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Evaluation of *in vitro* Antioxidant Activity of *Datura stramonium* L. Ethanolic Leaf Extract

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Aim of the study: Antioxidants are substances that when present at low concentrations with respect to oxidizable substrates, inhibit or delay the oxidation process. Therefore, antioxidants have a vital role in the maintenance of human health and prevention of disease caused by free radicals. Due to the benefits of antioxidants, food and pharmaceutical products are normally enriched with synthetic antioxidants such as BHA, BHT and PG. However, application of these synthetic antioxidants might lead to toxic effects such as carcinogen. Hence, stronger restrictions have been mandated for their application and there is a trend to substitute synthetic antioxidants with natural antioxidants. *Datura stramonium* (Solanaceae) is an important medicinal plant from which tropane alkaloids, amino acids, tannin, phytic acids, carbohydrates have been isolated. Its diverse biological activities include anti-asthmatic, antibacterial, antifungal, anti-inflammatory, antispasmodic, antioxidant and anti-ulcer activities. The present study aimed to explore the antioxidant activity of the *D. stramonium* leaf extract from Turkey.

Material and Methods: In this study, antioxidant activity of the *D. stramonium* ethanolic leaf extract was evaluated by 1,1-diphenyl-2-picrylhydrazyl (DPPH), phosphomolybdenum and ferric reducing power assays.In addition, total phenolic and flavonoid contents in the extracts were determined. The total antioxidant capacity of extract was determined by phosphomolybdenum method according to Prieto et al. (1999). The impact of ethanol extract on DPPH radical was determined according to Wu et al. (2006). The ferric ion reducing power assay carried out with slight modifications of the method of Oyaizu (1986). Total phenolic content of the extract was analysed via Folin-Ciocalteu method which gallic acid was used as a standart. Total flavonoid content of the extract was determined by the aluminium calorimetric method and expressed as equivalents of quercetin(mgQEs/g).

Results: When the *D. stramonium* ethanolic leaf extract evaluated, DPPH radical scavenging activity value was found as 52.44% for 1 mg/mL extract. Total antioxidant capacity of the extract were expressed as equivalents of ascorbic acid. Ascorbic acid content of the ethanolic extract of *D. stramonium* was determined as 30.18 mgAAEs/g. The reducing power of the extract increased with concentration. Reducing power of the extract was determined as 1.654 nm at 1 mg/mL concentration.Data obtained from the synthetic antioxidant BHT was also recorded as 2.676 nm at 1 mg/mL concentration. The total phenolic content of the extractwas determined as 25.77 mgGAEs/g while totalflavonoid content was determined as 13.19 mgQEs/g. Determination of total phenolic compounds showed that the observed antioxidant activity may be due to the presence of any of these constituents.

Keywords: Solanaceae, *Datura stramonium,* antioxidant activity, total phenolic and flavonoidcontent