The Effect of Flaxseed Ethanolic Extract on the Structure of the Kidney and the Endocrine Pancreas in Streptozotocin Induced Diabetic Rats

By: Al-Ani, GA (Al-Ani, Ghassan A.)[1]; Al-Ani, IM (Al-Ani, Imad M.)[1]; Azzubaidi, MS (Azzubaidi, Marwan S.)[2]; Al-Ahmed, BI (Al-Ahmed, Basma I.)[3]

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Abstract

Background: The present investigation has been designed to study the possible protective effect of flaxseed extract on the structures of the endocrine pancreas and kidneys of streptozotocin (STZ) induced diabetic rats for 30 days. Methods: Forty male Sprague-Dawley rats were randomized into five groups (n=8). Normal control group (NC); received distilled water orally, normal flaxseed group (NF); treated orally with (400 mg/kg) extract of flaxseed, diabetic control group (DC); treated with single intraperitoneal dose of STZ (60 mg/kg), diabetic flaxseed group (DF); diabetic rats treated with extract of flaxseed (400 mg/kg), diabetic glibenclamide group (DG); diabetic rats treated with (0.6 mg/kg) glibenclamide. Results: Histological observation of sections in pancreas in DC group revealed shrunken islets of Langerhans with degenerated and degranulated beta-cells, vacuolations and congested capillaries while sections of kidneys showed shrinkage of some glomeruli and degeneration of others with wide urinary space and hydropic degeneration in some tubular epithelial cells, dilated tubules and cell debris scattered in tubular lumina. These pathological changes were ameliorated in the flaxseed extract and glibenclamide treated rats. Conclusions: It is concluded that flaxseed extract may represent a good alternative treatment for management of diabetes and its related complications such as diabetic nephropathy.

Keywords

Author Keywords: diabetes mellitus; endocrine; pancreas; kidney; flaxseed streptozotocin
KeyWords Plus: ANTIDIABETIC ACTIVITY; NEPHROPATHY; LIGNANS; MODEL; RISK; MICE

Author Information

Reprint Address: Al-Ani, IM (reprint author)

+ Int Islamic Univ Malaysia, Kulliyyah Med, Dept Basic Med Sci, Kuantan 25200, Malaysia.

Addresses:

+ [1] Int Islamic Univ Malaysia, Kulliyyah Med, Dept Basic Med Sci, Kuantan 25200, Malaysia
+ [2] Int Islamic Univ Malaysia, Kulliyyah Pharm, Dept Basic Med Sci, Kuantan 25200, Malaysia
+ [3] Int Islamic Univ Malaysia, Kulliyyah Dent, Dept Basic Med Sci, Kuantan 25200, Malaysia

E-mail Addresses: imad_alani@yahoo.com

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