Cardioprotective effect of Date Palm Fruit Extract (Phoenix Dactylifera L.) against Doxorubicin-induced cardiotoxicity in rats

Thesis

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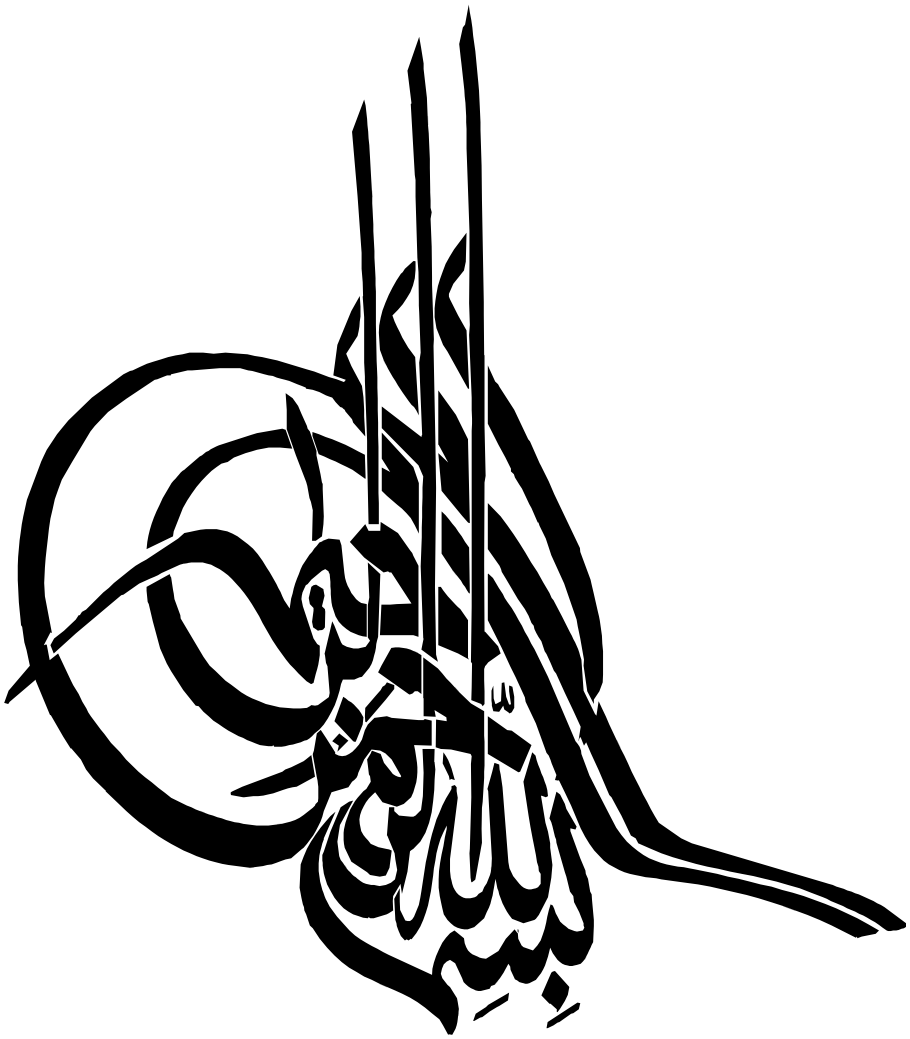
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Abstract

Antitumor therapy usually destructs the physiological homoeostasis and affects various organs during cancer treatment process. Doxorubicin (Dox) an anthracycline antibiotic has been widely used to treat cancer, principally haematological malignancies and solid tumors. The administration of Dox is a topic of concern in the medical community, as it frequently related to dose-dependent cardiotoxicity. Therefore, the present study was designed to investigate the protective potential of date palm fruit extract on Dox-induced cardiotoxicity. Forty female albino rats were used in this study and classified into four groups including control, date palm fruit extract, Dox and protected groups. Myocardial toxicity of Dox appeared in the elevation of serum total cholesterol (TC), triglycerides (TG), low density lipoprotein cholesterol (LDL-C) levels and atherogenic indices, while level of high density lipoprotein cholesterol (HDL-C) decreased; it also decreased the activities of cardiac glutathione peroxidase (GPx) and superoxide dismutase (SOD), but increase levels of cardiac malondialdehyde (MDA) and also of urinary 8-hydroxy-2-deoxyguanosine (8-OHdG).

Abstract

Dox produced a significant increase in creatine kinase-MB (CK-MB) & lactate dehydrogenase (LDH) activities and serum troponin-I level .It also showed changes in electrocardiography (ECG) pattern. Histopathological studies revealed alteration of cardiac tissue structure by Dox. Meanwhile, pretreatment with date palm fruit extract restored the aforementioned parameters indicating its cardioprotective influence on the heart tissue against toxicity induced by Dox.

Key words: *Phoenix dactylifera* L., Cardioprotective, Doxorubicin, Cardiotoxicity, Atherogenic indices, 8-OHdG, HPLC, ECG.

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List of abbreviations

AC	Atherogenic Coefficient
AF	Atrial Fibrillation
AI	Atherogenic Index
ALP	Alkaline Phosphatase
ALT	Alanine Aminotransferase
AMPK	AMP-Activated Protein Kinase
ANTs	Anthracyclines
APH	Atypical Prostatic Hyperplasia
AST	Aspartate Aminotransferase
ATP	Adenosine Triphosphate
AV block	Atrio-Ventricular Block
AZT	Azithromycin
CAT	Catalase
CCl_4	Carbon Tetrachloride
CK	Creatine Kinase
CK – MB	Creatine Kinase – MB
CPK	Creatine Phosphokinase
CPT I	Carnitine Palmitoyl-Transferase System
CRR	Cardiac Risk Ratio
DNA	Deoxyribonucleic Acid
Dox	Doxorubicin
DPL	Date Palm Leaves
DPP	Date Palm Pollen
DSE	Date Seed Extract
DZR	Dexrazoxane
EAC	Ehrlich Ascites Carcinoma
ECG	Electrocardiography