

# Hematology, Immunology & Traditional Medicine

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## *Thymus sp.* ameliorates diabetic nephropathy induced in rats as pathogenesis of diabetes complications

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**Background:** Diabetic nephropathy is a leading cause of end-stage renal failure; ROS may occur in diabetes for reasons possibly related to an increase in glucose concentrations in tissues and may have a role in the pathogenesis of diabetic nephropathy. The purpose of this study was to examine the possible reduction of oxidative stress occurs in the glomeruli diabetic rats and the antihyperglycemic effect of *Thymus sp.* and explore the role of this plant in maintaining electrolyte balance and preventing hepatic and renal.

**Methods:** Daily dose of *Thymus sp.* (200 mg/kg) was given to Wistar rats orally by gavaging for 28 days. Diabetic rats were made by streptozotocin administration (60 mg/kg; intraperitoneally). Glucose tolerance test, fasting blood glucose (FBG), and glycosylated hemoglobin (HbA1c) were measured from blood. Renal oxidative stress, serum ionic status and histologic studies were analyzed.

**Results:** Diabetic animals showed an increasing in the levels of the markers of renal function (urea and creatinine), in the MDA level, in the serum glucose in ionic status and dysregulation in the glomeruli oxidative stress. Administration of *Thymus sp.*, (200 mg/kg) to diabetic rats decreased serum FBG (60.33%), HbA1c (38.11%), serum levels of Na<sup>+</sup>, K<sup>+</sup> (57-65%), and increased in the renal antioxidant parameters SOD, CAT, (70-82%) in diabetics. Pretreatment with *Thymus sp.* was also found to be effective in reversing the histological changes in diabetic rats by preserving glomerular architecture and the regular epithelial cell of some tubules, and by moderating tubular necrosis the potency of *Thymus sp.* in combating diabetic could not only effect glycemic regulation, but also target the nephropathy associated diabetic complications. This effect could be attributed to its bioactive phytoconstituents.

## Notes: