Journal of Innovations in Pharmaceutical and Biological Sciences (JIPBS)
ISSN: 2349-2759
Available online at www.jipbs.com

Research article

Effects of Nigella Sativa oil and Docosahexaenoic acid on experimentally-induced hepatic fibrosis in rats

Eman Gouda Khedr[1], Ghada Mohammad Al-Ashmawy*[1], Sally El-Sayed Abu-Risha[2], Abla Ebeed[3], Marwa Salah[4]

[1]*Department of Biochemistry, Faculty of Pharmacy, Tanta University, Tanta, Egypt.*
[2]*Department of Pharmacology and Toxicology, Faculty of Pharmacy, Tanta University, Tanta, Egypt.*
[3]*Department of Clinical Pharmacy, Faculty of Pharmacy, Delta University, Egypt.*
[4]*Department of Pathology, Faculty of Medicine, Menofeya University, Egypt.*

Key words: Nigella Sativa; Docosahexaenoic acid; Liver fibrosis; PPAR-γ; CD34.

***Corresponding Author: Ghada Mohammad Al-Ashmawy,** Department of Biochemistry, Faculty of Pharmacy, Tanta University, Tanta, Egypt.

Email: ghadaashmawy@pharm.tanta.edu.eg

Vol. 6 (3), 24-29, Jul-Sep, 2019.

Abstract

Hepatic fibrosis is a consequence of chronic liver injury. Peroxisome proliferator activated receptor-gamma (PPAR-γ) may play a role in the pathogenesis of hepatic fibrosis. Activation of endothelial progenitor cell (EPC) mobilization can contribute to hepatic regeneration after fibrotic injury. However, the potential benefits of docosahexaenoic acid (DHA) and Nigella Sativa oil (NS), naturally-derived oil, in ameliorating fibrosis remain elusive. Liver fibrosis was induced in rats by oral administration of 50% CCl_4 three times per week for 8 weeks. The rats intoxicated with CCl_4 were divided into three groups: fibrosis control, DHA, and NS groups. A fourth group of normal healthy rats served as a control group. The results showed that Nigella Sativa oil significantly decreased serum albumin, alanine aminotransferase (ALT), and bilirubin levels in the NS-treated group compared to those in the fibrosis control group. Liver histopathology and EPC immunohistochemistry supported these biochemical data. A significant increase in PPAR- γ was found in the DHA and NS groups. The results indicate that the NS oil treatment produced a more substantial effect than DHA treatment and has a beneficial role in inhibiting or reversing liver fibrosis.