

DIABETES AND DIABETIC NURSING CARE

September 20-21, 2017 Charlotte, USA

Treatment of HFD induced diabetes mellitus by metformin and natural products in rats

Nadia Zaki Shaban, Nihal M. Elguindy and Gamal Mostafa Mahmoud
Alexandria University, Egypt

Background: *Asphodelus microcarpus* widely distributed over the coastal Mediterranean region. Traditionally used in the treatment of diabetic conditions. The aim of the present investigation was to evaluate the antioxidant, antihyperlipidemic and antidiabetic activity of ethyl acetate extract taken from *Asphodelus microcarpus* (*Asphodelaceae*).

Methods: Ethyl acetate extract taken from *Asphodelus microcarpus* tubers used for the study. Chemical tests of different extract, diabetic profile, lipid profile, kidney and liver functions, and antioxidant anti-inflammatory parameters were performed. Diabetes was induced in rat by HFD feed for 10 weeks. The rats were divided into following groups: Group I-normal control, Group II (Vehicle)-diabetic control, Group III diabetic rats-AM (10 mg/kg), Group IV diabetic rats- (AM 10 mg/kg + MET 100 mg/kg), Group V diabetic rats-AM (20 mg/kg), Group VI diabetic rats- (AM 20 mg/kg + MET 100 mg/kg), Group VII diabetic rats- (MET 100 mg/kg). Bodyweight of each rat in the different groups was recorded daily. Biochemical and antioxidant enzyme parameters were determined on day 16.

Results: The ethyl acetate extract of AM shown better glucose utilization and insulin resistance improvement. Orally treatment of different doses of AM tubers extract alone and/or with metformin decreased the level of serum glucose, activity of liver alpha glucosidase, activity of pancreatic alpha amylase, MDA, CRP and leptin. Treatment showed increased level of plasma insulin, catalase, glutathione peroxidase, liver GSH, total antioxidant capacity. HFD induced diabetes groups rat treated with different doses of AM tubers extract and metformin significantly increased muscle glucose transporter 4 (GLUT4), and remarked regenerative effect on the liver, kidney and pancreas.

Conclusion: The antioxidant, antihyperlipidemic and antidiabetic effect of ethyl acetate extract from *Asphodelus microcarpus* suggests a potential therapeutic treatment to antidiabetic conditions.

jimmymostafa@yahoo.com