

# Pengujian Kemampuan Rhizopus azygosporus UICC 539 dalam Mendegradasi Tirbutirin 1% dan 2% pada Berbagai Suhu = Tributyrin Degrading Ability of Rhizopus azygosporus UICC 539 at 1% and 2% at Various Temperatures

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## Abstrak

<p>Penelitian ini bertujuan untuk menguji pertumbuhan <em>Rhizopus azygosporus </em>UICC 539 pada medium <em>Potato Sucrose Agar </em>(PSA) pada berbagai suhu dan kemampuan dalam mendegradasi tributirin 1% (v/v) dan 2% (v/v) pada berbagai suhu. Blok agar (diameter 6 mm) mengandung<em> R. azygosporus </em>UICC 539  $2 \times 10^{6}$  CFU/mL pada medium PSA umur 5 hari di suhu 30°C digunakan untuk uji pertumbuhan dan kemampuan degradasi tributirin 1% (v/v) dan 2% (v/v). Suhu pengujian pertumbuhan yaitu 30, 35, 40, 45, 50, 55, dan 60°C pada PSA selama 5 hari. Pengujian kemampuan <em>R. azygosporus </em>UICC 539 mendegradasi tributirin dilakukan pada medium <em>tributyrin agar</em> selama 3 hari dan 5 hari. Medium <em>tributyrin agar </em>tanpa biakan digunakan sebagai kontrol. Hasil pengujian menunjukkan pertumbuhan <em>R. azygosporus </em>UICC 539 pada medium PSA ditandai dengan adanya miselium berwarna putih kecokelatan, bentuk dan tekstur filamen serta sporulasi. <em>Rhizopus azygosporus </em>UICC 539 dapat tumbuh pada suhu 30, 35, 40, 45, dan 50°C tetapi tidak dapat tumbuh pada suhu 55°C dan 60°C. Degradasi tributirin ditandai dengan adanya zona bening di sekitar koloni, dan dinyatakan dengan nilai <em>enzymatic index</em> (EI), yaitu R/r dengan R adalah diameter zona bening dan r adalah diameter koloni. Adanya zona bening mengindikasikan aktivitas lipolitik pada medium tributirin. <em>Rhizopus azygosporus </em>UICC 539 dapat mendegradasi tributirin 1% dan 2% di suhu 30, 35, 40, 45, dan 50°C. Nilai EI tertinggi yaitu sebesar 4,17 pada konsentrasi 1% suhu 50°C pada inkubasi hari ke-5. </p><hr /><p>This study aims to detect the growth temperature of <em>Rhizopus azygosporus</em> UICC 539 on Potato Sucrose Agar (PSA) and the ability of <em>R. azygosporus</em> UICC 539 to degrade 1% (v/v) and 2% (v/v) tributyrin at various temperatures. Agar blocks (6 mm diameter) which contained <em>R. azygosporus</em> UICC 539 at  $2 \times 10^{6}$  CFU/mL from 5-days old in PSA at 30°C were used for growth temperature test and tributyrin degradation assay. Growth temperature test was carried out on PSA at 30, 35, 40, 45, 50, 55, and 60°C for 5 days. Tributyrin degradation assay was carried out on 1% and 2% tributyrin agar for 3 days and 5 days. Tributyrin agar without culture was used as a control. <em>Rhizopus azygosporus</em> UICC 539 showed growth on PSA by the presence of brownish white mycelium, filamentous shape, wooly texture, and sporulation. The growth temperature of <em>R. azygosporus</em> UICC 539 was 30, 35, 40, 45, and 50°C but the fungus was not able to grow at 55°C and 60°C. Tributyrin degradation was shown by the presence of clear zones around the colony. The tributyrin degrading ability was calculated using enzymatic index (EI): R/r, R was the diameter of the clear zone and r was the diameter of the colony. <em>Rhizopus azygosporus</em> UICC 539 degraded 1% and 2% tributyrin at 30, 35, 40, 45, and 50°C. Clear zone indicated lipolytic activity by <em>R. azygosporus</em> UICC 539. The highest EI value was 4.17 at 1% tributyrin at 50°C on day-5.</p>