

RINGKASAN

Jamur Lingzhi (*Ganoderma lucidum*) merupakan salah satu contoh *medical mushroom* yang memiliki kandungan umum di antaranya triterpenoid, β -glucan, sterol, kumarin, mannitol, germanium organik, vitamin, flavonoid dan mineral. Agen inflamatori *Complete Freund's adjuvant* (CFA) dapat memicu aktivasi monosit dan makrofag, serta menstimulasi fagositosis dan pengeluaran sitokin. Aktivasi tersebut meningkatkan *Reactive Oxygen Species* (ROS) yang menyebabkan keadaan stres oksidatif yang ditandai dengan menurunnya enzim *Superoksida dismutase* (SOD) dan katalase (CAT). Upaya menghambat bahaya stres oksidatif dilakukan dengan pemberian senyawa antioksidan dari ekstrak etanol *G. lucidum*. Tujuan penelitian untuk mengetahui pengaruh pemberian dosis yang berbeda dan menentukan dosis ekstrak etanol *G. lucidum* yang efektif terhadap kadar SOD dan CAT darah tikus jantan galur Wistar.

Penelitian secara eksperimental dengan Rancangan Acak Lengkap yang terdiri atas 6 perlakuan yakni KS, K+, K-, P1, P2 dan P3 dengan 4 kali ulangan 1 *dropout*. Variabel bebas adalah variasi dosis pemberian ekstrak etanol *G. lucidum*, sedangkan variabel terikat adalah perubahan kadar SOD dan CAT darah tikus jantan galur Wistar yang diinduksi CFA, kemudian parameter utama adalah kadar SOD dan CAT darah tikus jantan galur Wistar yang diinduksi CFA, sedangkan parameter pendukung adalah hasil identifikasi kuantitatif *Gas Chromatography – Mass Spectroscopy* (GC-MS) senyawa bioaktif ekstrak etanol *G. lucidum*, ketebalan oedem dan volume oedem. Data hasil penelitian yang diperoleh selanjutnya dianalisis menggunakan *Analysis of Varians* (ANOVA) dengan tingkat kesalahan sebesar 5%, kemudian hasil analisis yang signifikan dilanjutkan dengan uji Duncan, serta data pendukung dianalisis dengan korelasi regresi.

Hasil penelitian menunjukkan bahwa semua dosis ekstrak *G. lucidum* menaikkan kadar SOD dan CAT darah tikus jantan galur Wistar yang diinduksi CFA. Ekstrak etanol *G. lucidum* 500 mg/Kg BB merupakan dosis paling efektif dalam menaikkan kadar SOD dan CAT darah tikus jantan galur Wistar yang diinduksi CFA dengan rerata kadar SOD sebesar $36,83 \pm 0,50 \text{ U.mL}^{-1}$ dan CAT sebesar $1,08 \pm 0,38 \text{ U.mL}^{-1}$, serta persentase peningkatan kadar SOD dan CAT yang dibandingkan kontrol sakit masing-masing sebesar 4,2% dan 38,4%.

Kata Kunci: *CFA, Ekstrak Etanol, Ganoderma lucidum, Katalase, Superoksida Dismutase*

ABSTRACT

Lingzhi mushroom (*Ganoderma lucidum*) is an example of a medical mushroom which has common ingredients including triterpenoids, β -glucan, sterols, coumarins, mannitol, organic germanium, vitamins, flavonoids and minerals. Complete Freund's adjuvant inflammatory agent (CFA) can trigger monocyte and macrophage activation, as well as stimulate phagocytosis and cytokine release. This activation increases Reactive Oxygen Species (ROS) which causes a state of oxidative stress which is characterized by a decrease in the enzymes Superoxide dismutase (SOD) and catalase (CAT). Efforts to inhibit the dangers of oxidative stress are carried out by administering antioxidant compounds from the ethanol extract of *G. lucidum*. The aim of the study was to determine the effect of different doses and determine the effective dose of *G. lucidum* ethanol extract on SOD and CAT levels in the blood of male Wistar rats.

Experimental study with completely randomized design consisting of 6 treatments namely KS, K+, K-, P1, P2 and P3 with 4 replications 1 dropout. The independent variable was the dose variation of *G. lucidum* ethanol extract, while the dependent variable was the change in blood SOD and CAT levels of male Wistar rats induced by CFA, then the main parameters were the levels of SOD and CAT in the blood of male Wistar rats induced by CFA, while the supporting parameters is the result of quantitative identification of Gas Chromatography – Mass Spectroscopy (GC-MS) bioactive compounds of the ethanol extract of *G. lucidum*, edema thickness and edema volume. The research data obtained were then analyzed using the Analysis of Variance (ANOVA) with an error rate of 5%, then the results of the significant analysis were continued with the Duncan test, and supporting data were analyzed with regression correlation.

The results showed that all doses of *G. lucidum* extract increased blood SOD and CAT levels of male Wistar rats induced by CFA. The ethanol extract of *G. lucidum* 500 mg/Kg BW was the most effective dose in increasing blood SOD and CAT levels of male Wistar rats induced by CFA with an average SOD level of 36.83 ± 0.50 U.mL⁻¹ and a CAT of 1.08 ± 0.38 U.mL⁻¹, and the percentage increase in SOD and CAT levels compared to sick controls was 4.2% and 38.4%, respectively.

Keywords: *CFA, Ethanol Extract, Ganoderma lucidum, Catalase, Superoxide Dismutase*