

Effects of dietary *Thymus Vulgaris* essential oil on the liver in mice

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Abstract

Introduction: Thymus vulgaris (thyme) is commonly used in folk medicine for several therapeutic purposes. The aim of this study was to evaluate the effects of peritoneal injection of essential oil of thymus vulgaris on the liver as an organ involved in metabolism. It also examines toxic effects following a high dose of the drug.

Methods and Results: Twenty-four mice were divided randomly into three groups. Group 1 was the control group without treatment, group 2 has received a dose of thyme essential oil, 0.4 mg/kg intraperitoneally for 10 days and group 3 has received a dose of thyme essential oil, 0.6 mg/kg intraperitoneally for 10 days. A score of liver damage severity was semi-quantitatively assessed using the modified Histological Activity Index (modified HAI). Statistical analysis was performed by using computer program SPSS (19). The results showed the statistically significant increase ($P \leq 0.05$) in the histopathological scoring in Group2 when compared with Group1.

Conclusions: The histopathological examination of control group reveals normal hepatic tissue, no portal or periportal inflammation, necrosis, congestion, Infiltration of WBC and fibrosis. While there was a significant loss in hepatic architecture in Group 2 which showed portal inflammation with periportal interface hepatitis (piecemeal necrosis) centrilobular necrosis, congestion, infiltration of WBC and bridging necrosis. The results were revealed statistically significant increase ($P \leq 0.05$) in the histopathological scoring in Group3 when compared with Group2. The histopathological examination of thyme treated group (Gp3) showed significant toxic effects with moderate acute inflammation of mononuclear cells. It has been determined that Thymus vulgaris (thyme) leads to histological damage including portal inflammation with centrilobular necrosis. The histological alterations may occur through oxidative properties.

Key word: Thymus vulgaris (thyme), Liver, Necrosis, Congestion. Essential oil

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