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Fate of Deoxynivalenol During the Production Process of Bakery Products

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Producing safe food is a goal and an obligation for each producer. Mycotoxins by representing the most significant contaminants of grain are considered to be the main risk in the production of safe bakery products.[1]

Conditions during the production process defined by temperature regime, duration of the temperature regime, moisture content, pH value, as well as the type and level of mycotoxin concentration in the matrix are the most important factors influencing the reduction of mycotoxin content.[2]

The aim of this study was to examine the influence of production process of different types of bread, rusk, bread crumbs and biscuits on the content of deoxynivalenol in bakery products. Samples of naturally contaminated whole grain wheat flour (conc. 700 μg/kg), wheat flour type T-1100 (conc. 500 μg/kg) and whole kernel corn flour (conc. 2420 μg/kg) were used to examine the influence of the production process on the content of deoxynivalenol in bakery products. Experimental production of different types of bread, rusk, bread crumbs and biscuits was conducted in a bakery pilot plant. Ridascreen® ELISA-assay was used to analyze the content of deoxynivalenol.

Based on the results it was concluded that the process of production of bread, rusk, bread crumbs and biscuits significantly reduces the content of deoxynivalenol in final products ($p<0,05$). However, in some cases (rusk and bread crumbs) results raised a question if the % of reduction is high enough to make the final product compliant to European legislation (Reg. 1881/2006)[3].

Keywords: deoxinivalenol, bakery products, ELISA

References

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3. Commission Regulation (EC) No. 1881/2006 setting maximum levels for certain contaminants in foodstuffs.