

BOOK OF ABSTRACTS

3rd International Symposium on
**RECENT ADVANCES IN
FOOD ANALYSIS**

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B-3**DETECTION OF GENETICALLY MODIFIED ORGANISMS IN RAW AND HIGHLY PROCESSED SOYBEAN AND MAIZE FOODSTUFFS BY POLYMERASE CHAIN REACTION****Isabel Mafra^{1*}, Joana S. Amaral², Carla S. Ferreira da Silva³, M. Beatriz P. P. Oliveira⁴**^{1 3 4} Requite, Serviço de Bromatologia, Faculdade de Farmácia, Universidade do Porto, Porto, Portugal² Requite, Serviço de Bromatologia, Faculdade de Farmácia, Universidade do Porto, Porto, Portugal and Instituto Politécnico de Bragança, Portugal

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The soybean and maize are the most important genetically modified crops, totalising 83.8 millions of planted hectares, which correspond to 57% and 25% of global biotechnological planted area, respectively (James 2006). Since the genetically modified organisms (GMO) entered the food chain, a scientific and public debate concerning their safety and the need for labelling information came up especially in Europe. For this reason, the EU has dedicated special attention to consumer information by requiring a compulsory labelling for food products containing more than 0.9% of GM material.

The need to monitor and to verify the presence and amounts of biotechnology derived material in food products demands analytical methods able to detect, to identify and to quantify either the introduced DNA or the expressed protein(s). The DNA based methods, namely PCR techniques, are the methods of choice due to their high sensitivity and specificity, allowing the detection of very small amounts of DNA in raw materials and processed. In the present work, the isolation of DNA from foods was carried by using the CTAB reagent and the Wizard clean up columns. Yield and purity of DNA extracts were assessed by spectrophotometry, while amplifiability was evaluated by targeting the lectin and invertase genes for soybean and maize, respectively. Two types of PCR assays were developed and used: conventional PCR assays for detection of RR soybean and screening GM maize and real-time PCR assays for quantitative purposes. The screening of GM maize products was carried out targeting the 35S promoter. The samples included soybean and maize processed foodstuffs such as, protein isolates, beverages, tofu, snacks, precooked foods, and desserts etc., obtained from the local supermarkets. The results showed that contamination of foods by GMO is present in products commercialised in Portugal

[1] James C. 2006. Global Status of Commercialized Biotech/GM Crops: 2006. ISAAA Brief No. 35. New York, Ithaca: ISAAA