Abstract

The aminoacid sequence of papain (EC 3.4.22.2) consists of 212 aminoacids. It has only one free sulfhydryl group, which is located in the active site of the protein. Some organometallic complexes could be bonded only to this free -SH group due to their structure. The artificial metalloproteins synthesised by this way may have different electrochemical properties. In this work, we have studied the electrochemical properties of papain and its derivatives. We compared the ability of papain and its three artificial derivatives to catalyse the hydrogen evolution by the chronopotenciometry.

The work was completed by the study of the electrochemical properties of the organometallic complexes of ruthenium, which were used for the artificial metalloprotein preparation. The electrochemical properties of the compounds were never studied before.

The process of the hydrogen evolution catalysed by the proteins is held in the adsorbed state of the catalyst. Due to this fact we have also studied the adsorption properties of papain on the substrates with different level of hydrofobicity. (In Czech)