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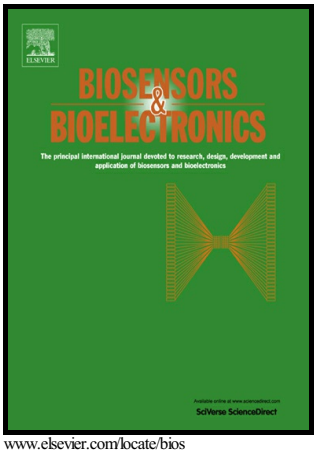

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Amplified impedimetric immunosensor based on instant catalyst for sensitive determination of ochratoxin A

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ABSTRACT

A new impedimetric immunosensor for the fast determination of ochratoxin A (OTA) in food samples was developed based on the instant catalyst as enhancer. Initially, the signal tags were prepared via co-immobilization of anti-OTA antibody and amine-terminated dendrimer (PAMAM) on the graphene oxide nanosheets through the covalent interaction, which were utilized as a good platform for combining manganese ion (*anti*-OTA-GO-PAMAM-Mn^{2+}). Upon target OTA introduction, a competitive-type immunoreaction was implemented between the analyte and the immobilized OTA-BSA on the electrode for the *anti*-OTA antibody on the graphene oxide nanosheets labels. After a competitive immunoassay format, the *anti*-OTA-GO-PAMAM-Mn^{2+} were captured onto the electrode surface, which could induce the *in situ* formation of MnO_2 *via* classical redox reaction between Mn^{2+} and $KMnO_4$ on the immunesensing platform. Moreover, the generated MnO_2 nanoparticles act as efficient catalyst could catalyze the 4-chloro-1-naphthol (4-CN) oxidation without H_2O_2 to generate an insoluble precipitation on the platform. Under the optimal conditions, the instant catalyst based impedimetric

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