

Evaluation of Antioxidant Properties and Phenolic Compounds of *Asparagus acutifolius*

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Aim of the study: *Asparagus* spp. belong to Liliaceae family and they are produced mainly in China, the United States and France. *Asparagus* contains various significant compounds and essential nutrients, including oligosaccharides, vitamins and minerals and it also contains flavonoids and phenolic compounds, which possess strong antioxidant properties. *Asparagus acutifolius* L., belonging to the genus *Asparagus*, is a native, an herbaceous and perennial species. The present work was designed to evaluate antioxidative properties and phenolic compounds of extracts isolated from different part of *Asparagus acutifolius* by ethanol solvent.

Material and Methods: The flowers and leaves of *A. acutifolius* were air-dried, powdered and extracted with ethanol solvent. Total antioxidant activity was assessed by ABTS free radical scavenging and Phosphomolybdenum methods. In phosphomolybdenum method, 0.3 mL of extracts were combined with 3 mL reagent solution (0.6 M sulfuric acid, 28 mM sodium phosphate and 4 mM ammonium molybdate). The reaction mixture was placed in test tubes and the tubes were incubated at 95 °C for 90 min. Then the absorbance of the solution was measured at 695 nm against a blank. For free radical scavenging activity, ABTS solution (7mM ABTS stock solution and 2.45 mM potassium persulphate) and different concentration of extracts were mixed. The absorbances of solutions were read at 734 nm after 15 min. In addition total phenolic and flavonoid contents were determined with absorbances were measured at 760 nm and 415 nm respectively.

Results: In the present study, Among the different parts extracts of *A. acutifolius* evaluated, leaves extract, showed the highest amount of phosphomolybdenum (45.29 ± 14.90 µg/mg) and ABTS ($70.40\% \pm 4.92$) activity. In addition, *A. deltoidea* leaves extract possessed highest total phenolic (54.10 ± 1.99 mgGAE/g) and flavonoid (92.70 ± 0.64 mg QEs/g) content compared to fruits extract. In this study, antioxidant capacities, total phenolic and flavonoid content of ethanolic fruits and leaves extracts of *A. acutifolius* were evaluated. We think that the results showed here will supply new information for further studies in this species.

Keywords: *Asparagus acutifolius*, Antioxidant activity, ABTS, Phosphomolybdenum