

ABSTRAK

Nama : Nafisah Nuha
Program Studi : Farmasi
Judul : Karakterisasi Enzim Lakase dari *Leiotrametes* sp. BRB 73 dan *Lentinus* sp. BRB 12 serta Aktivitas Antibakterinya Terhadap Bakteri Patogen

Enzim lakase merupakan enzim polifenol oksidase yang memiliki kemampuan mengoksidasi senyawa aromatik serta nonaromatik dan banyak digunakan dalam bidang industri makanan, industri kertas dan pulp, industri tekstil, kimia sintetis, kosmetik, kesehatan dll. Jamur pelapuk putih merupakan jamur yang sering digunakan sebagai penghasil enzim lakase seperti *Leiotrametes* sp. BRB 73 dan *Lentinus* sp. BRB 12. Penelitian ini bertujuan untuk mengetahui karakterisasi enzim lakase yang dihasilkan oleh isolat jamur *Leiotrametes* sp. BRB 73 dan *Lentinus* sp. BRB 12, serta aktivitas antibakterinya terhadap *S. aureus*, *P. acnes*, *P. aeruginosa* dan *E. coli*. Enzim lakase yang dihasilkan dilakukan karakterisasi meliputi warna, pH, aktivitas enzim dan kadar protein. Pengujian aktivitas antibakteri enzim lakase dilakukan menggunakan metode difusi sumuran dan metode dilusi cair nilai KHM dan KBM. Hasil dari penelitian ini menunjukkan bahwa enzim lakase yang diekstraksi dari jamur pelapuk putih *Leiotrametes* sp. BRB 73 memiliki aktivitas enzim dan kadar protein yang lebih tinggi dibandingkan dengan *Lentinus* sp. BRB 12. Enzim Lakase yang dihasilkan oleh *Leiotrametes* sp. BRB 73 dan *Lentinus* sp. BRB 12 memiliki nilai hambat bakteri dengan aktivitas enzim kisara 0,002 U/mL-0,014 U/mL dan nilai bunuh bakteri *S. aureus* dan *E. coli* dengan aktivitas enzim 0,018 U/mL-0,76 U/mL.

Kata kunci : Antibakteri, Difusi sumuran, KBM, KHM, Lakase, *Leiotrametes* sp., *Lentinus* sp.

ABSTRACT

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Title : Characterization of Laccase Enzymes from *Leiotrames* sp. BRB 73 and *Lentinus* sp. BRB 12 and its antibacterial activity against pathogenic bacteria.

Laccase enzyme is a polyphenol oxidase enzyme which has the ability to oxidize aromatic and non-aromatic compounds and is widely used in food industry paper and pulp industry textile industry synthetic chemicals cosmetics health etc White rot fungus is a fungus that often used as a producer of laccase enzymes such as *Leiotrames* sp. BRB 73 and *Lentinus* sp. BRB 12. The aim of this study was to determine the characterization of the laccase enzyme produced by isolates of the fungus *Leiotrames* sp. BRB 73 and *Lentinus* sp. BRB 12 and its biological activity against *S. aureus*, *P. acnes*, *P. aeruginosa* and *E. coli*. The laccase enzyme produced was characterized by color, pH, enzyme activity and protein content. The antibacterial activity of the laccase enzyme was tested using the well diffusion method and the liquid dilution method for MIC and MBC values. The results of this study showed that the laccase enzyme extracted from the white rot fungus *Leiotrames* sp. BRB 73 had a higher enzyme activity and protein content than *Lentinus* sp. BRB 12. Laccase enzyme produced by *Leiotrames* sp. BRB 73 and *Lentinus* sp. BRB 12 has a bacterial inhibitory value with an enzyme activity in the range of 0.002 U/mL-0.014 U/mL and a bactericidal value of *S. aureus* and *E. coli* with an enzyme activity of 0.018 U/mL-0.76 U/mL.

Keyword : Antibacterial, Agar well difusion, MBC, MIC, Laccase, *Leiotrametes* sp., *Lentinus* sp.