

## **Abstract**

This thesis deals with the oxidative degradation of the active pharmaceutical substance ticagrelor, which is used together with acetylsalicylic acid as a prevention against atherothrombotic events in adult patients. In this thesis, oxidation was studied both in the traditional way using hydrogen peroxide and the new electrochemical approach. The oxidation was performed with a 3% solution of hydrogen peroxide at 50 °C in various solvents. An electrochemical method for the oxidation of ticagrelor was developed as part of the thesis. This method was then optimized to achieve the highest possible oxidation efficiency. The thesis also investigated the effect of excipients on the oxidation rate. Degradation products were evaluated using the ultra-high performance liquid chromatography. The structures of all the degradation products formed were identified using a QDA mass detector.

**Key words:** *UPLC, electrolysis, degradation studies, pharmaceuticals*