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Aspergilli and Penicillia related to the surface of ripening Italian grana type cheese and its ripening environment

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Information available on the mycoflora associated to ripening Italian "grana type" cheese is very poor. Recently, ochratoxin A (OTA) was detected in samples of packed grated cheese[1]; therefore, the need of information to perform a risk management was highlighted.

Moreover, sterigmatocystin (STC) has been reported in cheese and it is considered an emerging problem. Despite the fact that both of them are mycotoxins included in group 2B by IARC [2,3], no European regulation exists. So, the main goal of this work is to give for the first time a general overview about Penicillia and Aspergilli growing on the surface of ripening "grana type" cheese, with particular attention on mycotoxigenic species. To perform this, in 2013 and 2014 crust samples were scratched from ripening grana cheese wheels and also Potato Dextrose Agar plates were exposed to monitor ripening house air. Then, 140 fungal isolates were randomly chosen, purified and monospore colonies were obtained for their identification at specie level. A polyphasic approach is followed, based on morphological characterisation, toxic extrolites profiling and gene sequencing. The identification is still in progress, but the first results based on the morphological approach showed the presence of mycotoxigenic Aspergilli (*Aspergillus flavus* and *A. versicolor*) and various *Penicillium* species; among them *Penicillium chrysogenum*, *P. implicatum* and *P. solitum* were identified.

Only *P. chrysogenum* was reported to produce the mycotoxins cyclopiazonic acid (CPA) and roquefortine-C (ROQ-C) [4]. These results will be presented and discussed.

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[1] A. Biancardi, R. Piro, G. Galaverna, C. Dall'Asta, "A simple and reliable liquid chromatography-tandem mass spectrometry method for determination of ochratoxin A in hard cheese" *International Journal of Food Sciences and Nutrition* 64 (5), 2013, 632 – 640.

[2] International Agency for Research on Cancer (IARC) "IARC Monographs on the Evaluation of Carcinogenic Risks to Humans" 31, 1983, 191 – 199.

[3] International Agency for Research on Cancer (IARC) "IARC Monographs on the Evaluation of Carcinogenic Risks to Humans", suppl. 7, 1987, 72.

[4] J. I. Pitt, D. A. Hocking, "Fungi and Food Spoilage" 1997, 291.