



## Optimizing of Lignin Peroxidase Production by The Suspected Novel Strain of *Phanerochaete chrysosporium* ITB Isolate

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**Abstract:** *Phanerochaete chrysosporium* ITB isolate that suspected as the novel strain of *P. chrysosporium*, potential as a source of lignin peroxidase (LiP). Several conditions to optimize the production of LiP in submerge batch bioreactor, such as inoculum development, carbon source, temperature, agitation, pH, surfactant (Tween-80) and addition of activity enhancers (veratryl alcohol) were tested in this experiment. The spores of *P. chrysosporium* ITB isolate from optimum inoculum development inoculated in modified Tien Kirk medium to produce LiP. It was shown that the optimum cultivation time to produce optimum inoculum development was two weeks since the highest number of spores produced ( $3.53 \cdot 10^7$  spores/mL) and the viability of the spores was still over 90 %. Highest specific activity of LiP from *P. chrysosporium* ITB isolate was  $77.4 \pm 13.1$  U/mg, achieved at optimized condition: the medium consist of sawdust 1 %, ammonium sulfate 20 mM, tiamin-HCl 0,01 %, veratryl alcohol 300 ppm, Tween-80 0,025 %, basal medium and trace element components were the same as Kirk's medium but in aqua demineralization, cultivated to  $1 \cdot 10^5$  spore/mL, and were grown at 37 °C and 50 rpm for five days. The result depict that *P. chrysosporium* ITB isolate can produce high activity of lignin peroxidase in modified Tien Kirk medium.

**Keywords:** *Phanerochaete chrysosporium*, ITB isolate, lignin peroxidase.

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