SINTESIS SENYAWA *N*-(2,3-DIHIDROKSIPROPIL)LAURAMIDA DAN *N*-(2,3-DIHIDROKSIPROPIL)MIRISTAMIDA SERTA UJI AKTIVITASNYA SEBAGAI ANTIBAKTERI DAN ANTIJAMUR

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INTISARI

Telah dilakukan sintesis lauroil klorida, miristoil klorida, *N*-(2,3-dihidroksipropil)lauramida (***N*-propillauramida**), dan *N*-(2,3-dihidroksipropil) miristamida (***N*-propilmiristamida**) serta uji aktivitas antibakteri dan antijamur pada kedua senyawa tersebut. Lauroil klorida dan miristoil klorida disintesis melalui reaksi antara asam laurat dan asam miristat dengan tionil klorida ($SOCl_2$) dengan proses distilasi dan refluks pada suhu 60-65 °C selama 3 jam. Senyawa *N*-propillauramida dan *N*-propilmiristamida disintesis melalui reaksi antara lauroil klorida dan miristoil klorida dengan 1-aminogliserol. Produk sintesis dianalisis menggunakan spektrometer FTIR, GC-MS, *Direct inlet*-MS, ^{1}H- dan ^{13}C-NMR. Uji aktivitas antibakteri dan antijamur dilakukan pada senyawa *N*-propillauramida dan *N*-propilmiristamida terhadap bakteri Gram positif (*Bacillus subtilis* dan *Staphylococcus aureus*) dan bakteri Gram negatif (*Escherichia coli* dan *Salmonella tiphy*) serta jamur *Candida albicans* dengan DMSO sebagai kontrol negatif dan 4-isopropil-3-metilfenol 1% sebagai kontrol positif.

Hasil penelitian menunjukkan bahwa produk yang diperoleh berupa lauroil klorida dan miristoil klorida berupa cairan berwarna bening kekuningan dengan persen hasil 84,93 and 93,90%, *N*-propillauramida dan *N*-propilmiristamida berupa padatan dengan persen hasil berturut-turut 31,66 dan 86,22%. Senyawa *N*-propillauramida menunjukkan adanya aktivitas antibakteri pada semua bakteri uji dan antijamur pada *C. albicans.* Senyawa *N*-propilmiristamida menunjukkan adanya aktivitas antibakteri pada semua bakteri uji dan tidak memiliki aktivitas sebagai antijamur.

Kata kunci: antibakteri, antijamur, *N*-propillauramida, *N*-propilmiristamida

SYNTHESIS OF *N*-(2,3-DIHYDROXYPROPYL)LAURAMIDE AND *N*-(2,3-DIHYDROXYPROPYL)MYRISTAMIDE AND THEIR ACTIVITIES AS ANTIBACTERIA AND ANTIFUNGI

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ABSTRACT

Synthesis of lauroyl chloride, myristoyl chloride, *N*-(2,3-dihydroxypropyl) lauramide (***N*-propyllauramide**) and *N*-(2,3-dihydroxypropyl)myristamide (***N*-propylmyristamide**) and their activities as antibacteria and antifungi had been conducted. Synthesis of lauroyl chloride and myristoyl chloride were initiated by the reaction between each of lauric acid and myristic acid with thionyl chloride ($SOCl_2$) by distillation and reflux processes at 60-65 °C for 3 hours. *N*-propyllauramide and *N*-propylmyristamide were synthesized by reacting lauroyl chloride and myristoyl chloride with 1-aminoglycerol. The products were analyzed using FTIR, GC-MS, Direct inlet-MS, ^{1}H- and ^{13}C-NMR spectrometers. Antibacterial and antifungal activities were performed on *N*-propyllauramide and *N*-propylmyristamide against Gram positive bacteria (*Bacillus subtilis* and *Staphylococcus aureus*) and Gram negative bacteria (*Escherichia coli* and *Salmonella tiphy*) as well as *Candida albicans* fungi by DMSO as a negative control and 4-isopropyl-3-methylphenol 1% as a positive control.

The results obtained in this research were lauroyl chloride and myristoyl chloride in the form of clear yellowish liquid with 84.93 and 93.90% of yields, *N*-propyllauramide and *N*-propylmyristamide in the form of white solids with 31.66 and 86.22% of yields respectively. *N*-propyllauramide showed the presence of antibacteria and antifungi activities in all bacteria samples and fungi. Meanwhile, *N*-propylmyristamide exhibited antibacterial activity in all bacteria samples but had no activity as an antifungi.

Keywords : antibacteria, antifungi, *N*-propyllauramide and *N*-propylmyristamide