ABSTRACT

This thesis is focused on development of electrochemical method for determination of 2-amino-3-nitrotoluene. The technique of DC voltammetry (DCV) and differential pulse voltammetry (DPV) were used on a silver solid amalgam electrode modified by mercury meniscus (m-AgSAE) with the Britton-Robinson (BR) buffer supporting electrolyte. In the next step the suitability of developed method was tested for drinking and river water model samples.

BR buffer of pH 12.0 was used for determination of 2-amino-3-nitrotoluene by DCV method and BR buffer of pH 7.0 was used for DPV method. Both methods were used for concentration monitoring of studied compounds in the range from $1 \cdot 10^{-6}$ to $1 \cdot 10^{-4}$ $mol \cdot l^{-1}$.

Limit of quantification of DCV method in BR buffer with deionized water was $2,7 \cdot 10^{-6}$ $mol \cdot l^{-1}$ whereas $1,2 \cdot 10^{-6}$ $mol \cdot l^{-1}$in drinking water and $1,5 \cdot 10^{-6}$ $mol \cdot l^{-1}$ in river water. Limit of quantification of DPV method was $1,5 \cdot 10^{-6}$ $mol \cdot l^{-1}$ in BR buffer, $7,3 \cdot 10^{-7}$ $mol \cdot l^{-1}$ in drinking water and $1,4 \cdot 10^{-6}$ $mol \cdot l^{-1}$ in river water.

Stability of stock solution of the studied compound of $1 \cdot 10^{-3}$ $mol \cdot l^{-1}$ concentration in water was measured by spectrometry at 3 wavelengths 222 nm, 293 nm, 416 nm. After one month there was no significant decrease in absorbance so the sample was considered to be stable and it was kept in the dark at room temperature.