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Coulometric evaluation of ferric reducing antioxidant power of some foodstuff

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Abstract

The stoichiometric coefficients for reactions of polyphenols with electrogenerated hexacyanoferrate(III) ions have been established. Coulometric approach for the evaluation of ferric reducing antioxidant power (FRAP) of some foodstuff based on reaction with electrogenerated hexacyanoferrate(III) ions has been developed. FRAP of tea, coffee and spices has been measured. FRAP of black and green teas is similar (123±31 vs. 124±25 C/100 mL, $p > 0.05$). FRAP value of instant coffee samples insignificantly depends on trade mark. Freeze-dried instant coffee has shown higher FRAP than that spray-dried (300±54 vs. 248±14 C/100 mL, $p > 0.05$). FRAP for coffee beans has been significantly lower than for instant coffee (284±41 vs. 224±31 C/100 mL, $p < 0.05$). Maxima recovery of active components from spices can be achieved by single extraction with ethanol during 10 min. FRAP of spices is decreased among Cinnamon > Clove > Rosemary > Cumin > Oregano > Ginger > Juniper berries > Chili pepper > Nutmeg > Turmeric > Black pepper = Red pepper > Basil > Coriander.