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Anti-diabetic and anti-obesity potential of selected medicinal plants used in the traditional medicine of Jordan

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In the recent decades complementary/alternative/integrative medicine flourished and led to the renaissance of nutritional, clinical and scientific interest in plants' potential as preventive/therapeutic agents in the management/treatment of chronic diseases. Worldwide and in Jordan, the prevalence of type-2 diabetes (T2DM) and obesity has reached alarming proportions. In the Jordanian traditional medicine, *Crataegus aronia* L. and *Adiantum capillus-veneris* L. are two of the edible/medicinal plants used for the treatment of T2DM. The present study gives an overview of anti-diabetes plants of Jordan and discusses the LC-MS evaluation of the crude extract and *in vitro* and *in vivo* evaluation of different biological activities of *A. capillus-veneris* to evidence its claimed pharmacological potential. HPLC-MS analyses revealed the presence of ellagic acid (5.48 mg/g), rutin (4.77 mg/g), quercetin-3-O-glucoside (3.96 mg/g), ferulic acid (3.88 mg/g), gallic acid (3.44 mg/g), caffeic acid (1.55 mg/g), epicatechine (1.34 mg/g) and quercetine (0.43 mg/g). Hypocholesterolemic efficacy was evaluated in 10-weeks high-cholesterol-diet (HCD) fed rats and compared to atorvastatin. *A. capillus veneris* aqueous extract (500mg/kg body weight) decreased highly significantly the total cholesterol (TC) and low density lipoproteins (LDL) in HCD-fed rats. Additionally, atherogenic index parameter of TC/HDL was normalized in *A. capillus veneris*-treated rats. Moreover, the plant extracts' and some of the identified constituents' role in modulating gastrointestinal carbohydrate and lipid digestion and absorption were demonstrated. The results indicate that *A. capillus-veneris* can be considered a potential candidate for the management of hypercholesterolemia, obesity and diabetes.

Biography

Fatma U Afifi-Yazar is a Professor of Pharmacognosy and Phytochemistry. She obtained her Doctor of Natural Sciences from ETH Zurich (Switzerland) in 1977. Since 1982, she works at University of Jordan (UJ), Faculty of Pharmacy where she teaches and supervises MSc and PhD students and holds administrative positions (Dept. Head, Dean). She has published more than 125 papers in reputed journals and has been serving as an Editorial Board Member of reputed journals. Her research projects were granted institutionally, governmentally and internationally. She received the "Distinguished Researcher Award" from the UJ for three successive years; 2011, 2012 and 2013.

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