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DEOXYNIVALENOL CONTENT IN LESS REFINED MILLING FRACTIONS OF DURUM WHEAT EMPLOYING AN INNOVATIVE TECHNOLOGY

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The consumption of fiber-rich foods is currently recommended as an important strategy to adopt a healthy diet. Durum wheat (*Triticum durum* Desf.), such as other cereals, contains many bioactive compounds of great interest with regard to the biological and nutritional aspects and mainly found in the coating structures of the kernel. As a result of the traditional milling process these structures form byproducts fractions (e.g.: bran) which tend to concentrate the organic contaminants such as deoxynivalenol (DON), the most widespread *Fusarium* toxin in wheat within the temperate regions of the world.

The aim of the work was to apply an innovative milling technology by employment of micronization and turbo-separation to obtain less refined milling fractions characterized by a good quality with regard to the technological use and hygienic-sanitary aspects suitable for the production of semi-integral finished products (pasta, bread, etc.). The preliminary results obtained allowed to identify one fraction (F1 250) obtained by the turbo-separation process as the best compromise between a good yield of milling transformation and a marked reduction in the content of deoxynivalenol (16%) in comparison with the whole milled sample. Therefore, the objective was to find out the most suitable process conditions to obtain less refined fractions rich in bran showing both a good reduction of the deoxynivalenol content and useful to manufacture end products enriched by nutritional point of view. Finally, the analysis on durum wheat samples grown in different cultivation areas confirmed the marked influence of the environmental factor on the concentration of the same mycotoxin in samples assayed in this work.

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Keywords: deoxynivalenol; micronizator, turbo-separator.

ABSTRACT