

ABSTRAK

EFEK PERASAN KULIT BATANG PULE (*Alstonia scholaris* (L.) R. Br.) TERHADAP GAMBARAN LEUKOSIT TIKUS WISTAR (*Rattus norvegicus*) YANG DIINDUKSI STREPTOZOTOCIN

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Pule (*Alstonia scholaris* (L.) R. Br.) merupakan salah satu tanaman yang secara empiris sering digunakan untuk pengobatan berbagai penyakit, di antaranya diabetes melitus dan digunakan untuk meningkatkan sistem imun. Kulit batang Pule memiliki kandungan seperti flavonoid, antioksidan, quercetin, saponin, tanin dan berbagai senyawa lainnya. Senyawa-senyawa ini diketahui memiliki aktivitas antibakteri, antihistamin dan imunomodulator. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian perasan kulit batang Pule (*Alstonia scholaris* (L.) R. Br.) terhadap gambaran leukosit tikus Wistar yang diinduksi streptozotocin.

Penelitian menggunakan 25 ekor tikus Wistar jantan dengan umur 4 bulan dan berat rata-rata 180-220 gram yang dibagi menjadi lima kelompok. Kelompok I diinduksi STZ dan diberi perlakuan berupa perasan kulit batang Pule dosis 18 mg/200 g BB/hari PO. Kelompok III diinduksi STZ dan diberi perlakuan berupa akuades. Kelompok IV adalah tikus sehat yang diberi perasan kulit batang Pule dosis 18 mg/200 g BB/hari PO dan Kelompok V adalah tikus sehat yang diberi akuades. Penelitian dilakukan selama 28 hari dan pemeriksaan darah dilakukan pada hari ke-28 untuk menghitung total leukosit dan diferensial leukosit (sel neutrofil, sel eosinofil, sel basofil, limfosit dan monosit). Hasil data dianalisis menggunakan uji *one way ANOVA* dan *multiple comparisons LSD* menggunakan SPSS dengan tingkat signifikansi 95%.

Perasan kulit batang Pule memiliki potensi untuk meningkatkan nilai leukosit, tetapi pada hasil penelitian menunjukkan bahwa perasan kulit batang Pule memiliki efek menurunkan nilai leukosit ($p\text{-value} < 0,05$) bila diberikan dalam jangka waktu yang lama (28 hari). Berdasarkan gambaran leukosit, tikus Kelompok III (tikus diabetes yang di terapi dengan placebo) mengalami leukopenia, neutropenia, limfopenia dan monositosis dan pada tikus Kelompok I (tikus diabetes yang di terapi dengan perasan kulit batang Pule 18 mg/200 g BB/hari PO) mengalami leukopenia, neutropenia dan limfopenia. Disimpulkan bahwa pemberian perasan kulit batang Pule belum mampu meningkatkan imunitas tikus diabetes.

Kata kunci: *Alstonia scholaris*, tikus Wistar, diabetes melitus, streptozotocin leukosit, imunomodulator

ABSTRACT

THE EFFECT OF DEVIL'S TREE BARK (*Alstonia scholaris* (L.) R. Br.) EXTRACT TOWARDS LEUCOGRAM OF STREPTOZOTOCIN-INDUCED IN WISTAR RATS (*Rattus norvegicus*)

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Devil's tree (*Alstonia scholaris* (L.) R. Br.) has been used empirically to treat the other disease such as diabetes mellitus and is known to boost immunity system. Devil's tree has a variety of useful compounds such as flavonoids, antioxidant, quercetin, saponin, tannin, and many other compounds. The compounds have been known to antibacterial, antihistamines, and immunomodulatory activities. This research was conducted in order to know the effect of the devil's tree bark extract (*Alstonia scholaris* (L.) R. Br.) towards leucogram of streptozotocin-induced in Wistar rats.

This research used 25 male Wistar rats, age 4 months with body weight 180-220 grams, were divided into five groups with five rats for each group. Group I was injected with streptozotocin and was treated with the devil's tree bark extract 18 mg/200 g BW/day PO, Group III was also given streptozotocin but given the treated with placebo. Group IV was healthy rats that were given the devil's tree bark extract 18 mg/200 g BW/day PO, and Group V as the control group was treated with placebo. The research was conducted for 28 days and the blood tests were performed on the 28th day then the total leucocytes count and differentials of leucocytes (neutrophils, eosinophils, basophils, lymphocytes, and monocytes) were calculated. The data of research were analyzed with one-way ANOVA and multiple comparisons LSD methods using SPSS with 95% significance value.

Devil's tree bark extract had the potency to increase the leucocytes levels in diabetic rats, but in the results showed that devil's tree bark extract had an effect to decrease leucocytes levels ($p\text{-value} < 0,05$) do to give in a long time (28 days). Based on leucogram observation, there were also leucopenia, neutropenia, lymphopenia and monocytosis in Group III rats (diabetic rats and given the treated with placebo) and in Group I rats (diabetic rats and was treated with the devil's tree bark extract 18 mg/200 g BW/day PO) was found leucopenia, neutropenia, and lymphopenia. This research concluded that devil's tree bark extract is not able to improve the immune system in diabetic rats.

Keywords: *Alstonia scholaris*, Wistar rats, diabetes mellitus, leucocytes, immunomodulatory, streptozotocin