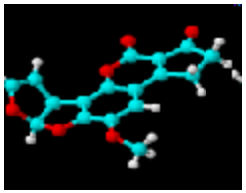

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The deterioration of food commodities by biotic factors is a serious and widespread problem. In particular, the contamination of different food and feed commodities by ochratoxin A (OTA) produced by several widespread fungi represents a serious health risk due to the high toxicity ofOTA. This toxin causes nephrotoxic, genotoxic, immunosuppressive and carcinogenic effects on humans and animals. It is therefore necessary to have a close surveillance of the presence of this mycotoxin in food, beverages and feed through efficient, reliable and rapid analytical methods. The availability of low cost analytical methods which join reliability and rapidity is highly desired by the small medium enterprises (SMEs).

In this project we will develop a novel system able to perform detection and quantification of OTA in wine, beer and feed, through a linear array of a-Si:H The photosensors will be coupled with surfaces treated in different ways in order to establish the best functionalization of the considered food matrix and will be integrated in a compact, portable equipment. Several food and feed matrices (wine, beer, cereals), both naturally contaminated or fortified with OTA, will be extracted with different extraction methods and analysed by the novel system. The liquid samples (wine, beer) will be also analysed by direct deposition without any extraction procedure. The results obtained with this system will be compared with those obtained by using traditional analytical methods.

Therefore the proposed system will allow to perform low cost, rapid and reliable analyses, not only in a well equipped laboratory but also in a canteen, or in a brewery as well as in a farm, satisfying the requirements of SMEs for an effective food quality control.

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FP7 -grant agreement nr.232245

This Project is funded by the European Commission under Seventh Framework Programme, Area “Research for SMEs” Start date:2009-12-01 End date:2011-11-30 Duration:24 months Project Reference:232245 Project cost:1384252 EURO Project Funding:1069199 EURO Programme Acronym: FP7-SME Programme type:Seventh Framework Programme Subprogramme Area:Research for SMEs Contract type:Research for SMEs

Project description

The project will be planned into the following steps:

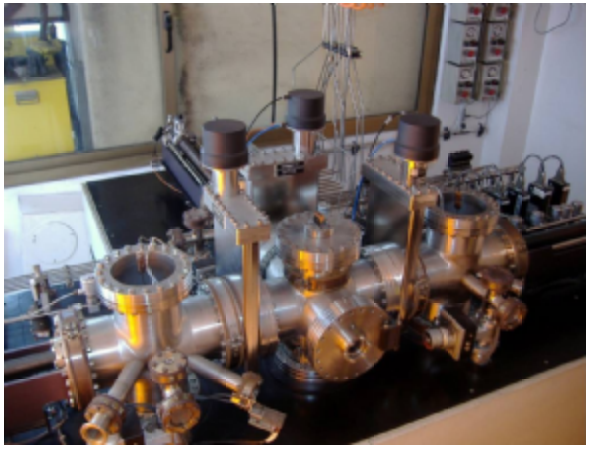
1. definition of the technical specifications by the SMEs, within two months from starting the project;
2. development of a laboratory detection system prototype by the RTD performers within 15 months from starting the project; (milestone 4 Month15)
3. development of a pre-industrial prototype by a strict collaboration among the all partners after 18th month of the project; (milestone 6 Month 18)
4. testing of the pre-industrial device at wine, beer and feed structures in the last 6 months of the project (milestone 7 Month 24).

Project goals

The overall scientific and technological objective of the project is to significantly improve the detection limit of ochratoxin A (OTA) in wine, beer and in cereal based feed. This objective will be reached through the fabrication of an innovative, low cost, portable detection system able to monitor OTA contamination in different matrices, in a rapid and reliable way.

In particular the following targets will be addressed:

a. reduction of the time for analytical procedures of an order of magnitude;.
b. reduction of the cost necessary for the analysis of a factor 5;
c. reduction of the amount of the utilized organic solvents of a factor 5;
d. early and reliable quantification of OTA contamination in the assayed samples at less than 0,5ng.



Partecipants

These are the partecipants:

http://www.automation.it

Lumisense

http://www.croatiakontrola.hr

http://www.ewos.com

http://www.filipapato.net

Giesinger Biermanufaktur

http://www.die.uniroma1.it

http://www.inesc-mn.pt