University of Zabol

Graduate School

Faculty of Science

Department of Biology

The Thesis Submitted for the Degree of Master of Science (M.Sc)
(In the field of Plant Physiology)

# Evaluation of some secondary metabolites of oleoresin extracted from male *Ferula gummosa* plant and it is anti-diabetic effect on diabetic- induced rat with streptozotocin

Supervisor:
**Dr. Z. Setayesh-Mehr**

Advisors:
**Dr. M.R. Haji-Nejad**
**Dr. S. Esmaeilzadeh-Bahabadi**

By:
**Vajiheh Okati**

**January 2021**

**Abstract**

**Diabetes is a public health concern in the 21st century, and developing countries are all experiencing an epidemic of diabetes. On the other hand, herbs have a wide range of antioxidants that can be effective in treating diabetes-related diseases. Due to the medicinal properties and identification of the active compounds of Ferula gummosaplant, based on research, and since the properties of the stem extract of Ferula gummosamale plant have not been identified to date, in this study, the anti-diabetic property of gum extracted from Ferula gummosaplant in streptozocin diabetic mice Checked. 24 rats from rat breeding and maintenance center of Zabol University School of Veterinary Medicine were tested in three groups: healthy, diabetic and diabetic under the treatment of 100 mg / kg of Ferula gummosaplant extract and their blood sugar and some phenolic compounds were evaluated. After analyzing the obtained data, it was found that the blood sugar level in the group receiving the extract decreased significantly compared to the group receiving streptozotocin. ($P < 0.05$) In histopathological examination of liver structure, in the streptozotocin-induced diabetic group, the symptoms of liver damage and hepatocyte necrosis were quite clear. In the streptozotocin-induced diabetic group, symptoms of liver injury, hepatocyte necrosis, accumulation of inflammatory cells around the central vein, hepatic sinusoidal dilatation, and hyperemia were observed. In the liver structure of the diabetic group treated with Ferula gummosagum, signs of liver damage were observed, but the severity of the lesions was less than that of the negative control group. Examination of liver tissue sections of this group showed a decrease in the accumulation of inflammatory cells. In addition, the group showed signs of liver tissue repair, regeneration, and hepatocyte division.**

**Keywords: Ferula gummosa, Diabetes, Streptozocin, Rat**