

**ANALISIS SAMPEL SERUM DARAH DAN JARINGAN PARU-PARU DARI
MODEL TIKUS *Accute Respiratory Distress Syndrome (ARDS)* YANG DIINDUKSI
LIPOPOLISAKARIDA DAN EKSTRAK TEH HIJAU (*Camellia sinensis* L.)**

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diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar Sarjana Sains

Program Studi Biologi



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DIINDUKSI LIPOPOLISAKARIDA DAN EKSTRAK TEH HIJAU
(*Camellia sinensis* L.)**

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Sebuah Skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Sarjana Sains pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam

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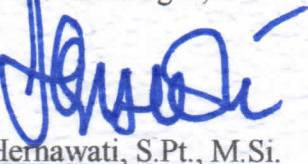
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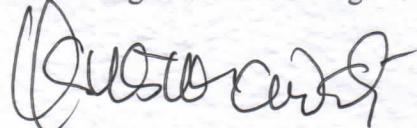


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PERNYATAAN KEASLIAN

Dengan ini saya menyatakan bahwa skripsi dengan judul “ANALISIS SAMPEL SERUM DARAH DAN JARINGAN PARU-PARU DARI MODEL TIKUS *Accute Respiratory Distress Syndrome* (ARDS) YANG DIINDUKSI LIPOPOLISAKARIDA DAN EKSTRAK TEH HIJAU (*Camellia sinensis* L.)” ini beserta seluruh isinya adalah benar-benar karya saya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung risiko/sanksi apabila di kemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

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Yang membuat pernyataan,

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Bandung, Agustus 2022

Penulis

Abdullah Rasyad Ziyad

**ANALISIS SAMPEL SERUM DARAH DAN JARINGAN PARU-PARU DARI
MODEL TIKUS *Accute Respiratory Distress Syndrom* (ARDS) YANG DIINDUKSI
LIPOPOLISAKARIDA DAN EKSTRAK TEH HIJAU (*Camellia sinensis* L.)**

ABSTRAK

Pasien dari penyakit *accute respiratory distress syndrome* (ARDS) telah diketahui mengalami inflamasi yang menyebabkan protein sitokin dihasilkan sebagai respon sel imun dalam tubuh, sitokin inflamasi seperti IL-18 dan IL-1 β . Teh hijau mengandung banyak komponen kimia berupa protein, asam amino, karbohidrat, lipid, sterol, vitamin, xanthin, mineral dan *trace element*. Polifenol yang terkandung dalam teh hijau bermacam-macam terutama flavonoid. Flavonoid merupakan turunan fenol yang memiliki fungsi beragam, salah satunya sebagai antiinflamasi. Penelitian ini bertujuan untuk mengetahui kadar sitokin IL-18 dan IL-1 β dalam serum darah dan jaringan paru-paru dari tikus model ARDS yang diinduksi lipopolisakarida dan ekstrak teh hijau. Tikus jantan Sparague Dawley diinduksi 5 μ g/g BB lipopolisakarida sebagai hewan model ARDS setelah perlakuan ekstrak teh hijau (ETH) selama 28 hari dengan variasi dosis 50;400;800 mg/kg BB dilanjutkan dengan pemberian ETH selama 14 hari, kemudian tikus dimatikan untuk mengukur kadar sitokin IL-18 dan IL-1 β dari serum darah dan jaringan paru-paru menggunakan uji ELISA lalu kemudian dilanjutkan analisis statistik untuk melihat pengaruh ETH terhadap kadar sitokin IL-18 dan IL-1 β . Konsentrasi sitokin IL-18 paling rendah ditunjukkan sebesar $90,62\pm2,76$ pg/ml dari sampel serum darah pada tikus yang diberi perlakuan ETH sebesar 400 mg/Kg BB. Konsentrasi sitokin IL-1 β sebesar $165,25\pm2,48$ pg/ml dari sampel serum darah pada tikus yang diberi perlakuan ekstrak teh hijau sebesar 800 mg/Kg BB. Sedangkan konsentrasi IL-18 pada jaringan paru-paru paling rendah sebesar $2,93\pm0,44$ pg/mg dari tikus yang diberikan dengan dosis perlakuan sebesar 400 mg/Kg BB dan pada kadar sitokin IL-1 β dari jaringan paru-paru sebesar $3,37\pm0,29$ pg/mg dari tikus yang diberikan perlakuan sebesar 800 mg/Kg BB. Dosis ETH yang paling optimum dalam menurunkan kadar IL-18 adalah dosis 400 mg/Kg BB sedangkan dosis optimum dalam menurunkan kadar pada IL-1 β adalah 800 mg/Kg BB dibandingkan dengan kelompok kontrol.

Kata Kunci: *Teh hijau, ARDS, Lipopolisakarida, Inflamasi, Sitokin*

**ANALYSIS OF BLOOD SERUM AND LUNG TISSUE SAMPLES FROM RAT
MODEL OF Acute Respiratory Distress Syndrome (ARDS) INDUCED BY
LIPOPOLYSACCHARIDE AND GREEN TEA EXTRACT (*Camellia sinensis* L.)**

ABSTRACT

Patients from acute respiratory distress syndrome (ARDS) have been known to experience inflammation that causes cytokine proteins to be produced as a response to immune cells in the body, inflammatory cytokines such as IL-18 and IL-1 β . Green tea contains many chemical components in the form of proteins, amino acids, carbohydrates, lipids, sterols, vitamins, xanthin, minerals and trace elements. The polyphenols contained in green tea are assorted mainly flavonoids. Flavonoids are phenol derivatives that have various functions, one of which is as an anti-inflammatory. This study aimed to determine the levels of cytokines IL-18 and IL-1 β in blood serum and lung tissue from lipopolysaccharide-induced ARDS model mice and green tea extract. Male rat spargue Dawley induced 5 μ g/g BW lipopolysaccharide as an ARDS model animal after green tea extract (GTE) treatment for 28 days with dose variations of 50;400;800 mg/kg BW. The extract was continued for 14 days, then the rat were turned off to measure cytokine levels of IL-18 and IL-1 β from blood serum and lung tissue using elisa tests and then continued statistical analysis. The lowest concentration of IL-18 cytokines was shown at 90.62 ± 2.76 pg/ml from blood serum samples in mice treated with GTE of 400 mg/Kg BW. The concentration of cytokine IL-1 β was 165.25 ± 2.48 pg/ml from blood serum samples in rats treated with green tea extract of 800 mg/Kg BW. Meanwhile, the concentration of IL-18 in lung tissue was the lowest at 2.93 ± 0.44 pg / mg from rats given with a treatment dose of 400 mg / Kg BW and at cytokine levels of IL-1 β from lung tissue of 3.37 ± 0.29 pg / mg from mice given treatment of 800 mg / Kg BW. The most optimal dose of ETH at IL-18 was a dose of 400 mg/Kg BB and at IL-1 β was 800 mg/Kg BB compared to the control group.

Keywords: *Green tea, ARDS, Lipopolysaccharide, Inflammation, Cytokines*

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