Antioxidant effects of aqueous extract of Salep on Paraquat-induced rat liver injury.

Atashpour S[1], Kargar Jahromi H[1], Kargar Jahromi Z[1], Zarei S[1].

Abstract

AIM:

To evaluate the effects of aqueous extract of Salep on Paraquat-mediated liver injury.

METHODS:

In this experimental study, 56 adult male Wistar rats were divided randomly to 7 groups as control, sham, and 5 experimental groups. In control group, rats did not receive any substance during experiment. In Sham group, rats were given distilled water according to their body weight and in experimental groups, Paraquat alone and with different doses of Salep aqueous extract (40, 80, 160 and 320 mg/kg) was given intraperitoneal daily for 14 d. After that, liver biochemical parameter and histologic changes were analyzed and compared in different groups.

RESULTS:

Paraquat compared to control and sham groups, significantly ($P < 0.05$) increased serum level of alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), bilirubin, malondialdehyde (MDA) and total oxidant capacity (TOC); while level of total protein, albumin and total antioxidant capacity (TAC) were remarkably decreased by Paraquat. Salep at doses of 80, 160 and 320 mg/kg significantly decreased serum level of ALT, AST, ALP, bilirubin, MDA and TOC and significantly increased total protein, albumin and TAC level as compared to Paraquat exposed group in dose dependent manner. Aqueous extract of Salep at doses of 40 mg/kg made no significant changes in serum level of mentioned biochemical parameters. Liver microscopic observation revealed that Paraquat could cause hepatocyte necrosis, degenerative changes, proliferation and activation of Kupffer cells (sporadically) which were reduced by Salep treatment.

CONCLUSION:

Salep possesses remarkable hepatoprotection activity against Paraquat-induced hepatic injury by having antioxidant activity and reducing lipid peroxidation and oxidative stress.

KEYWORDS:

Antioxidant; Liver injury; Oxidative stress; Paraquat; Salep