

Determination of the Antioxidant and Phenolic Activities of Jojoba (*Simmondsia chinensis* Link Scheinder) Plantİzzet KARA¹, Yeşim KARA², Ayşe KURU²¹Dept. of Mathematics and Science Education, University of Pamukkale, Denizli-Turkey²Department of Biology, Science and Art Faculty, University of Pamukkale, Denizli-Turkey
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Aim of the study: The present study analysed the antioxidant and phenolic activity of jojoba plant, which is industrially grown and has an important place in intensive farming and is used as food and in medicine for the treatment of some disorders because of the different compounds it contains.

Material and Methods: Jojoba (*Simmondsia chinensis*) leaves were collected and dried in seasonal periods. The dried leaves were shredded by blender and the seeds were crushed in press and weighed 4g on a precision scale and extracted with solvent (n-hexane) for 6 hours in a Soxhlet device. The solvent portion of the extracts was removed on a rotary evaporator and the remaining extract was taken up in dark glass bottles for further use in the study and placed in the refrigerator to be stored at +4 °C. The release activities of the extracts were determined using the free radical of 1,1-diphenyl-2-picrylhydrazyl (DPPH). The greater the decrease in absorbance, the higher the antioxidant activity. The total phenol content was determined according to the Folin-Ciocalteu method. The total phenolic content was expressed as Gallic Acid Equivalents (GAE) in mg/ML plant extracts.

Results: The Phenolic compounds contained in *S.chinensis* hexane extracts were characterized using HPLC methods. The phenolic substances comprise the most important groups of natural antioxidants. The free radical elimination activities of the extracts were determined using 1,1-diphenyl-2-picrylhydrazyl (DPPH) free radicals. The lower the absorbance of the reaction mixture of antioxidant and DPPH, the higher the antioxidant free radical elimination activity. The standard free radical elimination activities of jojoba leaf-seed extracts at 5 different concentrations were determined. When the total phenolic content of jojoba extracts was examined, the highest values were determined as 313±2.05 mg GAE/ml for Jojoba leaf and 119.80±1.25 mg GAE/ml for jojoba seed. Jojoba leaf extract is most effective one of the extracts studied in the inhibition of β -carotene-linoleic acid oxidation. However, BHA (85.005%) and BHT (83.250%), which are frequently used in the processing of foods, have a higher percentage of inhibition than all extracts studied. This shows that synthetic antioxidants are more effective. As for the jojoba extracts, the inhibitory effect of the extract obtained from leaf sections are higher comparing to the seed extract.

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