Pengaruh Ekstrak Etanol Daun Annona Muricata terhadap Perubahan Morfologi Ginjal dari Mencit Galur Swiss Webster yang diinduksi dengan Aloksan = The Effect of Annona Muricata Leaves Ethanol Extract on The Morphological Changes of Alloxan-Induced Swiss Webster Mice’s Kidney

Mutiara Intan Permata Sari, author

Abstrak

Pendahuluan: Diabetes melitus (DM) merupakan gangguan metabolik kronik yang ditandai dengan hiperglikemia. Salah satu komplikasi DM adalah disfungsi ginjal. Daun sirsak (Annona muricata) memiliki potensi sebagai antidiabetes. Namun, belum ada penelitian mengenai ekstrak etanol daun Annona muricata terhadap morfologi ginjal terutama terkait proliferasi dan pertumbuhan dari sel mesangial glomerulus, ruang Bowman, dan tubulus kontortus proksimal. Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak etanol daun Annona muricata terhadap perubahan histopatologi ginjal dari mencit Swiss Webster yang diinduksi Aloksan. Metode: Penelitian ini menggunakan studi eksperimental in vivo. Sampel penelitian berasal dari organ ginjal 30 ekor mencit jantan galur Swiss Webster yang diinduksi aloksan. Sampel dibagi menjadi kelompok kontrol negatif, kontrol positif, dan 3 kelompok perlakuan yang diberikan ekstrak etanol daun sirsak (EEDS) dengan masing-masing dosis 150, 300, dan 600 mg/kgBB selama 14 hari. Semua sampel preparat jaringan ginjal diwarnai dengan pewarnaan PAS dan diamati pada perbesaran 400x dengan melihat pada 10 LP. Pengukuran histopatologi dilakukan dengan software MIimageView. Hasil: EEDS dalam semua dosis perlakuan tidak berpengaruh secara signifikan pada diameter glomerulus dan tebal tubulus kontortus ginjal serta lebar ruang bowman ginjal kiri dan tubularisasi glomerulus ginjal kanan. EEDS dosis 600 mg/kgBB berpengaruh secara signifikan ($p<0,05$) pada lebar ruang bowman ginjal kanan. EEDS dosis 600 mg/kgBB dan kontrol positif secara signifikan ($p<0,05$) dapat mencegah tubularisasi glomerulus ginjal kiri. Kesimpulan: Pemberian EEDS selama 14 hari tidak berpengaruh pada ukuran diameter glomerulus dan tebal tubulus kontortus proksimal ginjal kiri dan kanan serta lebar ruang bowman ginjal kiri dan tubularisasi glomerulus ginjal kanan. Namun, pemberian EEDS dosis 600 mg/kgBB dapat mencegah penyempitan ruang bowman ginjal kanan dan tubularisasi glomerulus ginjal kiri.

.....Introduction: Diabetes mellitus (DM) is a chronic metabolic disorder characterized by hyperglycemia, one complication of which includes kidney disfunction. Soursop leaves (Annona muricata) is known to have antidiabetic potential; however, no research has been conducted regarding the effect of ethanol extract of Annona muricata leaves on the morphology of the kidney, particularly the proliferation and growth of the mesangial cells of glomerulus, Bowman’s space, and the proximal convoluted tubule. This study aimed to observe the effect of Annona muricata leaves ethanol extract on the morphological

chanes of Alloxan-Induced Swiss Webster Mice’s Kidney. Method: This study was conducted as an in vivo experimental study. The samples were obtained from the kidneys of 30 alloxan-induced male Swiss Webster mice, which were then grouped into negative control, positive control, and 3 experimental groups given ethanol extracts of soursop leaves (EEDS) with a dose of 150, 300, and 600 mg/kgBW for 14 days. The kidney tissue samples were stained using the PAS staining and observed with a 400x magnification on 10 LP. The histopathological measurement was conducted using the MIimageView software. Results: EEDS in all dose of treatment showed no significance on the glomerular diameter and the thickness of the proximal convoluted tubules of the kidney, as well as the width of the Bowman’s space of the left kidney and glomerular tubularization of the right kidney. EEDS with a dose of 600 mg/kgBW showed a significant effect ($p<0.05$) on the height of the right kidney’s Bowman’s space. EEDS with a dose of 600 mg/kgBW and the positive control significantly ($p<0.05$) prevented the tubularization of the left kidney’s glomerulus. Conclusion: The 14 days treatment with EEDS didn’t have a significant difference on the glomerular diameter and the thickness of the proximal convoluted tubules of the left and right kidney, as well as the height of the Bowman’s space of the left kidney and the right kidney’s glomerular tubularization. However, EEDS with a dose of 600 mg/kgBW could prevent the narrowing of the Bowman’s space of the right kidney and the glomerular tubularization of the left kidney.