EFEK PEMBERIAN EKSTRAK JAMBU BIJI (*Psidium guajava*) TERHADAP KADAR SITOKIN IL-12 DAN IL-18 PADA TIKUS PUTIH JANTAN (*Rattus norvegicus*)

SKRIPSI

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SURAT PERNYATAAN

Dengan ini saya menyatakan bahwa skripsi dengan judul "Efek Pemberian Ekstrak Jambu Biji (*Psidium guajava*) Terhadap Kadar Sitokin IL-12 Dan IL-18 Pada Tikus Putih Jantan (*Rattus norvegicus*)" ini beserta seluruh isinya adalah benar-benar karya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku. Atas pernyataan ini, saya siap menanggung resiko apabila dikemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya ini.

Bandung, Juni 2022

Yang membuat pernyataan,

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ABSTRAK

Jambu biji (*Psidium guajava*) merupakan salah satu tanaman obat yang kandungan kuersetinnya diindikasikan dapat memberikan efek terhadap kadar sitokin. Sitokin pro-inflamasi IL-12 dan IL-18 sering ditemukan tinggi pada penyakit ARDS. Penelitian ini bertujuan untuk mengetahui efek pemberian ekstrak buah jambu biji terhadap kadar sitokin IL-12 dan IL-18 pada tikus putih jantan (*Rattus norvegicus*). Tikus jantan *Sprague-Dawley* diberi injeksi lipopolisakarida (LPS) dengan dosis 5µg/g BB sebagai induksi produksi sitokin untuk kontrol positif. Tiga variasi dosis ekstrak jambu biji yang diberikan adalah 50; 400; atau 800 mg/kg BB + Induksi LPS untuk kelompok perlakuan. Kadar sitokin dalam sampel serum darah dan jaringan paru diukur menggunakan *ELISA Sandwich*. Data dianalisis secara statistik dengan *One Way Anova* dilanjutkan dengan uji *Post Hoc Tukey HSD* ($p<0,05$). Hasil penelitian menujukkan bahwa tiga dosis pemberian ekstrak buah jambu biji secara signifikan memberikan efek terhadap kadar sitokin IL-12 dan IL-18 pada kedua sampel ($p<0,05$). Kadar sitokin IL-12 paling rendah ditemukan pada dosis 800 mg/Kg BB sebesar 102,88 pg/ml (serum darah) dan 2,35 pg/mg (jaringan paru-paru) dibandingkan dengan kontrol positif. Kadar sitokin IL-18 yang rendah terdapat pada dosis 400 mg/Kg BB sebesar 93,09 pg/ml (sampel darah) dan 2,81 pg/mg (jaringan paru-paru) dibandingkan dengan kontrol positif. Dapat disimpulkan bahwa terdapat efek pemberian ekstrak buah jambu biji terhadap sitokin IL-12 dan IL-18 yang ditunjukkan oleh rendahnya kadar sitokin pada serum darah maupun jaringan paru-paru dibandingkan dengan kontrol positif.

Kata Kunci: Jambu Biji, Inflamasi, Sitokin Proinflamasi, IL-12 dan IL-18.

ABSTRACT

The Effect of Guava fruit Extract on Levels of IL-12 and IL-18 in White Male Rats (Rattus norvegicus)

Guava (Psidium guajava) is one of the medicinal plants whose quercetin content is indicated to affect cytokine levels. The pro-inflammatory cytokines IL-12 and IL-18 are often found to be high in ARDS. This study aims to determine the effect of guava fruit extract on the levels of IL-12 and IL-18 cytokines in male white rats. Sprague-Dawley male rats were given lipopolysaccharide (LPS) injection at a dose of 5µg/g BW to induce the cytokine production for positive control group. The three doses of guava extract given were 50; 400; or 800 mg/kg BW + LPS induction for treatment group. Cytokine levels in blood serum and lung tissue were measured using Sandwich ELISA. Data were analyzed statistically by One Way Anova followed by Post Hoc Tukey HSD test ($p<0.05$). The results showed that three doses of guava fruit extract significantly affected the levels of IL-12 and IL-18 cytokines in both samples ($p<0.05$). The lowest levels of IL-12 cytokines were found at a dose of 800 mg/KgBW with a difference of 102,88 pg/ml (blood serum) and 2.35 pg/mg (lung tissue) compared to positive controls. The lower levels of IL-18 cytokines were found at a dose of 400 mg/KgBW with a difference of 93,09 pg/ml (blood samples) and 2.81 pg/mg (lung tissue) compared to positive controls. It can be concluded that there is an effect of giving guava fruit extract on IL-12 and IL-18 cytokines which is indicated by lower levels of cytokines in blood serum and lung tissue compared to positive controls.

Keywords: Guava fruit, Inflammation, Proinflammatory Cytokine, IL-12 and IL-18.

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