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Nephroprotective effect of *Dillenia indica* L. in STZ-induced diabetic rats via inhibition of oxidative stress

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Etiology of diabetic nephropathy is multifactorial with many pathogenetic mechanisms. Many plant products are being used traditionally in the management of diabetes and its complications. Our study was aimed to evaluate the potential of hydro-alcohol extract (DHA) of *Dillenia indica* L. (Family: Dilleniaceae) in treatment of diabetic nephropathy by targeting renal markers and oxidative stress. DHA was evaluated for its inhibitory activity against formation of AGEs by using bovine serum albumin, sorbitol accumulation in human blood and aldose reductase in rat kidney. Diabetic nephropathy was assessed by determining serum glucose, insulin, renal parameters (urea, uric acid, creatinine level) and tissue histological examination. Tissue antioxidant enzymes (SOD, CAT and GSH) and LPO levels were measured along with the formation of AGEs in kidney to assess the effect of DHA in ameliorating oxidative stress. DHA showed significant inhibition against sorbitol accumulation and aldose reductase activity. DHA also produced significant attenuation in the glycemic status, renal parameter, lipid profile and level of antioxidant enzymes proving efficacy in diabetic nephropathy. Moreover, DHA has also produced significant reduction in the formation of AGEs in vitro as well as in kidneys. The results obtained from the study indicate the significant potential of *Dillenia indica* as a possible therapeutic agent against diabetic nephropathy.

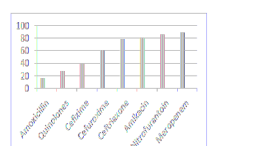


Figure-1: Overall antibiotic sensitivity pattern of organisms of UTI.

Figure-1: Indexed markers of dn and effect of *Dillenia indica* for attenuation of diabetic nephropathy.

## Recent Publications

1. Lalit Kishore, Navpreet Kaur and Randhir Singh (2017) Bacosine isolated from aerial parts of *Bacopa monnieri* improves the neuronal dysfunction in Streptozotocin-induced diabetic neuropathy. *Journal of Functional Foods*; 34: 237-247.
2. Lalit Kishore, Navpreet Kaur and Randhir Singh (2017) Nephroprotective effect of *Paeonia e modi* via inhibition of advanced glycation end products and oxidative stress in streptozotocin-nicotinamide induced diabetic nephropathy. *Journal of Food and Drug Analysis*; 25(3): 576-588.

## Biography

Randhir Singh is currently working as a Professor in Department of Pharmacology in M M College of Pharmacy, Maharishi Markandeshwar University, Mullana, Ambala, India. He has an experience of more than 13 years in teaching and research. He has published more than 80 research and review articles in peer reviewed international journals and his work is cited in highly reputed journals. He is an Editorial Board Member of several journals. He has received two projects worth 50 lakhs from Government agencies of India. He has received Prof. Saroj V N Sharma Award for Best Paper published in Cardiovascular Sciences in India in 2011 and Best Faculty Award from Association of Pharmacy Professional in January 2018. He has authored four books (two national and two international) with reputed publishers. His area of research is diabetes and diabetic complications, obesity and hypertension.

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