**Relationship Between The Level Of Deoxynivalenol Contamination In Wheat And The Fungal Infection**

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Fusarium spp invades grain commodities in the field and during storage in Uruguay and produces Deoxynivalenol as the main toxin.

The Department of Natural Toxins of Technological Laboratory of Uruguay, as partner in the Project titled " The Development of a Food Quality Management System for the Control of Mycotoxins in Cereal Production and Proccesing Chains in Latin America South Cone Countries", INCO Project ICA4-CT-2002-10043 participates in two workpackages (WP). WP1 related to the development and standarisation of effective analytical tools for mycotoxin determination in cereal and by- products and WP4 related to hazard analysis on mycotoxins.

Once DON results were obtained, the objective of this work was to evaluate a possible relationship between the level of deoxynivalenol contamination in wheat and the fungi infection.

To reach the objective nine samples corresponding to four different levels of DON contamination were selected as representative of the 87 samples. One sample of 1379 ppb (Group A), four samples of 2536 ppb average (Group B), one sample of 7349 ppb (Group C) and three samples of 20076 ppb average (Group D) were used for the study. The water activity ($a_w$) was measured previous DON content analysis and fungi contamination determination. The values recorded were lower than 0,7.

The grains, before and after treatment with sodium hipocloride solution 5%, were placed in duplicate Petri dishes containing yeast glucose cloramphenicol agar (YGCA), twenty grains without treatment and fourty grains treated per dish. The colonies grown were isolated in potato dextrose agar (PDA) and malt extract agar (MEA) tubes. Cultures on Czapek Agar were made. Petri dishes and tubes were incubated at 25 ± 1 °C, 4 to 7 days. Cultures on Cazapek Agar were observed under microscope every 24 hours.

After sodium hipocloride treatment *Fusarium, Penicillium and Alternaria* spp were found. The results obtained showed that *Fusarium* spp colonies were isolated from five samples: one of group A corresponding to three isolates, two of group B corresponding to two and three isolates and two of group D corresponding to five and eight isolates. *Penicillium* was recovered from three samples; one of group B corresponding to one isolate, one of group C corresponding to two isolate and one of group D corresponding to two isolates. *Alternaria* spp was present in similar quantity of isolates, fifteen average, it didn´t matter the level of DON contamination except for group D, in which the number of isolates was lower than expected (seven).

Without sodium hipocloride treatment too many species growed. Because of this *Fusarium* spp could not be recovered. The only species easily viewed and isolated was *Aspergillus* spp found in three samples. *Aspergillus flavus* colonies were isolated from one sample of group A corresponding to two isolates and one sample of group B corresponding to one isolate. *Aspergillus niger* colonies were isolated from two samples of group B corresponding to three and one isolates.

The study focused in *Fusarium* contamination. Nevertheless other species of interest such as *Penicillium, Alternaria and Aspergillus* spp were isolated.

Fusarium spp isolates apparently increased as the DON content became higher. This study should be continued analysing more samples of similar levels. Interaction between *Fusarium* , *Penicillium, Alternaria and Aspergillus* could be also studied.

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