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Improving food safety of wheat flour

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Deoxynivalenol affects animal and human health causing diarrhea, vomiting, gastro-intestinal inflammation, and immunomodulation. It was dealt with the laboratory modelling of a new milling surface treatment called PeriTec technology to find out to what extent this method can reduce toxin contamination. Experiments were carried out using a naturally contaminated wheat lot. Applying different treatment times we varied the rate of debranning. DON toxin content was determined by competitive Elisa method. Focus was mainly on the toxin contamination of the grains and their milling products, as well as on other characteristics that are important with regard to milling processing. As a result of debranning, the toxin content of the grinding fractions decreased, which justifies that that PeriTec method is suitable for the reduction of toxin contamination. On the basis of the experimental results, the optimum peeling was the peeling which resulted in a weight loss of about 6%; the toxin content significantly decreased (from 1.59 mg/kg to 0.94 mg/kg); the flour yield increased (from 70% to 80 %); the rate of grain fracture remained within an acceptable level. Despite the fact that the toxin content of the experimental wheat sample was rather low, 0.74 mg/kg, quite high values of toxin contamination was obtained, about 4 mg/kg, in the removed bran, which significantly exceeds the allowed rate. This result draws special attention to the importance of the surface cleaning of crops before milling and the significance of the debranning technology studied.

Biography

Antal Veha earned his Master of Mechanical Engineer for Agriculture from Agricultural University of GOdOllő, Hungary, his Master of EU knowledge expert food quality management from University of Debrecen, Hungary, his Doctor of the Agricultural Science (CSc) from HAS Budapest, Hungary and his Habil. He got his Doctorate from University of Debrecen, Hungary. He is Professor and Head of Department of Food Engineering at University of Szeged, Faculty of Engineering. He is founder member of the Hungarian National Committee of EURAGENG and member of the Food Safety Subcommittee of the Hungarian Academy of Sciences. He is general editor of the Journal of the Food Science and Technology published by the Hungarian Association of Food Science and Technology.

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