

Construction of voltametric biosensor for detection of Bovine serum albumin amyloid nanobiofibrils using live membrane and its application

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Abstract Introduction: Biosensors are among the most accurate means of determining the quantity of materials. In this study, the quantitative amount of amyloid nanobiofibrils produced by serum albumin as a pathogenicity factor in the tissues involved in Alzheimer's disease was measured by using differential pulse voltammetry and electrochemical impedance methods. **Methods:** in this survey by utilizing of voltammetric method, low amounts of bovine serum albumin amyloid nanobiofibril was detected. The voltammograms were detected by a device with Autolab Type III potentiostat / galvanostat device equipped with Nova software. Three electrodes system with a phosphor electrode as biodegradable a platinum rod as an ancillary electrode and Ag / AgCl as a reference electrode was used. All experiments were carried out at room temperature and in Iron III solution of iron II with phosphate buffer as a pH regulator, and the fixation of biochemical amyloid strands was evaluated by FT-IR, DRS and AFM testing. **Conclusion:**In this research, we tried to use a cheap, easy and simple method for detection and quantitatively detection of a small amount of bovine serum albumin amyloid nanobiofibril. Studies have shown that the use of electrochemical biosensor is one of the best methods for this measurement. In this study, the electrochemical behavior of bovine serum albumin amyloid nanobiofibril was analyzed by utilizing of biosensor. The analyzes performed include atomic force microscopy, reflective reflection spectroscopy, and Fourier transform infrared spectroscopy which all prove that bovine serum albumin amyloid nanobiofibrils were conjuncted to the swim bladder surface with chemical bonding. **Keywords:** biosensor, bovine serum albumin, amyloid, Alzheimer, Difference pulse voltammetry

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