

## Abstract

The goal of this master's thesis was to examine the possibility of oxidation of seven selected bile acids and evaluate whether such processes are suitable for analytical purposes. The secondary goal was to describe the oxidation products of bile acid electrolysis. The experiments were carried out in a non-aqueous medium of acetonitrile and in a mixed medium of acetonitrile:water using linear sweep and cyclic voltammetry. The working electrode materials employed for voltammetric experiments were: highly oriented pyrolytic graphite,  $\beta$ -cyclodextrin modified glassy carbon and boron doped diamond. Preparative electrolysis was carried out on a platinum electrode in the non-aqueous medium of acetonitrile. Experiments have shown that neither the highly oriented pyrolytic graphite electrode nor the  $\beta$ -cyclodextrin modified glassy carbon electrode are suitable for analytical purposes under conditions used. The results achieved on the boron doped diamond electrode, on the other hand, have not yet been described in the literature. Primary bile acids cholic and chenodeoxycholic were oxidized at approximately 0.5 V lower potential in the mixed medium of acetonitrile:water than in the papers using carbon electrodes published until now. Products of oxidation on the platinum electrode were separated by TLC and characterized by UV and IR spectrometry. Nevertheless, further analyses need to be carried out for the full identification of the products.