

RINGKASAN

Jamur merupakan salah satu bahan alami yang dikembangkan potensinya dalam dunia kesehatan dan banyak digunakan sebagai makanan fungsional, produk nutraseutikal, dan produk mikoterapi. Jamur tiram coklat (*Pleurotus cystidiosus*) diketahui memiliki kandungan senyawa bioaktif yang diduga berpotensi dalam menekan aktivitas imun yang berlebihan pada kondisi hiperglikemia melalui penghambatan siklooksigenase (COX-2) untuk mengurangi produksi mediator inflamasi seperti PGE₂, penghambatan ekspresi iNOS (*inducible Nitric Oxide Synthase*) dan penurunan produksi sitokin proinflamasi seperti IL-1 β , IL-6 dan TNF- α . Penelitian bertujuan untuk mengetahui pengaruh pemberian ekstrak etanol serbuk buah jamur tiram coklat (*P. cystidiosus*) terhadap kadar TNF- α pada tikus hiperglikemik dan mengetahui dosis efektif pemberian ekstrak etanol serbuk jamur tiram coklat (*P. cystidiosus*) dalam menurunkan kadar TNF- α pada tikus hiperglikemik yang diinduksi Streptozotocin (STZ).

Penelitian menggunakan metode eksperimental dengan rancangan penelitian Rancangan Acak Lengkap (RAL) menggunakan 6 perlakuan yaitu KS (Kontrol Sehat), KN (Kontrol Negatif), KP (Kontrol Positif/Metformin 45 mg/kg BB), serta tiga kelompok perlakuan yang diberikan ekstrak dengan dosis yang berbeda yaitu P1 (250 mg/kg BB), P2 (500 mg/kg BB), dan P3 (750 mg/kg BB). Parameter utama penelitian ini yaitu kadar TNF- α dan parameter pendukung meliputi berat badan tikus, kadar glukosa darah tikus, serta kandungan senyawa bioaktif ekstrak etanol serbuk jamur tiram coklat (*P. cystidiosus*). Data hasil pemeriksaan parameter utama dianalisis secara univariat menggunakan ANOVA dengan tingkat kesalahan 5% dan dilanjutkan *post hoc* Duncan/Duncan's Multiple Range Test (DMRT).

Hasil penelitian menunjukkan bahwa pemberian etanol serbuk *P. cystidiosus* selama 14 hari dapat menurunkan kadar TNF- α dan glukosa darah puasa tikus, serta meningkatkan berat badan tikus. Analisis ANOVA menunjukkan adanya perbedaan yang nyata ($p < 0,05$) terhadap kadar TNF- α pada tikus yang diberikan ekstrak etanol serbuk *P. cystidiosus* dibandingkan tikus kelompok Kontrol Negatif. Penurunan kadar TNF- α terbesar terjadi pada kelompok P2 (500 mg/kg BB) sehingga dapat disimpulkan bahwa dosis efektif ekstrak etanol serbuk *P. cystidiosus* dalam menurunkan kadar TNF- α yaitu 500 mg/kg BB.

Kata kunci: *Diabetes melitus, hiperglikemia, imunosupresan, jamur tiram coklat, TNF- α*

SUMMARY

Mushrooms are natural substances whose potential is being increasingly explored in the field of health, particularly as functional foods, nutraceuticals, and mycotherapeutic products. Brown oyster mushroom (*Pleurotus cystidiosus*) is known to contain bioactive compounds that are believed to suppress excessive immune activity under hyperglycemic conditions. This suppression is thought to occur through the inhibition of cyclooxygenase-2 (COX-2), reducing the production of inflammatory mediators such as prostaglandin E2 (PGE2), downregulation of inducible nitric oxide synthase (iNOS) expression, and reduction in pro-inflammatory cytokine levels, including interleukin-1 β (IL-1 β), interleukin-6 (IL-6), and tumor necrosis factor-alpha (TNF- α). This study aimed to investigate the effect of the ethanolic extract of brown oyster mushroom (*Pleurotus cystidiosus*) fruit body powder on tumor necrosis factor-alpha (TNF- α) levels in hyperglycemic rats, as well as to determine the effective dosage of the extract in reducing TNF- α levels in rats induced with Streptozotocin (STZ).

An experimental study was conducted using a Completely Randomized Design (CRD) with six treatment groups: healthy control (KS), negative control (KN), positive control (KP, administered Metformin 45 mg/kg BW), and three treatment groups receiving different doses of the extract, namely P1 (250 mg/kg BW), P2 (500 mg/kg BW), and P3 (750 mg/kg BW). The primary parameter measured was serum TNF- α concentration, while supporting parameters included body weight, fasting blood glucose levels, and the phytochemical profile of the ethanolic extract. Data for the primary parameter were analyzed univariately using Analysis of Variance (ANOVA) at a 5% significance level, followed by Duncan's Multiple Range Test (DMRT) for post hoc analysis.

The results demonstrated that administration of *P. cystidiosus* ethanolic extract for 14 days significantly reduced serum TNF- α and fasting blood glucose levels, and improved body weight in hyperglycemic rats. ANOVA results indicated a statistically significant difference ($p < 0.05$) in TNF- α levels between the extract-treated groups and the negative control. The most pronounced reduction in TNF- α levels was observed in the P2 group (500 mg/kg BW), suggesting that this dosage is the most effective for decreasing TNF- α concentrations in STZ-induced hyperglycemic rats.

Keywords: *Brown oyster mushroom, diabetes mellitus, hyperglycemia, immunosuppressant, TNF- α*