CONffIDENCE WP4

Rapid and cost-efficient tests for biotoxins in the food chain

Introduction

The CONffIDENCE project (Contaminants in Food and Feed; Inexpensive Detection for Control of Exposure) aims to further improve food safety in Europe by the development of fast and cost-efficient methods for the detection of a wide range of chemical contaminants in different food and feed commodities. The project is funded by the European Commission in the 7th Framework Programme, call identifier FP7-KBBE-2007-1, Grant Agreement number 211326.

Work package 4 focuses on the development of detection methods for biotoxins such as alkaloids, marine biotoxins and mycotoxins in shellfish, honey, feeds and cereals.

Alkaloids

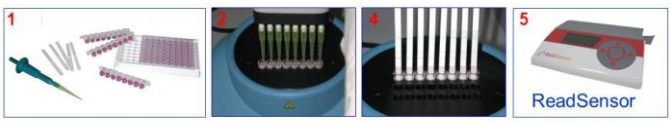
Objectives

- Multiplex dipstick assays for tropane alkaloids (TA), pyrrolizidine alkaloids (PA) and ergot alkaloids (EA).
- Target alkaloids: lycopsamine, jacobine, atropine, scopolamine, ergotamine, and ergocristine.
- NIR imaging method to detect ergot contamination in food and feed.



Results so far

- Prototype dipsticks have been developed that can detect alkaloids within 15 minutes.
- Ergot bodies can be detected using an automated NIR imaging system, during transport of grain kernels on a moving belt. The technology is being transferred to feed industry partners.



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Marine biotoxins

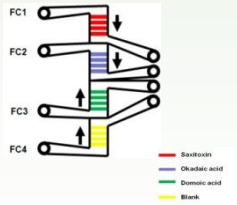
Objectives

- A rapid multiplex SPR biosensor assay capable of detecting a combination of PSP/DSP/NSP toxins. Major toxin targets: STX, NEO, GTX1-4, OA, DTX1-2, DA in shellfish.
- Development of SPR biosensor assays for emerging toxins, to add to the multiplex assay.
- Determine toxicological properties of new emerging marine toxins palytoxin and spirolides.

Results so far

- Prototype multiplex SPR biosensor for detecting major target toxins in shellfish (mussels).
- Report to EFSA on toxicity and risks of palytoxins and spirolides: they pose a real threat.
- Development of an SPR assay for palytoxin.





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Mycotoxins

Objectives

- To develop commodity dedicated multiplex dipstick tests for the determination of the Fusarium toxins in cereals, cereal food, maize feed.

Results so far

- Prototype indirect competitive immunoassay to Fumonisins (B_1, B_2), deoxynivalenol, zearalenone, T- and HT-2 toxins in dipstick format.
- Total analysis time (from raw material to readable dip stick result) is 30 minutes.

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