Obesity-2013

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Obesity & Weight Management

December 02-04, 2013 Hampton Inn Tropicana, Las Vegas, USA

Citrus medica 'Otroj': Attenuates oxidative stress and cardiac dysrhythmia in isoproterenol-induced cardiomyopathy in rats

Ramzi A. Mothana

King Saud University, Saudi Arabia

Abstract

Background: According to an earlier estimation of the world health organization (WHO) about 17 million people die every year due to cardiovascular disease (CVD). Cardiovascular diseases are directly or indirectly responsible for oxidative damage which causes an insufficient blood supply to the myocardium, leads to myocardial infarction (MI) or heart attack. Despite improvement in clinical care and better awareness MI still remains the leading cause of mortality in the world. *Citrus medica* L. commonly known as Otroj, is an important medicinal plant reputed for its nutritious and therapeutic uses.

Objective: The present work was undertaken to investigate the protective effect of the ethanolic extract of otroj (EEOT) against isoproterenol (ISO)-induced cardiotoxicity in rats. In addition, the antioxidant activity and the phenolic and flavonoidal contents were determined. **Methods:** Rats were administered EETO (250 and 500 mg/kg) or vehicle orally for 15 days along with ISO (85 mg/kg, s.c.) on the 14th and 15th day. The animals were then anaesthetized with urethane and prepared for measurement of the ECG. The rats were sacrificed; hearts were collected and homogenized for biochemical analysis. The effects on total alanine transaminase (ALT), aspartate transaminase (AST), creatine kinase (CK), lactate dehydrogenase (LDH), cholesterol (TC), triglycerides (TG), high density lipoprotein cholesterol (HDL-C), low density lipoprotein cholesterol (LDL-C) and very low density lipoprotein cholesterol (VLDL-C), lipid peroxidation (LPO) marker, malondialdehyde (MDA), non-protein sulfhydryl groups (NP-SH), and total protein (TP) were estimated in heart tissue homogenate. Moreover, Histopathological studies were undertaken to examine for pathomorphological changes. For the determination of *in vitro* antioxidant activity, scavenging activity of DPPH radical and β-carotene-linoleic acid assays were used. **Results:** ISO induced cardiac dysfunction, increased lipid peroxidation and alteration of myocyte-injury specific marker enzymes. ISO also showed an increase in levels of plasma cholesterol, triglycerides (TG), LDL-C and VLDL-C. Moreover, the histological investigations showed myocardial necrosis and inflammation. EETO treatment brought the above parameters towards normal level. Moreover, i*n vitro* DPPH radical scavenging and β-carotene-linoleic acid tests of the EEOT exhibited a notable antioxidant activity in both assays used. In addition, histopathological examination reconfirmed the protective effects of EEOT. **Conclusions:** Thus, the present study reveals that *C. medica* alleviates myocardial damage in ISO-induced cardiac injury and demonstrates cardioprotective potential which could be attributed to its potent antioxidant and free radical scavenging activity.

Biography

Ramzi Mothana studied pharmacy and has completed his PhD in the field of Pharmacognosy at the age of 28 years from Ernst-Moritz-Arndt University in Greifswald, Germany. He was the head of Pharmacognosy department, Faculty of Pharmacy, Sana'a University, Yemen until 2007. At present, he is the head of the Phytochemistry unit at the Medicinal, Aromatic and Poisonous Plants Research Center (MAPPRC) and staff member at the college of Pharmacy, King Saud University, Saudi Arabia since 2008. He has published more than 40 papers in reputed international journals and is acting as external reviewer for several international journals.