Preventive and curative effects of aqueous extracts of Des curainia sophia L. on nephrolithiasisinduced in rats

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Abstract

Purpose: Kidney stone is the most common diseases. The aim of this study was to evaluate the effects of aqueous extracts of Descurainia sophia L. (Ds) onthe prevention and treatment of kidney stones induced by ethylene glycol (EG) and ammonium chloride (AC) in rats. Materials and Methods: Sixty-four male Wistar rats were randomly assigned into 8 groups of 8: control, sham (received only EG 1%+AC 0.25%), experimental 1 and 2 received only Ds (200 and 400 mg/kg/4 weeks), experimental 3 and 4 received EG+AC+Ds (200 and 400 mg/kg/4 weeks), and experimental of 5 and 6 received EG+AC+Ds (200 and 400 mg/kg) from day 14 until the end of the experiment period. The kidneys were isolated on the day 29 of the test and the number of calcium oxalate crystal and tissue changes was examined and was analyzed by ANOVA test. Results: No significant change was observed in any of the parameters in experimental 1 and 2 compared to control. All of parameters except of renal corpuscle and glomeruli showed a significant increase in EG group compared to control, and the diameter of renal corpuscle and glomeruli showed a significant decrease. In groups receiving EG with extract of Ds, there was a significant decrease inparameters of urinary space, collecting duct, tissue damage, and deposits of calcium oxalate crystals and significant increase in renal corpuscle and glomeruli compared to the sham. Experimental 4 having the most impact of improvement. Conclusion: Extract of Ds has an effect on the prevention and treatment of kidney stones, which can be attributed to antioxidant and anti-inflammatory properties.

Keywords: Calcium oxalate; Descurainia sophia L.; kidney calculi; urolithiasis