Amperometric xanthine biosensor based on deposition gold on polyvinylferrocene film coated Pt electrode

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XO/Au/PVF/Pt xanthine biosensor based on deposition of gold(Au) nanoparticles on polyvinylferrocene(PVF) coated Pt electrode for detection of xanthine(X) was presented [1,2]. The amperometric response of the enzyme electrode was measured at constant potential, which was due to the electrooxidation of enzymatically produced H₂O₂. Compared with XO/PVF/Pt electrode, XO/Au/PVF/Pt exhibited excellent electrocatalytic activity towards the oxidation of the analyte. Effect of Au nanoparticles was investigated by monitoring the response currents at different deposition times and different concentrations of KAuCl₄. Under the optimal conditions, the calibration curve for XO/Au/PVF/Pt was obtained over the range of 2.50×10⁻³-0.56 mM. The detection limits were 7.5×10⁻⁴ mM for XO/Au/PVF/Pt. The effects of the applied potential, the amount of the immobilized enzyme on the response of the biosensor were also determined and compared.