

DISERTASI

**PENGARUH *LACTOCOCCUS LACTIS D4* TERHADAP EKSPRESI
INTERLEUKIN-6, INTERLEUKIN-32, NUCLEAR FACTOR-KAPPAB,
SMOOTH MUSCLE ALPHA ACTIN PADA TIKUS MODEL
*OBSTRUCTIVE JAUNDICE***

Penelitian Eksperimental pada Tikus Wistar



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ABSTRAK

PENGARUH *LACTOCOCCUS LACTIS D4* TERHADAP EKSPRESI *INTERLEUKIN-6, INTERLEUKIN-32, NUCLEAR FACTOR-KAPPAB,* *SMOOTH MUSCLE ALPHA ACTIN* PADA TIKUS MODEL *OBSTRUCTIVE JAUNDICE*

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Obstructive jaundice merupakan jenis *jaundice* yang umum terjadi dengan morbiditas dan mortalitas tinggi. Penyebabnya meliputi koledokolitiasis, striktur bilier, dan tumor ganas. Kondisi ini dapat menyebabkan disfungsi sistem retikuloendotelial, penekanan sistem imun, serta kerusakan mukosa usus yang berkontribusi terhadap endotoksemia dan translokasi bakterial. Probiotik, terutama yang berasal dari *dadiah*, berpotensi menurunkan inflamasi dan translokasi bakteri. Penelitian ini bertujuan untuk mengkaji pengaruh *Lactococcus lactis D4* dari *dadiah* terhadap mediator inflamasi pada tikus model *obstructive jaundice*. Penelitian ini menggunakan desain eksperimental laboratorik dengan *posttest only randomized control group design*. Lima belas ekor tikus galur Wistar jantan dibagi menjadi tiga kelompok: *Sham*, BDL, dan BDL + *LLD4*. Tikus dipelihara selama 7-10 hari dan diberi susu fermentasi selama 7 hari pada kelompok BDL+*LLD4*. Ekspresi *IL-6*, *IL-32*, *NF-kB*, dan α -*SMA* dianalisis menggunakan imunohistokimia. Analisis penelitian dilanjutkan dengan membandingkan ketiga kelompok. Pemberian *Lactococcus lactis D4* pada tikus dengan *bile duct ligation* menunjukkan penurunan pada ekspresi *NF-kB*, α -*SMA* dan mengalami peningkatan *IL-6* dan *IL-32* dibandingkan dengan kelompok BDL. *Lactococcus lactis D4* dari *dadiah* efektif menurunkan inflamasi dan kerusakan hepar pada tikus model *obstructive jaundice* sebagai terapi *adjuvan* untuk menurunkan morbiditas dan mortalitas pada pasien dengan *obstructive jaundice*.

Kata Kunci: *Obstructive jaundice, bile duct ligation, Lactococcus lactis D4, IL-6, IL-32, NF-Kb, α -SMA*

ABSTRACT

THE EFFECT OF LACTOCOCCUS LACTIS D4 ON THE EXPRESSION OF INTERLEUKIN-6, INTERLEUKIN 32, NUCLEAR FACTOR-KAPPAB AND SMOOTH MUSCLE ALPHA ACTIN IN A RAT MODEL OF OBSTRUCTIVE JAUNDICE

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Obstructive jaundice is a common type of jaundice with high morbidity and mortality rates. Its causes include choledocholithiasis, biliary strictures, and malignant tumors. This condition can lead to dysfunction of the reticuloendothelial system, immune suppression, and intestinal mucosal damage, contributing to endotoxemia and bacterial translocation. Probiotics, particularly those derived from dadiah, have the potential to reduce inflammation and bacterial translocation. This study aims to investigate the effects of Lactococcus lactis D4 from dadiah on inflammatory mediators in a rat model of obstructive jaundice. This laboratory experimental study employs a post-test-only randomized control group design. Fifteen male Wistar rats were divided into three groups Sham, BDL, and BDL + LLD4. The rats were maintained for 14 days and administered fermented milk for 7 days in the BDL + LLD4 group. The expression of IL-6, IL-32, NF-kB, and α -SMA was analyzed using immunohistochemistry. The study analysis continued by comparing three groups. Administration of Lactococcus lactis D4 to rats with bile duct ligation showed a decrease in the expression of NF-kB and α -SMA and an increase in IL-6 and IL-32 compared to the BDL group. Lactococcus lactis D4 from dadiah is effective in reducing inflammation and liver damage in a rat model of obstructive jaundice, suggesting its potential as an adjuvant therapy to reduce morbidity and mortality in patients with obstructive jaundice.

Keywords: *Obstructive jaundice, bile duct ligation, Lactococcus lactis D4, IL-6, IL-32, NF-kB, α -SMA.*