

**FAKULTAS KEDOKTERAN
UNIVERSITAS PEMBANGUNAN NASIONAL VETERAN JAKARTA**

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ARFIAN AKBAR YUDHAWASTU KURNIAWAN, NIM 2210211208
**PENGARUH PEMBERIAN EKSTRAK BUAH BLUEBERRY (*Vaccinium*
spp.) TERHADAP HISTOPATOLOGI GINJAL PADA TIKUS DENGAN**
PEMBERIAN PAKAN TINGGI LIPID DAN ALOKSAN
RINCIAN HALAMAN (xvi + 109 halaman, 13 tabel, 14 gambar, 11 lampiran)

ABSTRAK

Diabetes melitus adalah penyakit metabolik kronis yang menginduksi radikal bebas yang menyebabkan komplikasi kronis, seperti nefropati diabetik yang ditandai dengan kerusakan struktural pada histopatologi ginjal. Terapi alternatif dengan blueberry (*Vaccinium spp.*) mengandung antioksidan flavonoid yang kuat, meningkatkan sensitivitas insulin dan antidislipidemia. Penelitian ini bertujuan untuk mengetahui histopatologi ginjal dari pemberian ekstrak blueberry pada model tikus diabetes Sprague-Dawley. Metode penelitian ini adalah eksperimen laboratorium dengan desain kelompok kontrol post-test saja, dengan sampel 24 ekor tikus Sprague-Dawley jantan putih, berumur 2-3 bulan dan berat 200-250 gram, diambil dari Peternakan Padjajaran, Bandung dengan pengambilan sampel acak sederhana. Tikus dibagi menjadi enam kelompok: 1. kontrol normal, 2. kontrol negatif, 3. kontrol positif, 4. 5. 6 kelompok perlakuan blueberry (125; 250; 500 mg/kgBW). Pakan tinggi lemak diberikan selama 28 hari dan induksi aloksan, setelah 72 jam kadar glukosa darah puasa diperiksa menggunakan glukometer. Perawatan diberikan selama 14 hari. Tikus dibius dengan ketamin xilazin, dan ginjal diambil untuk preparasi histopatologi menggunakan pewarnaan hematoksin eosin. Penilaian histopatologi ginjal menggunakan skor Interstitial Fibrosis Tubular Atrophy (IFTA) dan peradangan interstitial. Terjadi penurunan kadar glukosa darah puasa setelah perawatan. Uji Kruskal–Wallis menunjukkan perbaikan histopatologi ginjal dari pemberian ekstrak etanol blueberry ($p = 0,004$), diikuti oleh uji post hoc Mann–Whitney yang menunjukkan bahwa pemberian ekstrak blueberry dengan dosis 500 mg/kgBW paling efektif dalam memperbaiki histopatologi ginjal, mendekati metformin. Blueberry memiliki aktivitas antioksidan, antiinflamasi, dan antihiperglikemik.

Daftar Pustaka : 84

Kata Kunci : Diabetes Melitus, Nefropati Diabetik, Ekstrak Blueberry, Histopatologi Ginjal, Aloksan

**FACULTY OF MEDICINE
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Undergraduate Thesis, February 2026

**ARFIAN AKBAR YUDHAWASTU KURNIAWAN, NIM 2210211208
THE EFFECT OF BLUEBERRY (*Vaccinium spp.*) FRUIT EXTRACT ON
KIDNEY HISTOPATHOLOGY IN RATS FEEDING HIGH LIPID AND
ALLOXAN FEEDING**

PAGE DETAIL (xvi + 109 pages, 13 tables, 14 pictures, 11 appendices)

ABSTRACT

Diabetes mellitus is a chronic metabolic disease that induces free radicals causing chronic complications, such as diabetic nephropathy characterized by structural damage in the kidney histopathology. Alternative therapy with blueberries (*Vaccinium spp.*) contains strong flavonoid antioxidants, increases insulin sensitivity and antidyslipidemia. This study aims to determine the kidney histopathology of the administration of blueberry extract in diabetic model Sprague-Dawley rats. This research method is a laboratory experiment with a post-test only control group design, with a sample of 24 white male Sprague Dawley rats, aged 2-3 months and weighing 200-250 gram, taken from the Padjajaran Farm, Bandung by simple random sampling. The rats were divided into six groups: 1. normal control, 2. negative control, 3. positive control, 4.5.6 Blueberry treatment groups (125; 250; 500 mg/kgBW). High-fat feed was given for 28 days and alloxan induction, after 72 hours fasting blood glucose was checked using a glucometer. Treatment was given for 14 days. The mice were anesthetized with ketamine Xylazine, and the kidneys were taken for histopathological preparation using Hematoxylin eosin staining. Kidney histopathology assessment used the Interstitial Fibrosis Tubular Atrophy (IFTA) score and interstitial inflammation. There was a decrease in fasting blood glucose levels after treatment. The Kruskal–Wallis test showed an improvement in the kidney histopathology from the administration of Blueberry ethanol extract ($p = 0.004$), followed by the Mann–Whitney post hoc test showing that the administration of blueberry extract at a dose of 500 mg/kgBW was the most effective in improving the kidney histopathology, approaching metformin. Blueberries have antioxidant, anti-inflammatory, and antihyperglycemic activities.

References : 84

Keywords : *Diabetes Mellitus, Diabetic Nephropathy, Blueberry, Renal Histopathology, Alloxan*