Journal of Analytical Chemistry 2010 vol.65 N9, pages 929-934

Reactions of synthetic phenolic antioxidants with electrogenerated titrants and their analytical applications

Ziyatdinova G., Gainetdinova A., Budnikov G.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Synthetic phenolic compounds (pyrogallol, catechol, hydroquinone, and their derivatives bearing heterocyclic fragments) react with electrogenerated titrants, halogens, and ferricyanide(III) ions. Stoichio- metric coefficients of reactions are found. It is shown that the use of ferricyanide(III) ions as a titrant and a one-electron oxidant for the determination of this class of antioxidants offers advantages in comparison with titrants-halogens. The found amounts of pyrogallol, pyrocatechol, and hydroquinone derivatives in model solutions with the RSD 1-5% are fractions of milligrams. It is found that, in the series of the studied synthetic phenolic compounds, pyrocatechol derivatives possess the maximum antioxidant capacity (AOC). © Pleiades Publishing, Ltd., 2010.

http://dx.doi.org/10.1134/S1061934810090078