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Antioxidant properties appraisal of *Fumaria vialantii* L. extract on oxidative systems

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Background and Aims: Free radicals are produced in cells by cellular metabolism and by exogenous agents which cause damage to nucleic acids, lipids, proteins and other biomolecules. Medicinal plant such as Fumaria vialantii L. (FV) are a good source of natural antioxidants, which containing many different radical scavenger components provide protection against harmful-free radicals and so are associated with lower incidence and mortality rates of liver and heart diseases.
This study was designed to investigate for antioxidant activities of FV at three 25, 50 and 100 µg/ml concentrations on oxidative systems (red blood cells hemolysis, hepatocyte lipid peroxidation and hemoglobin glycosylation).
Methods: The alcoholic extracts of FV were initially screened at 25, 50 and 100 µg/ml concentrations and were used to estimate their antioxidant activities by spectrophotometer. 2,2'-azobis (2-amidinopropane) dihydrochloride (50 Mm) was used to induce red blood cells hemolysis at 540 nm. Also tert-butyl hydroperoxide (0/5 Mm) for hepatocyte lipid peroxidation liver at 340 nm and CCL4 (0/2 ml) for haemoglobin glycosylation at 443 nm were applied. Data were evaluated using SPSS program version 16.0 and Tukey test was performed to compare differences between groups.
Results: inhibited red blood cells hemolysis were 17%, 49% and 3% respectively whereas in these used concentrations, inhibition of hepatocyte lipid peroxidation were 58%, 2% and 26% and inhibition of hemoglobin glycosylation obtained 30%, 13% and 6% respectively. A significant difference ($p<0/001$) was observed between 25, 50 and 100 µg/ml concentrations in each of the three oxidative systems.
Conclusions: According to the results, alcoholic extracts of FV indicated high antioxidant activity and it is suggested using this medicinal plant for prevention and treatment of diseases due oxidative reaction.

Keywords: *Fumaria vialantii*; Hemoglobin glycosylation; Lipid peroxidation; Red blood cell hemolysis