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PENGARUH EKSTRAK DAUN ASAM JAWA *(Tamarindus indica L)* TERHADAP JUMLAH TOTAL SPERMA TIKUS PUTIH *(Rattus norvegicus)* JANTAN DIABETIK YANG DIINDUKSI ALOKSAN

ABSTRAK

Penelitian ini dirancang untuk menilai efek pemberian ekstrak daun asam jawa (Tamarindus indica L.) terhadap jumlah total spermatozoa pada tikus putih jantan (Rattus norvegicus) yang diinduksi diabetes melitus menggunakan aloksan. Diabetes melitus dikenal dapat menimbulkan gangguan pada fungsi reproduksi pria, termasuk menurunnya kualitas dan kuantitas sperma. Ekstrak daun asam jawa memiliki sifat antioksidan yang berpotensi melindungi sel dari kerusakan oksidatif. Metode yang diterapkan adalah penelitian eksperimental dengan rancangan post-test only control group. Sebanyak 30 ekor tikus jantan galur Wistar berusia 10–12 minggu dibagi secara acak ke dalam lima kelompok: satu kelompok kontrol negatif, satu kelompok kontrol positif, dan tiga kelompok perlakuan yang masing-masing menerima ekstrak daun asam jawa pada dosis berbeda. Setelah perlakuan selama 38 hari, jumlah total spermatozoa dianalisis menggunakan mikroskop. Hasil penelitian menunjukkan bahwa tikus yang menerima ekstrak daun asam jawa memperlihatkan peningkatan signifikan pada jumlah total sperma dibandingkan dengan kelompok kontrol. Analisis statistik menggunakan One-Way ANOVA menghasilkan nilai $p < 0,05$, menandakan perbedaan bermakna antar kelompok. Dosis optimal tercatat pada kelompok yang menerima 150 mg/kgBB, di mana peningkatan jumlah sperma paling tinggi diamati jika dibandingkan dengan kelompok kontrol.

Kata kunci : Antioksidan, Diabetes Melitus, Ekstrak Daun Asam Jawa, umlah total Spermatozoa tikus jantan diabetik

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EFFECT OF TAMARIND LEAF EXTRACT (Tamarindus indica L) ON TOTAL SPERM COUNT OF MALE WHITE RATS (Rattus norvegicus) INDUCED BY ALOXAN

ABSTRACT

Article: Reduction in Percentage of Total Abnormal Sperm Count in Diabetic Rats with Administration of Tamarind Leaf Extract

Abstract This study aims to observe the effect of tamarind leaf extract (Tamarindus indica) on the decrease in the percentage of abnormal total sperm count in diabetic-induced rats. Diabetes mellitus is known to interfere with sperm quality, so finding alternative solutions through herbal treatment is the main focus. The results of this study showed that the administration of tamarind leaf extract could significantly reduce the number of abnormal sperm in diabetic rats.

Introduction Diabetes mellitus is a chronic disease that has various complications, including impaired reproductive function in men. Long-lasting hyperglycemia can lead to an increase in spermatogenesis abnormalities. This study was conducted to explore the potential of tamarind leaf extract as an alternative treatment to reduce abnormal sperm count in diabetic rats.

Methodology This study uses mice as experimental animals that induce diabetes with aloxan. The mice were divided into several groups, including the control group, the diabetic group without treatment, and the diabetic group given tamarind leaf extract. The administration of the extract was carried out daily for a certain period, and at the end of the study, sperm samples from each group were analyzed to measure abnormal sperm count.

Results of the study The results of the analysis showed that the diabetic rat group that was given tamarind leaf extract experienced a significant decrease in the percentage of abnormal total sperm count compared to the diabetic group without treatment. This decrease indicates that tamarind leaf extract has the potential to improve sperm quality in the condition of diabetes mellitus.

Discussion The decrease in abnormal sperm count in diabetic rats given tamarind leaf extract can be caused by the active content in tamarind leaves which has

antioxidant and anti-inflammatory effects. This mechanism helps reduce oxidative and inflammatory damage that occurs to testicular tissue due to hyperglycemia.

Conclusion This study shows that tamarind leaf extract has the potential as an alternative treatment to improve sperm quality in men suffering from diabetes. Further studies are needed to identify the specific active components and mechanisms of action involved in these effects.

Keywords : Sperm. Tamarindus indica L