

ABSTRAK

Efek Perasan Kulit Batang Pule (*Alstonia scholaris* (L) R. Br.) terhadap Gambaran Eritrosit Tikus Wistar (*Rattus norvegicus*) yang Diinduksi Streptozotocin (STZ)

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Diabetes merupakan sebuah penyakit di mana kadar glukosa darah melebihi batas normal karena tubuh tidak dapat melepaskan atau menggunakan insulin secara cukup. Penyakit ini berbahaya karena dapat menimbulkan kerusakan pada berbagai organ tubuh tetapi penderitanya baru menyadari setelah terjadi komplikasi sehingga penanganannya terlambat.

Penelitian ini bertujuan untuk mengetahui pengaruh pemberian perasan kulit batang Pule (*Alstonia scholaris* (L) R. Br.) terhadap gambaran eritrosit tikus Wistar (*Rattus norvegicus*) jantan yang diinduksi streptozotocin (STZ). Sebanyak 25 ekor tikus Wistar jantan umur 4 bulan dengan berat 180-220 gram dibagi menjadi lima kelompok. Kelompok I diinduksi streptozotocin dan diberi perasan kulit batang Pule dosis 18 mg/200 g BB/hari PO. Kelompok II diinduksi streptozotocin dan diberi perasan kulit batang Pule dosis 18 mg/200 g BB/hari PO dan dibunuh tiap empat hari untuk diamati preparat histopatologinya. Kelompok III diinduksi streptozotocin dan diberi akuades. Kelompok IV adalah tikus normal dengan pemberian perasan kulit batang Pule dosis 18 mg/200 g BB/hari PO dan Kelompok V adalah tikus normal yang diberi akuades. Penelitian dilakukan selama 28 hari dan pemeriksaan yang dilakukan pada hari ke-28 meliputi perhitungan total eritrosit, Hb, PCV, TPP, fibrinogen, MCV, MCH, dan MCHC serta hasilnya dianalisis secara statistik dengan metode *one way ANOVA* dan *multiple comparisons LSD* menggunakan SPSS.

Hasil penelitian menunjukkan bahwa tanaman Pule memiliki potensi meningkatkan MCV dan MCH ($p\text{-value} < 0,05$) serta adanya menurunkan total eritrosit (anemia) bila Pule diberikan dalam jangka waktu yang lama. Gambaran darah tikus yang diberi Pule menunjukkan adanya skistosit pada tikus Kelompok IV (tikus normal) serta sel target, makrosit, dan mikrosit pada tikus Kelompok I (tikus diabetes). Hasil penelitian ini masih perlu dievaluasi lebih lanjut mengenai kandungan Pule yang secara spesifik dapat memengaruhi gambaran darah pada individu sehat.

Kata kunci: Pule, tikus Wistar, eritrosit, diabetes melitus, pemeriksaan hematologik, Streptozotocin

ABSTRACT

The Effect of Devil's Tree Bark Extract (*Alstonia scholaris* (L) R. Br.) on the Erythrocytes of Streptozotocin-Induced Wistar Rats (*Rattus norvegicus*)

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Diabetes is a disease where the blood glucose level is above normal because the body cannot release or use enough insulin. Diabetes can damage the visceral organs but the patient usually does not realize that he/she has diabetes. This can lead to complications before the diabetes itself is recognized.

This research was conducted in order to know the effect of devil's tree bark extract (*Alstonia scholaris* (L) R. Br.) on the erythrocytes of streptozotocin-induced male Wistar rats (*Rattus norvegicus*). 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 treated with streptozotocin and given the devil's tree bark extract 18 mg/200 kg BW/day PO, Group II was given the same treatment as Group I but every four days was killed randomly and the liver, kidneys and pancreas were taken for histopathological inspection, Group III was also given streptozotocin but with placebo, Group IV was healthy rats that were given the devil's tree bark extract 18 mg/200 kg BW/day PO, and Group V as control group was treated with placebo. The research was conducted for 28 days and the blood tests were performed on the 28th day. The blood tests were erythrocytes count, measure of hemoglobin, packed cell volume, total plasma protein, fibrinogen, mean corpuscular volume, mean corpuscular hemoglobin and mean corpuscular hemoglobin concentration. The results were statistically analyzed with one way ANOVA and multiple comparisons LSD methods using SPSS.

The results were that the devil's tree bark extract gave the effect of increasing MCV and MCH (p-value<0,05) and lowered the erythrocytes count or causing anemia due to devil's tree bark extract given in a long time. Based on the blood smear observation, there were also schistocytes in Group IV rats' blood smear which were the healthy rats group treated with the devil's tree bark extract and in Group I rats was found target cells, macrocytes and microcytes. This result needs to be evaluated again so that we know the specific contents of the devil's tree bark extract that cause MCV and MCH increase in healthy individuals.

Keywords: devil's tree, Wistar rats, erythrocytes, diabetes mellitus, hematologic test, Streptozotocin