Virgin Coconut Oil Solubilised Curcumin Protects Diabetic Nephropathy in Rats

Abstract

The objective of the present study was to carry out the “Preclinical study on virgin coconut oil solubilized curcumin in diabetes-induced nephropathy”. Male albino rats of the Wistar strain were used in the study. Diabetic nephropathy was induced in rats by the administration of STZ (60 mg/kg, i.p.), Nephropathy was developed after 4 weeks of STZ injection. Treatment was started after 4 weeks and continued for another 4 weeks. Treatment group received virgin coconut oil solubilised curcumin (0.66mg/4ml/kg) and virgin coconut oil solubilised curcumin (1.32mg/8ml/kg). Nephropathy was assessed by evaluating biochemical parameters from serum and urine (Blood glucose, total protein, albumin, urea, uric acid, creatinine, and total bilirubin), an antioxidant the markers of oxidative stress (SOD, GSH, CAT, and LPO), and membrane-bound ATPases from the kidney homogenate. Treatment with Virgin coconut oil solubilised curcumin significantly reduced the blood and urine glucose level. It also significantly altered the body weight, kidney hypertrophy, and the parameters such as urine volume, albumin, creatinine, total protein, total bilirubin, uric acid, and urea in urine and serum. The treatment significantly improved antioxidants activity by normalizing the altered level of endogenous antioxidants such as SOD, GSH, CAT, and LPO along with improvement in membrane-bound phosphatase. In conclusion, Streptozotocin-induced rats showed diabetic nephropathy by altering various biochemical parameters. The effect of virgin coconut oil solubilized curcumin might be due to the strong antioxidant activity of both compounds.

Keywords: Diabetes, nephropathy, antioxidants, coconut oil, curcumin.