The protective effect of *Teucrium polium* extract against cyclophosphamide induced nephrotoxicity in mice

Heibatullah Kalantari\(^1\), Mohammad Ebrahim Azemi\(^2\), Iran Rashidi\(^3\), Mehdi Goudarzi\(^4\), Mohammad Reza Soofari\(^1\)

\(^1\) Department of Pharmacology and Toxicology, School of Pharmacy, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
\(^2\) Department of Pharmacognosy, School of Pharmacy and Medicinal Plants and Natural Products Research Center, Ahvaz Jundishapur University of Medical Science, Ahvaz, Iran
\(^3\) Department of Pathology, School of Medicine, Ahvaz Jundishapur University of Medical Science, Ahvaz, Iran
\(^4\) Department of Pharmacology and Toxicology, School of Pharmacy, Member of Student Research committee of Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

**Abstract:**
Cyclophosphamide, an alkylating agent is used as an immunosuppressant in rheumatoid arthritis and in the treatment of several cancers as well. It is well known that this drug or its metabolites causes acute inflammation of the urinary bladder and may cause renal damage. The biological activities of *Teucrium polium* are widely reported and it has been shown to possess anti-inflammatory, anti-nociceptive, anti-hypertensive, hypolipidemic and hypoglycemic effects. In this study, protective effect of *Teucrium polium* L. (*Lamiaceae*) extract was investigated in nephrotoxicity induced by cyclophosphamide in mice. Animals were divided into six groups, each group consist of 8 mice. Group 1 as negative control group, received normal saline for 5 days; group 2 received *Teucrium polium* extract (500 mg/kg, oral) once daily for 5 days; group 3 received cyclophosphamide (150 mg/kg, ip) as positive control only on the 5th day; groups 4-6 received *Teucrium polium* extract orally in doses of 125, 250 and 500 mg/kg respectively, during 5 days and cyclophosphamide (150 mg/kg, ip) on the 5th day 1 hour after last dose of extract administration. Then on the day 6th, animals were sacrificed. Blood was withdrawn by cardiac puncture to determine serum creatinine and blood urea nitrogen (BUN) levels. Kidneys were removed for histological examination. Results showed a significant increase in the levels of creatinine and BUN by cyclophosphamide. Also showed a reduction in the levels of creatinine and BUN by cyclophosphamide. However, a significant decrease was observed in doses of 250 and 500 mg/kg (P<0.05). The nephroprotective effect of the *Teucrium polium* extract was confirmed by the histological examination of the kidneys. Hydroalcoholic crude extract made from *Teucrium polium* reduces damages induced by cyclophosphamide in the mouse kidney, although a significant protection can only be expected from a high dose of this extract.

**Keyword:** *Teucrium polium*, Cyclophosphamide, Nephrotoxicity, Mice