

Original Paper

Effect of *Lycium ruthenicum L.* aqueous extract on morphometric and histopathologic indices in mice lymphatic organs

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Abstract

Background and Objective: Several studies reported the immunological activity of *Lycium barbarum*. This study carried out to determine the effect of aqueous extract of fruits of *Lycium ruthenicum L.* on morphometric and histomorphometric indices in mice lymphatic organs.

Methods: In this experimental study, 36 adult mice were randomly allocated into six experimental and control groups. The experimental groups were received *Lycium ruthenicum L.* fruit aqueous extract in the doses of 50, 100, 200, 400 and 800 mg/kg/bw, daily by feeding tube for 21 days. In the control group animals were received 100 mg/kg/bw of saline using feeding tube. After the treatment, the relative increase in the body weight, morphometric, histomorphometric and histopathologic indices in thymus, lymph node and spleen were measured.

Results: The administration of extract in doses of 50 and 100 mg/kg/bw did not effect on body weight of mice but in the doses of 200, 400 and 800 mg/kg/bw significantly reduced the body weight ($P<0.05$). Thymus index in 800 mg/kg/bw of extract significantly reduced in comparison with controls ($P<0.05$). Thickness of thymus medulla in low doses significantly increased while it was not visible in higher doses ($P<0.05$). Thickness of capsule in lymph node and spleen in dose of 800 mg/kg/bw significantly increased in comparison with control group ($P<0.05$). Low doses of the *Lycium barbarum* extract increased stimulation and infiltration of the immune cells and hematopoiesis in the lymphoid organs while in doses of 400 and 800 mg/kg/bw caused pathological changes including fibrosis in capsule, degeneration in follicles and stromal cell apoptosis.

Conclusion: Aqueous extract of fruits of *Lycium ruthenicum L.* in doses of 400 and 800 mg/kg/bw causes histopathological alterations in the lymphoid organs.

Keywords: *Lycium ruthenicum L.*, Histomorphometry, Histopathology, Thymus, Lymph node, Spleen

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Received 15 Jul 2014

Revised 27 Dec 2014

Accepted 10 Jan 2015