

## Abstract

According to International Agency for Research on Cancer (IARC), some specific isomers of amino derivatives of polycyclic aromatic hydrocarbons (APAHs) are classified as carcinogenic to humans (Group 1). Several APAHs are employed in the manufacturing of widely-used azodyes, therefore, sensitive and selective analytical methods for their determinations are still needed.

This study aims at the possibilities of detection of 2-aminobiphenyl (2-AB), 4-aminobiphenyl (4-AB), 1-aminonaphthalene (1-AN) and 2-aminonaphthalene (2-AN) using bare screen-printed carbon electrodes (SPCE). These were employed as working electrodes in amperometric detection flow cell for repeated use in liquid flow methods – reverse phase high performance liquid chromatography (RP-HPLC) and flow injection analysis. Sufficient stability and repeatability was obtained for mobile phases containing the maximum of 70% of acetonitrile. Limits of detection for 4-AB given by FIA in the aqueous solution of  $0,01 \text{ mol}\cdot\text{l}^{-1}$  phosphate buffer pH 3,0; or in the solution of acetonitrile and  $0,01 \text{ mol}\cdot\text{l}^{-1}$  phosphate buffer pH 3,0 (40:60) (V/V) were  $1,0 \text{ mol}\cdot\text{l}^{-1}$  and  $2,0 \text{ mol}\cdot\text{l}^{-1}$ , respectively. Using RP-HPLC in gradient mode, the mixture of aminobiphenyls and aminonaphthalenes was successfully separated below 11 minutes. Limits of detection for individual analytes were:  $2,2 \text{ }\mu\text{mol}\cdot\text{l}^{-1}$  for 2-AN;  $2,1 \text{ }\mu\text{mol}\cdot\text{l}^{-1}$  for 1-AN;  $3,5 \text{ }\mu\text{mol}\cdot\text{l}^{-1}$  for 4-AB and  $3,3 \text{ }\mu\text{mol}\cdot\text{l}^{-1}$  for 2-AB.