

## **ABSTRACT**

This Ph.D. thesis is focused on the use of a new type of non-toxic electrode (carbon film electrode - CFE) for voltammetric determination of environmental organic pollutants and on the development and use of a new type of solid electrode modified with carbon nanotubes for the determination of 2-nitrophenol (2-NP) and 8-nitroquinoline (8-NQ). The work is a continuation of the previous study of 5-nitroquinoline (5-NQ) using CFE in author's bachelor and diploma thesis. The determination of 5-NQ based on anodic oxidation is not possible at CFE and thus 2-NP was chosen as a model substance for voltammetric determination in both regions of potential window (cathodic and anodic).

Further attention was paid to the development of a new type of carbon electrode with surface containing carbon nanotubes and its application for the determination of 8-NQ using differential pulse voltammetry (DPV) based on cathodic reduction of present nitro group. Silver solid electrode (AgE) as a substrate electrode for following modification was used. At first, the AgE itself was used for determination of 8-NQ in deionized water and in model samples of drinking and river water. Then the possibility of electrode surface modification using different type of carbon nanotubes was investigated. The AgE modified with carboxylated single-walled carbon nanotubes (COOH-SWCNTs/AgE) has been successfully used for DPV determination of 8-NQ in deionized water and in model samples of drinking water. These results were not published so far and thus they are described in more details in the thesis.