




ANTIOXIDANT CO-ACTIONS OF ASCORBIC AND DIHYDROXYFUMARIC ACIDS INVESTIGATED BY EPR SPECTROSCOPY

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Abstract. The intricate dynamics of antioxidant interactions holds promise for innovating formulations to reduce patient antioxidants doses and prolong efficacy, these aspects being also important for other industrial applications, such as food preservation. In this context, the study presents data on the antioxidant interaction between ascorbic (AA) and dihydroxyfumaric acids (DHF) determined *via* DPPH[•] method, by applying EPR spectroscopy. Two calculations methods used demonstrated strong and moderate synergistic effects, with antioxidant interaction parameter (AI) of 1.24 and 0.9, respectively. The type of antioxidant interaction is dependent on the concentration ratio of the ascorbic and dihydroxyfumaric acids, thus, at the mM DHF/mM AA ratios of 1.4 and 1.7 the highest synergistic effects with AI of 1.24 have been noticed, but at the mM DHF/mM AA ratio of 1 – an antagonistic effect with AI of 0.93 was registered.

Keywords: dihydroxyfumaric acid, ascorbic acid, EPR spectroscopy, synergy, antioxidant.

Received: 15 April 2024/ Revised final: 31 May 2024/ Accepted: 3 May 2024
