

**PERBEDAAN JUMLAH SEL TUBULUS GINJAL NEKROSIS ANTARA
YANG MENDAPAT EKSTRAK METANOL DAGING BUAH MAHKOTA
DEWA (*Phaleria macrocarpa*) DENGAN VITAMIN E
Studi Eksperimental pada Tikus Model Diabetes Melitus Tipe 2**

Intisari

Latar belakang: Diabetes Melitus (DM) adalah kelainan metabolik yang menjadi penyebab ketujuh kematian terbanyak di dunia yang didominasi oleh DM tipe 2 (DMT2). Kondisi DMT2 kronis dapat menyebabkan nefropati diabetik. Ekstrak metanol daging buah *Phaleria macrocarpa* (PM) telah menunjukkan efek menguntungkan pada nefropati diabetik.

Tujuan: Mengetahui perbedaan jumlah sel tubulus ginjal nekrosis antara yang mendapat PM dengan vitamin E pada tikus model DMT2.

Metode: Desain penelitian ini adalah eksperimental dengan *post test only-control group*. Dua puluh blok parafin ginjal kanan tikus putih dibagi dalam 4 kelompok sejumlah sesuai perlakuan sondase yaitu kelompok kontrol tikus sehat (K1) dan kontrol tikus DMT2 (K2), kelompok tikus DMT2 yang mendapat 250 mg/KgBB PM (P1), dan kelompok tikus DMT2 yang mendapat 100 mg/KgBB vitamin E (P2). Tikus DMT2 diinduksi dengan nikotinamid dan streptozotosin secara intraperitoneal. Setelah 6 minggu perlakuan, sel tubulus ginjal nekrosis dihitung secara mikroskopis sebagai parameter nefropati diabetik.

Hasil: Kelompok P1 ($142,2 \pm 7,69$) dan P2 ($265,6 \pm 7,92$) memiliki rerata jumlah sel tubulus ginjal nekrosis lebih sedikit dibandingkan kelompok K2 ($460,2 \pm 12,09$) ($p < 0,05$), meskipun kelompok P1 dan P2 memiliki rerata jumlah sel tubulus ginjal lebih banyak dibandingkan kelompok K1 ($91,8 \pm 8,56$) ($p < 0,05$). Rerata jumlah sel tubulus ginjal nekrosis kelompok P1 lebih sedikit dibandingkan kelompok P2 ($p < 0,05$).

Kesimpulan: Terdapat perbedaan jumlah sel tubulus ginjal antara yang mendapat PM dengan vitamin E pada tikus model DMT2.

Kata kunci: DM tipe 2, jumlah sel tubulus ginjal nekrosis, *Phaleria macrocarpa*, nefropati diabetik.

**NECROTIC KIDNEY TUBULAR CELLS COUNT DIFFERENCE
BETWEEN TREATMENT WITH METHANOLIC EXTRACT OF *Phaleria
macrocarpa*'s MESOCARP AND VITAMIN E
Experimental Study on Type 2 Diabetes Mellitus Rat Model**

Abstract

Background: Diabetes Mellitus (DM) is a metabolic disorder which lead to seventh cause of death in worldwide and dominated by type 2 diabetes mellitus (T2DM). Chronic T2DM state could cause diabetic nephropathy. Methanolic extract of *Phaleria macrocarpa*'s mesocarp (PM) has been shown beneficial effect on diabetic nephropathy.

Objective: To determine necrotic kidney tubular cells count difference between treatment with PM and vitamin E treatment in T2DM animal model.

Methods: The design of study was experimental study with post test only-control group. Twenty paraffin block of right kidney of albino male rats were divided into four groups equally according to the sondage treatment, healthy control rats (K1) and T2DM control rats (K2), T2DM rats which were treated by 250 mg/Kg of PM (P1), and T2DM rats which were treated by 100 mg/Kg of vitamin E (P2). T2DM rats were induced by nicotinamide and streptozotocin intraperitoneally. After six weeks of treatments, necrotic kidney tubular cells count were counted histologically as diabetic nephropathy parameter.

Result: P1 group (142.2 ± 7.69) and P2 group (265.6 ± 7.92) had lower of necrotic kidney tubular cells count mean compared to K2 group ($460,2 \pm 12,09$) ($p < 0.05$). Although P1 group and P2 group had higher of necrotic kidney tubular cells count mean compared to K1 (91.8 ± 8.56) ($p < 0.05$). P1 group had higher of necrotic kidney tubular cells mean compared to P2 group ($p < 0.05$).

Conclusion: There is difference of necrotic kidney tubular cells count between treatment with PM and vitamin E in T2DM animal model.

Keywords: T2DM, diabetic nephropathy, *Phaleria macrocarpa*, total kidney's necrotic tubular cells.