
Poster

Simultaneous determination of food allergens by multiple analysis strips



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ABSTRACT

Motivation: Some substances in food, even in small traces, are responsible of severe allergic reactions becoming harmful to human health of sensitized individuals. Therefore, the food sector is forced to produce innocuous food for consumers by implementing safety management systems and using labeled to alert of the presence of allergens. Consequently, the monitoring of cross-contamination of materials during production lines and proper labeling of ingredients is crucial in quality control in the food industry. Currently, the presence of food allergens is determined by analytical techniques such as ELISA or PCR in real time [1]. However, there is not a technique that can simultaneously analyze a variety of allergens in order to avoid expensive and difficult individual analysis. The aim of this work is the construction of a new analysis system based on a serie of test strips, which allow the simultaneous detection of more than one type of allergen in the same food and in a short time.

Methods: The basis of this system is the use of different antibodies bound to an enzyme and immobilized in, that bind to specific areas of each allergen (specific proteins) test strips [2][3]. This antigen-antibody complex mobilizes and be joined to other immobilized antibody, producing a positive colorimetric signal. In the absence of allergen in the sample, the first antibody is mobilized but not joined to second antibody and then there isn't positive signal indicating the presence of allergens. All the construction has a control system where the primary antibody will bind to a third immobilized antibody, generating a signal indicating that the scanning process has been carried out properly [4].

Results: The validation of the system through different assays with positive controls at different concentrations of allergens is carried out. Consequently, the obtained results verify that the analytical system is working properly and the detection limit is calculated.

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