

**DETERMINATION OF ANTIOXIDANT ACTIVITY AND PHENOLIC ACID
PROFILE OF CUBUK PICKLES**

(M. Sc. Thesis)

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ABSTRACT

Polyphenols are bioactive components found in significant amounts in plant matrices, which increase the stability of lipid-containing foods and are the focus of interest with their potential beneficial effects on human health. In this study, fermented pickle samples obtained from Ankara Çubuk district were examined in terms of antioxidant capacity, total phenolic content (TPC) and phenolic acid profiles. Firstly, the antioxidant activity of the samples determined by two different methods. Then, TPM content were determined by Folin-Ciocalteu method and also the phenolic acid profiles were identified by HPLC method.

The TPC of pickle samples was determined in the brine section of the highest pinecone pickle (235.19 µg GAE/mg), while was determined in the pulp section of the lowest green bean pickle (4.82 µg GAE/mg). When the brine and pulp extracts of the samples were compared, it was seen that the brine extracts were significantly higher in terms of TFM.

In terms of antioxidant activity, in β-carotene bleaching method, brine extracts showed higher results than pulp extracts, while in DPPH method, pulp extracts showed higher antioxidant activity due to lower EC values. According to the β-carotene bleaching method, the highest antioxidant activity in the pulp parts of pickles samples was found in purple cabbage pickles with 86.01% value. The lowest activity was found in papaz plum pickles with 45.08% value. The antioxidant activity in the brine part of the samples was determined in the highest pinecone pickles (%96.95), and in the lowest rock samphire pickles (%54.29). According to DPPH radical scavenging activity assay, the highest antioxidant activity of the pulp was detected in the hot pepper pickle ($EC_{50} = 2.94$), while the lowest activity was detected in the rock samphire pickle ($EC_{50} = 24.37$).

The lowest EC₅₀ value in brine namely the highest antioxidant capacity was found in pinecone pickles, the highest EC₅₀ value namely the lowest antioxidant activity was found in small-particle mixed vegetable pickles.

Finally, phenolic acid profiles of the samples were examined and were found to be more common in the pickled samples of phenolic acids such as sinapic, syringic, gallic and chlorogenic acid. On the other hand, it was determined that caffeic, vanillic and trans-ferulic acids were found in low concentrations in the samples and also that p-coumaric and 4-hydroxybenzoic acids were not found in samples.

Keywords: Pickle, antioxidant activity, total phenolic content, phenolic acid, HPLC

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