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EFFECTS OF INDUSTRIAL CLEANING ON WHEAT MICROBIAL BURDEN AND DEOXYNIVALENOL LEVELS

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Abstract

An industrial cleaning line containing combi-cleaner, indented separator and scourer was evaluated in terms of reducing the microbial and deoxynivalenol (DON) content from wheat grains naturally contaminated with *Fusarium* spp.

The presence of an indented separator in the industrial cleaning line allowed reducing the DON contamination by 30-36% when dealing with grains having 17.71 to 33.34 µg DON/kg, due to the *Fusarium* contaminated grains removal. In addition, scouring and aspiration succeeded to reduce grain DON contents ranging from 4.31 to 5.89 µg/kg, by 52–54%.

The moulds content was reduced by 76.9% and the aerobic mesophilic spore forming bacteria by 81% through separation, classification and aspiration. Despite the fact that the number of microorganisms present on wheat grains increased during tempering, their number are reduced during scouring. This operation succeed to remove most of the impurities and adhering contaminants and as consequence the moulds were reduced in proportion of 70% and the aerobic mesophilic sporeforming bacteria was reduced by 62.5%.

These results may allow us considering that the cleaning performed in combi-cleaner associated with indented separator and scourer might be successfully used for reducing the mycotoxins contamination levels of cereals.

Key words: cleaning, deoxynivalenol, *Fusarium*, microbial burden, wheat

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