

**FAKULTAS KEDOKTERAN
UNIVERSITAS PEMBANGUNAN NASIONAL “VETERAN” JAKARTA**

Tugas Akhir, Desember 2025

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**PENGARUH EKSTRAK BONGGOL NANAS (*Ananas comosus* (L.) Merr.)
TERHADAP MORFOLOGI SPERMATOZOA TIKUS DIABETIK GALUR WISTAR
(*Rattus norvegicus*) YANG DIINDUKSI ALOKSAN**

RINCIAN HALAMAN (XVII + 96 halaman, 11 tabel, 8 gambar, 8 lampiran)

ABSTRAK

Tujuan

Diabetes melitus diketahui dapat menurunkan kualitas spermatogenesis, salah satunya melalui perubahan morfologi spermatozoa. Kandungan berbagai zat aktif antioksidan di dalam bagian bonggol nanas (*Ananas comosus* (L.) Merr.) diyakini mampu memulihkan sel-sel yang mengalami kerusakan akibat paparan stress oksidatif akibat diabetes melitus. Melalui penelitian ini, penulis bermaksud mengetahui morfologi spermatozoa dari subjek tikus jantan Wistar kondisi diabetik hasil paparan aloksan, sekaligus menguji efektivitas dari pemberian ekstrak bonggol nanas terhadap perbaikan morfologi spermatozoa.

Metode

Penelitian ini menggunakan desain eksperimental dengan metode *post-test only control group*. Subjek yang digunakan berupa tikus jantan galur Wistar yang diinduksi diabetes menggunakan aloksan, kemudian dibagi menjadi kelompok kontrol dan kelompok perlakuan yang diberikan ekstrak bonggol nanas dengan konsentrasi 50%, 75%, dan 100% sebanyak 1 mL per hari. Setiap kelompok terdiri dari 5 ekor tikus, dengan 1 subjek sebagai drop out. Pengamatan morfologi spermatozoa dilakukan dengan menilai persentase morfologi normal dan abnormal berdasarkan kriteria WHO 2021. Analisis data dilakukan menggunakan *Shapiro–Wilk*, dan hasil yang didapatkan data tidak terdistribusi normal, sehingga uji statistik dilanjutkan dengan uji nonparametrik *Kruskal–Wallis*.

Hasil

Dari penelitian ini diperoleh hasil bahwa pemberian ekstrak bonggol nanas pada tikus diabetik galur Wistar menunjukkan peningkatan persentase morfologi spermatozoa normal dibandingkan kelompok kontrol. Meskipun peningkatan tersebut tidak signifikan secara statistik ($p > 0,05$), terdapat kecenderungan peningkatan morfologi spermatozoa normal seiring dengan peningkatan konsentrasi ekstrak, dengan dosis 100% menunjukkan hasil terbaik.

Kesimpulan

Berdasarkan penelitian ini, dapat disimpulkan hasilnya bahwa pemberian ekstrak bonggol nanas cenderung memperbaiki morfologi spermatozoa pada tikus diabetik galur Wistar yang diinduksi aloksan, meskipun tidak signifikan secara statistik. Dosis 100% merupakan dosis yang memberikan hasil perbaikan morfologi spermatozoa paling optimal.

Daftar Pustaka : 41 (1989-2025)

Kata Kunci : Aloksan, Bonggol nanas, Diabetes Melitus, Morfologi spermatozoa, Tikus Wistar

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Final project, December 2025

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EFFECT OF PINEAPPLE HUMP EXTRACT (*Ananas comosus* (L.) Merr.) ON THE MORPHOLOGY OF DIABETIC RATS OF WISTAR STRAIN (*Rattus norvegicus*) INDUCED ALOXAN

PAGE DETAILS (XVII + 96 pages, 11 tables, 8 pictures, 8 appendices)

ABSTRACT

Purpose

*Diabetes mellitus is recognized for its capacity to impair the quality of spermatogenesis, specifically through alterations in spermatozoa morphology. Pineapple core (*Ananas comosus* (L.) Merr.) is known to contain antioxidant compounds with the potential to regenerate cells damaged by oxidative stress. This study aims to investigate the spermatozoa morphology of Alloxan-induced diabetic Wistar rats and to evaluate the efficacy and optimal dosage of pineapple core extract in improving spermatozoa morphology.*

Method

This study employed an experimental design with a post-test only control group method. The subjects consisted of male Wistar rats induced with diabetes using alloxan, which were subsequently divided into control and treatment groups. The treatment groups received pineapple core extract at concentrations of 50%, 75%, and 100%, administered at a dosage of 1 mL per day. Each group comprised five rats, with one subject accounted for as a dropout. Spermatozoa morphology was evaluated by assessing the percentage of normal and abnormal morphology based on the WHO 2021 criteria. Data analysis was performed using the Shapiro–Wilk test; as the results indicated that the data were not normally distributed, the statistical analysis proceeded with the Kruskal–Wallis non-parametric test.

Results

The findings of this study revealed that the administration of pineapple core extract to diabetic Wistar rats resulted in an increase in the percentage of normal spermatozoa morphology compared to the control group. Although the increase was not statistically significant ($p > 0.05$), a positive trend was observed in the improvement of normal spermatozoa morphology corresponding to the increase in extract concentration, with the 100% concentration yielding the most optimal results..

Conclusion

In conclusion, the administration of pineapple core extract demonstrates a tendency to improve spermatozoa morphology in alloxan-induced diabetic Wistar rats, although the results were not statistically significant. A concentration of 100% was found to be the most optimal dosage for enhancing spermatozoa morphology.

Bibliography : 41 (1989-2025)

Keywords : Alox, Pineapple hump, Diabetes Mellitus, Spermatozoa morphology, Wistar rat