

## Abstract

This bachelor's thesis concerns the determination of doxycycline (DX) and dimenhydrinate (DMH) by the methods DC voltammetry (DCV) and differential pulse voltammetry (DPV) on a carbon film electrode (CFE). The optimum conditions for voltammetric determination of DX and DMH were found and under these conditions, concentration dependences were measured and the limits of quantification (LOQ) were calculated for each method.

The media of BR-buffer pH 12.0 was chosen as optimum for DCV and DPV determination of DX at CFE. For both DCV and DPV, the linear concentration dependences were obtained in concentration ranges of DX from 20  $\mu\text{mol}\cdot\text{l}^{-1}$  to 100  $\mu\text{mol}\cdot\text{l}^{-1}$  with LOQ 15,4  $\mu\text{mol}\cdot\text{l}^{-1}$  for DCV and 15,2  $\mu\text{mol}\cdot\text{l}^{-1}$  for DPV. DX was determined in drug using DCV under optimized conditions and for comparison of used voltammetric method DX in drug was determined also using UV-VIS spectrophotometry with consistent results.

The optimum medium of BR buffer pH 3.0 was chosen for determination of DMH by DCV and pH 2.0 for DPV. The calibration range 2,0 – 10,0  $\mu\text{mol}\cdot\text{l}^{-1}$  of DMH was received using DCV and 0,2 – 1,0  $\mu\text{mol}\cdot\text{l}^{-1}$  of DMH was received using DPV at CFE with reached LOQ 0,08  $\mu\text{mol}\cdot\text{l}^{-1}$  for DCV and 0,02  $\mu\text{mol}\cdot\text{l}^{-1}$  for DPV. DMH was determined in commercial drugs using DCV on founded conditions.

The stability of stock solution of DX, DMH in distilled water was monitored using UV-VIS spectrophotometry. The solution of DX was stable for one day and DMH for one month.