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ELECTROCHEMICAL IMMUNOSENSORS – A**POWERFUL TOOL FOR ANALYTICAL APPLICATIONS****Fabiana S. Felix^{1,2} and Lúcio Angnes^{2*}**¹**Departamento de Química, Universidade Federal de Lavras (UFLA), CP 3037, Lavras, CEP 37200-000, MG - Brazil**²**Instituto de Química, Universidade de São Paulo, Av. Prof. Lineu Prestes, 748 – CEP 05508-000, São Paulo, SP, Brazil**

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Abstract

Immunosensors are biosensors based on interactions between an antibody and antigen on a transducer surface. Either antibody or antigen can be the species immobilized on the transducer to detect antigen or antibody, respectively. Because of the strong binding forces between these biomolecules, immunosensors present high selectivity and very high sensitivity, making them very attractive for many applications in different science fields. Electrochemical immunosensors explore measurements of an electrical signal produced on an electrochemical transducer. This signal can be voltammetric, potentiometric, conductometric or impedimetric. Immunosensors utilizing electrochemical detection have been explored in several analyses since they are specific, simple, portable, and generally disposable and can carry out *in situ* or automated detection. This review addresses the potential of immunosensors destined for application in food and environmental analysis, and cancer biomarker diagnosis. Emphasis is given to the approaches that have been used for construction of electrochemical immunosensors. Additionally, the fundamentals of immunosensors, technology of transducers and nanomaterials and a general overview of the possible

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