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Poster Abstract – H.11

DETECTION OF TRANSGENE IN WHEAT FLOUR AND DERIVED BREAD AFTER FOOD PROCESSING

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According to the European Commission Regulation (E. C. R.) 1830/2003 of 22/09/2003, the limit of Genetically Modified Organism (GMO) derived material accidentally present in a foodstuff, without the necessity of labelling it, is 0.9% w/w for each ingredient. Therefore it is necessary to have an analytical and reliable methods to detect GMO in foodstuffs.

This paper describes the use of Polimerase Chain Reaction (PCR) techniques to evaluate the possibility of amplifying the GM DNA at two stages of food production, using as experimental model a GM durum wheat carrying the GUS (β–glucuronidase) reporter gene. In particular two matrixes prepared in the lab were used: the raw material (wheat flour) containing only traces of GM wheat flour and the derived foodstuff (bread) produced in laboratory using the same wheat flour. The aim of this work is to develop a protocol able to detect the GM DNA via PCR amplification capable of measuring below the E. C. R. limit of 0.9% w/w after food processing.

In qualitative PCR analysis, the detection sensitivities found were 0.05% w/w and 0.5% w/w for flour and bread respectively.

Additionally a multiplex PCR protocol was optimised to simultaneously detect three genes, two internal controls in addition to the transgene. The internal controls are: I) a chloroplast gene to identify a vegetal matrix, II) a gene specific to wheat to evaluate the DNA quality; III) the transgene specific to the GM wheat line.