The concentration of zearalenone in food matrixes was detected using enzymatic immunoassay (direct competitive ELISA using an enzyme tracer). Drop of total volume 40μl (10μl of anti-mycotoxin antibody complex + 20μl of PBS pH 7.4 +10μl of enzymatic substrate) was introduced on the surface of SPE electrode. Indirect measurement was realized after introduction of the enzymatic substrate (H_20_2 + HQN), which reacts with an enzyme producing a sample, giving us certain signal. The retrieved signal is inversely proportional to the analytes concentration in the sample. For the sensitive detection of an electrochemical mediator (HQN) was used different pulse voltammetry, directly related to the activity of the enzyme tracer, on the surface of SPE electrode.

The first part of work was the optimization of variables: H_20_2 and HQN as substrate and electrochemical mediator, proceed by detecting the concentrations producing the maximal signal ([ZEA] = 0). The concentrations of 80μM for H_20_2 and 40μM for HQN, were chosen.

Subsequently, the calibration curve for evaluation of immunosensors capacity was carried out-limit of detection: 7ng/kg and accuracy of the method, verified by using certified reference material with known concentration of ZEA. Recovery values in the range from 101.2 % to 110.8 % were reached.

In the end, the method was applied on real samples of infant food stuff, previously found to contain undetectable level of zearalenone, which were spiked with known quantity of zearalenone and assayed. Recovery values in the range from 96.5 % to 105 % were reached.

The method was found suitable for the detection of zearalenone in infant food.