

VALIDATION OF ELISA METHOD TO SUPPORT DETECTION AND QUANTIFICATION OF TOTAL AFLATOXINS FOR THE TRADITIONAL ROMANIAN SPONGE CAKE “COZONAC”

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The need for enhancing food safety has increased the interest in fast and accurate measurement methods for detection and quantification of food contaminants. A traditional Romanian sponge cake named “cozonac” was studied in order to evaluate the possible occurrence of mycotoxins. The main ingredients of this bakery product are wheat flour, milk, sugar, eggs, butter and yeast, to which a cocoa cream that contains nuts and/or Turkish delight is added. Because of its ingredients, the product is susceptible to a mycotoxin contamination. A sandwich-type enzyme-linked immunosorbent assay (ELISA) method was optimized and validated in-house for the quantification of total aflatoxins (AFLA). The validation of the method was based on following performance parameters: accuracy (measured as percent error), precision (measured as coefficient of variance), reproducibility and repeatability (precision within- and between-day and analyst variability), limit of detection (LOD) and limit of quantification (LOQ). Different spiking methods with different concentrations of mycotoxins were assessed in order to formulate quality control samples. The working protocols and the step-by-step validation model are provided.

Keywords: bakery products, ELISA method, total aflatoxins