This condition stimulates the growth of Candida albicans and causes a fungal infection. Various studies have been carried out to obtain candidate compounds for antifungal based on natural resources such as plants and have low side effects, especially lipid derivatives such as lipoamide compounds. In this research, the esterification of oleic acid with dry methanol was carried out using HCl as an acid catalyst to produce methyl oleate (MO). Furthermore, the double bond in MO is oxidized using dilute KMnO4 under alkaline conditions at 25oC low temperature. The success of oxidation was indicated by the decrease in the iodine value from 79,56 mg/g to 4,82 mg/g. Furthermore, the oxidized methyl oleate was amidated with the amino acid glycine and phenylalanine. The products obtained were identified by Thin Layer Chromatography (TLC) and characterized by FT- IR. FTIR results of lipoamides show overlapping between -OH and -NH stretch around 3200 – 3500 cm-1, C=O amide at 11652 cm-1 and 1666 cm-1, and C-N stretch at 1326 cm- 1 and 1248 cm-1 for lipoamide – glycine and lipoamide – phenylalanine. The antifungal activity test results showed that the lipoamide products were not detected to have antifungal activity against Candida albicans at 1000 ppm.