

Antioxidant Activity of Phenolic Acids and their Methyl Esters in Oil Systems

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Natural antioxidants found in plants play an important role in food. Phenolic acids are a subgroup of a large group of secondary plant metabolites that is named phenolics. The antioxidant activity of the phenolic compounds in food systems depends not only on the structure and chemical reactivity of the phenolics but also on other factors such as their physical location and environmental conditions. Phenolic acids (hydroxy derivatives of benzoic and cinnamic acids) are well soluble in various systems containing water, however, in bulk oils are limited soluble. Methyl esters of phenolic acids are suitable antioxidants for bulk oil systems.

The oxidative stability of the bulk oil systems with selected phenolic acids (gentisic, protocatechuic, vanillic, syringic, *p*-hydroxybenzoic, caffeic, ferulic, sinapic and *p*-coumaric acids) and their methyl esters was determined by method Rancimat (120 °C) and Oxidograph (110 °C) and compared with α -tocopherol and butylhydroxytoluene (BHT). The antioxidant activity of gentisic acid (2, 5-dihydroxybenzoic acid), caffeic acid (3, 4-dihydroxycinnamic acid) and methyl caffeate is the highest and generally inversely proportional to redox potential of phenolic acids.