

Kyolic aged garlic extract: An attenuator of nephropathy in streptozotocin-induced diabetic rats

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Aged garlic extract (AGE) has been proven to exhibit antioxidant, hypolipidemic, hypoglycemic and antidiabetic properties. However, its effect on diabetic nephropathy was unexplored. Therefore, the present study was designed to investigate the renoprotective effect of AGE in streptozotocin-induced diabetic rats. Albino Wistar rats were induced with diabetes by a single intraperitoneal injection of 45 mg/kg body weight of streptozotocin. Commercially available AGE was supplemented orally at a dose of 500 mg/kg body weight/day. Aminoguanidine, which has been proven to be an anti-glycation agent is used as positive control and was supplemented at a dose of 1 g/L in drinking water. The serum and urinary biochemical parameters were analyzed in all the groups and at the end of 12 weeks follow up, the kidney histological examination was performed using H&E and PAS staining. The diabetic rats showed a significant change in the urine ($p < 0.001$) and serum ($p < 0.01$) constituents such as albumin, creatinine, urea nitrogen and glycated hemoglobin. In addition, the serum lipid profile of the diabetic rats were altered significantly ($p < 0.05$) compared to that of the control rats. However, the diabetic rats supplemented with aged garlic extract restored all these biochemical changes. The efficacy of the extract was substantiated by the histopathological changes in the kidney. From our results, we conclude that aged garlic extract has the ability to ameliorate kidney damage in diabetic rats and the renoprotective effect of AGE may be attributed to its anti-glycation and hypolipidemic activities.

Biography

Shiju TM has completed his B.Tech Biotechnology in Anna University. He is doing his Integrated Ph.D in VIT University, Vellore. He is receiving fellowship from Council of Scientific and Industrial Research, India. He has done paper and poster presentations in Indian society of Nephrology and in European Renal Association in the last year.

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