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Conference Abstract

MOLECULARLY IMPRINTED SENSORS FOR LABEL-FREE DETECTION OF FOODBORNE MYCOTOXINS

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Abstract

Mycotoxins are extremely poisonous secondary metabolites formed by fungi (molds). The severe toxicity of mycotoxins results in serious diseases and health problems in human beings and animals. Mycotoxins influence a wide range of agricultural products, which include cereals and cereal-based foods and feeds. Most countries have established strict regulations for the permitted levels of mycotoxins in food and feed samples. The most advanced methods for the detection, quantification, and analysis of mycotoxins usually need highly sophisticated hyphenated instrumentation such as high-performance liquid chromatography with fluorescence or mass detectors. These methods require laborious, time-consuming extraction procedures for sample preparation and analysis. This work is focused on the development of faster and simpler analytical tools based on miniaturized sensing platforms that can become a promising alternative for the recognition of foodborne mycotoxins. In this bargain, molecularly imprinted polymers (MIP) combined with gold (Au) nanoparticles are developed as selective receptors for the label-free detection of aflatoxin B1. These receptors are fabricated on quartz crystal microbalance transducers and characterized via atomic force microscopy. Subsequently, the MIP sensors are exposed to different concentrations (10- 160 ppm) of aflatoxin B1. The devices demonstrate fast and extremely high sensor response, a low threshold limit of detection, and significant selectivity among various aflatoxins (B1, B2, etc.). These sensors are expected to be valuable because of their low cost, simplicity, and the possibility of miniaturization and portability for in-field

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applications. to clinical signs and symptoms and according to blood serum tests it was in students of matric. After statistical analysis it was clinched that Zn deficient volunteers having joint family system. According to blood group Zn paucity was high in those having A+ blood group with respect to blood serum test, while it was high in O+ with reference to clinical signs and symptoms.

Keywords: Mycotoxins, Nanoparticles, Biosensors.

Declaration

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