

Abstract

This work was focused on study of a behaviour of the food additivum butylated hydroxyanisole on modified carbon electrodes by the voltammetric techniques – cyclic and differential pulse voltammetry. Glassy carbon and carbon paste electrode were used. Multiwalled carbon nanotubes (MWCNT) in combination with three different binders (acetonitrile, nafione or chitosane) were employed for the electrode modification. Carbon paste electrode was unable to modificate with film containing carbon nanotubes and acetonitrile, its active surface was treated only with nafione and chitosane film. All three mentioned modifications were applied in case of glassy carbon electrode.

Butylated hydroxyanisole provided a significantly higher signal using electrodes modified with carbon nanotubes with all three binders in contrast to electrodes without any surface modification. The glassy carbon electrode with carbon nanotube / acetonitrile film on its surface appeared to be the most effective for analytical purposes. Voltammetric determination of butylated hydroxyanisole using this electrode provided a better defined and higher analytical signal and lower relative standard deviations in comparison with other ways of modification. The limit of detection of butylated hydroxyanisole obtained by cyclic voltammetry on glassy carbon electrode modified with MWCNT / acetonitrile film was $1,6 \cdot 10^{-5} \text{ mol l}^{-1}$, for differential pulse voltammetry the value was $3,7 \cdot 10^{-5} \text{ mol l}^{-1}$.