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Oral Communication Abstract
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Gymnema Sylvestre Extract Attenuate The Pathological Progression Of Diabetic Nephropathy In Rats

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Objectives: Diabetic nephropathy is not only a common and severe microvascular complication of diabetes mellitus but also the leading cause of renal failure. Aqueous extract of leaves of Gymnema sylvestre (ALGS) has been reported to cause reversible increases in intracellular calcium, hypolipidemic activity and insulin secretion in mouse and human β cells with type 2 diabetes.
The present study aimed to investigate the antidiabetic and renoprotective effects of ALGS in a rat model of type 2 diabetic mellitus.

Methods: Male Sprague-Dawley rats with type 2 diabetes induced by a high-fat diet (HFD)/streptozotocin (STZ) were treated with ALGS at dosages of 0.5% and 1% (w/w) daily for 4 weeks. At the end of the experimental period, body weight, serum glucose levels, insulin levels, and kidney function were assessed. Furthermore, antioxidant enzyme and lipid peroxide levels were determined in the kidney with histopathological examination Molecular mechanism underlying the functioning of ALGS, mouse glomerular mesangial cells (MES-13) treated with high glucose (HG, 25 mM glucose) were chosen as a model for an examination of the signal transduction pathway of ALGS.

Results: The results revealed that ALGS improved diabetic kidney injury by reducing blood glucose, serum creatinine, and blood urea nitrogen levels and enhanced antioxidant enzyme activities in kidney tissue. Treatment with ALGS significantly reduced the malondialdehyde and 8-hydroxy-2-deoxyguanosine levels and increased serum insulin levels; expression of renal superoxide dismutase, catalase, and glutathione peroxidase activities; and glutathione content. Histological studies have also demonstrated that ALGS treatment inhibited the dilation of Bowman's capsule, which confirmed its renoprotective action in diabetes. In addition, treatment with ALGS attenuated 25 mM HG-induced suppressed nuclear factor erythroid 2-related factor 2 and antioxidant enzyme expression in MES-13 cells.

Conclusions: The results of present study reveal that **ALGS** extract could be useful intervention in the treatment of diabetes mellitus and, through antioxidative pathways.