

Abstract

Plants are rich in phenolic compounds, which are the most important natural antioxidants. The role of free radicals in many diseases has been proven. Antioxidants in the diet are important in protecting the body against free radicals and toxicity. The aim of this study was to evaluate the amount of phytochemical compounds and antioxidant activity of different organs of *Tamarix karakalensis* and *T. dioica* and the effect of flower extract of *T. karakalensis* on the antioxidant defense system of *Drosophila melanogaster*. The amount of total phenol compounds was measured by Folin-Ciocalteu method and the amount of flavonoids was measured using aluminum chloride colorimetric method. Antioxidant activity of various extracts of the plant was determined by free radical degradation method using 2,2-diphenyl-1-picrylhydrazil (DPPH). The essential oil content of *T. karakalensis* extract was measured using GC-MAS method. Also, the antioxidant effect of this plant extract on the antioxidant defense system of *Drosophila* using anti-oxidant activity of Catalase superoxide dismutase (SOD), as well as lipoprotein peroxidation (LPO) in cell extracts from homogenous tissues of flies grown in appropriate nutrition treatments against paraquat (PQ) and ethanol was studied.

The results showed that the total phenol content and flavonoids vary in different organs and also between the two different *Tamarix* species, so that these antioxidant compounds are significantly higher in flowers than leaves and stems. The highest amount of essential oil composition of *T. karakalensis* was related to Phenol, 2-methoxy (47.02%). Antioxidant results in both FRAP and DPPH showed that flower of both species compared to other organs and flower of *T. dioica* species showed higher antioxidant activity than *T. karakalensis* species. *T. karakalensis* extract increased the activity of catalase and superoxide dismutase enzymes and reduced oxidative stress marker level of lipid peroxidation in *Drosophila*. The protective potential of the aqueous extract of this organ against PQ poisoning in the first 24 hours showed a significant difference between the control group and the extract, but did not show any difference in ethanol toxicity in *Drosophila*.

Key words: Secondary metabolites, antioxidant activity, Tamarix, *Drosophila melanogaster*.



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Comparison of some secondary metabolites and antioxidant activity

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