# EVALUATION LECTIN-SUGAR INTERACTION ON ELECTRODES MODIFIED WITH COLLOIDAL GOLD AND POLYVINYLBUTIRAL BY ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY

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Gold nanoparticles (AuNp) allow the electron transfer and can be easily modified with a wide range biomolecules. The aim of this work was immobilized Con A and CramoLL lectins on the surface of platinum (Pt) and gold (Au) electrode modified with AuNp and polyvinylbutiral (PVB). Electrochemical impedance (EI), frequency range from 100 mHz to 100 KHz, and cyclic voltammetry (CV), scan range -0.2 to 0.7 V, were performed in the presence of a 10 mM $K_3[Fe(CN)_6]/K_4[Fe(CN)_6]$ (1:1) mixture as a redox probe. EI and CV measurements showed that redox probe reactions on the Pt and Au electrode were blocked due to the impedance change. Adsorbed Con A-AuNp-PVB and CramoLL-AuNp-PVB systems on the surface of modified Pt and Au electrode provokes an increase of the real part of impedance. Well-defined cyclic voltammograms characteristic of a diffusion-limited redox process, are observed at the bare platinum/gold and after these electrodes were modified with Con A-AuNp-PVB or CramoLL-AuNp-PVB, an obvious decrease in the anodic and cathodic peaks was observed. The EI and CV showed the interaction between the studied lectins with glucose, glycogen and ovalbumin. Our results indicate an improvement of the sensitivity for detection of sugars that can be applicable to construction of carbohydrate biosensor.

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