

RINGKASAN

Limbah industri tekstil berupa zat warna sintetik seperti *Remazol Brilliant Blue R* (RBBR) dapat menimbulkan pencemaran lingkungan akibat sifat zat warna RBBR yang toksik dan sulit terurai. Isolat *Auricularia* sp., *Trametes* sp., dan *Pholiota* sp. memiliki enzim yang mampu mendekolorisasi komponen pewarna RBBR. aktivitas enzim lignolitik seperti lakase yang dihasilkan jamur mampu mengoksidasi pewarna tekstil. Aktivitas enzim lakase dipengaruhi oleh jenis jamur yang digunakan dan lingkungan misalnya pH.

Penelitian bertujuan untuk mengetahui aktivitas enzim lakase dari isolat jamur *Auricularia* sp., *Trametes* sp., dan *Pholiota* sp. dalam pewarna RBBR pada nilai pH berbeda, serta mengetahui isolat pada pH optimum yang memiliki aktivitas enzim lakase tertinggi dalam pewarna RBBR. Penelitian menggunakan Rancangan Acak Lengkap (RAL). Variabel bebas yang diamati adalah jenis isolat dan kondisi pH (4, 8, dan 12), sedangkan variabel tergantungnya adalah kemampuan isolat dalam menghasilkan enzim. Parameter utama yang diamati adalah aktivitas enzim lakase. Parameter pendukung berupa bobot kering miselium.

Hasil menunjukkan ketiga isolat memiliki aktivitas enzim lakase dalam RBBR dengan pH berbeda. Aktivitas tertinggi dimiliki *Trametes* sp. dalam RBBR dengan pH 4 yaitu sebesar 101,9 U/mL. Aktivitas terendah dimiliki *Auricularia* sp. dalam RBBR dengan pH 4 sebesar 48,6 U/mL.

Kata kunci: Enzim lakase, Jamur, *Remazol Brilliant Blue R*.

SUMMARY

Waste from the textile industry like synthetic dyes such as Remazol Brilliant Blue R (RBBR) can cause environmental pollution due to the toxic and difficult to decompose. Isolate *Auricularia* sp., *Trametes* sp., and *Pholiota* sp. has an enzyme that is able to decolorize the RBBR compound. Lignolytic enzyme activity such as laccase produced by fungi that can oxidize textile dyes. Laccase enzyme activity is influenced by the type of fungus, pH, temperature, and incubation time.

This research has a purpose to determine the activity of laccase enzymes from fungi *Auricularia* sp., *Trametes* sp., and *Pholiota* sp. in RBBR at different pH values, and to know isolates at optimum pH which have laccase enzyme activity in RBBR. The research method used a Completely Randomized Design (CRD). The independent variables observed were isolate type and pH conditions (4, 8, and 12), while the dependent variable was the ability of isolates to produce enzymes. The main parameter observed was laccase enzyme activity. Supporting parameters consist of the mycelium dry weight value.

The results showed that the three isolates had laccase enzyme activity in RBBR with different pH. The highest activity is owned by *Trametes* sp. on RBBR with a pH of 4 which is 101.9 U / mL. The lowest activity is owned by *Auricularia* sp. on RBBR with pH 4 which is 48.6 U / mL.

Keywords: *Laccase Enzyme, Fungus, Remazol Brilliant Blue R.*