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Letter

New method for spectrophotometric determination of quinones and barbituric acid through their reaction. A kinetic study

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Abstract

A new and sensitive spectrophotometric method is described for the determination of *p*-benzoquinone, *p*-chloranil and 1.4-naphthoquinone. The method is based on the reaction between quinones and barbituric acid, by which a color is developed with maximum absorption between 485 and 555 nm in 50% methyl alcohol-water mixture. The absorption of the product obeys Beer's law within the concentration range 0.025–0.05 mM of original quinone. The kinetics of the reaction between *p*-benzoquinone and barbituric acid was studied in a range of methyl alcohol-water mixtures. The reaction follows overall second order kinetics, first order in each of the reactants. The rate increases with increasing dielectric constant. The method was applied for determination of barbituric acid with *p*-benzoquinone in the concentration range of 0.025–0.345 mM. Other barbiturates do not interfere.

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Keywords

Barbituric acid; Quinones

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