

## **Abstract**

Xenobiotics, such as pharmaceuticals, food additives, environmental pollutants, and dietary bioactive compounds in organism are metabolized by various enzymes, resulting in their bioactivation or detoxification. Identification of structure of resulting metabolites is important for their detection in bodily fluids and tissues for diagnostic and forensic purposes. This thesis reviews known biochemical processes and enzymes involved in xenobiotic metabolism, including cytochromes 450 (CYP) and flavine monooxygenases (FMO). Given that biochemical reactions are to a major extent composed of electron-transfer reactions (i.e. oxidation and reduction), the thesis includes a section dealing with the practical approaches to determination of the oxidative or reductive mechanism of bioactive compounds.