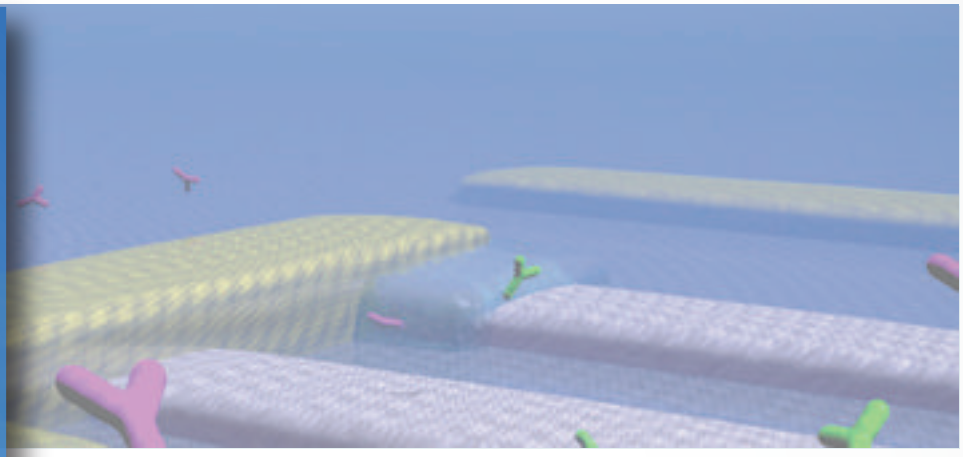
Monitoring Genetically Modified Organisms in Food and Feed by Innovative Biosensor Approaches



PROJECT DETAILS

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Sub-Programme:
People
Funding Scheme:
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€ 340.200
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http://cordis.europa.eu/projects/rcn/109520_en.html

PROJECT DESCRIPTION

Most of transgenic plants are derived from crops of worldwide critical importance to food and feed producers: soybean, maize, rapeseed and cotton. Although the advantages presented by the genetically modified organisms (GMO), such as herbicide tolerance or resistance to insects, their cultivation has raised numerous concerns in the European Union (EU) and other parts of the world about food safety, environmental and economic impact. In spite of it, their production is steadily increasing mainly in the American countries, reaching a global area of 160 million hectares in 2011. To protect consumers, food and feed labelling legislation is in force in EU and other countries such as Brazil. The verification of its compliance demands reliable and accurate GMO detection methods, but also high throughput tools able to rapidly assess the actual prevalence of transgenic material in food and feed, which is unknown.

The GMOsensor proposal intends to establish an innovative and well-organised scientific network aiming at advancing on nanobiosensor devices to assess the presence of GMO in food and feed products. The achievement of high throughput sensitive analysis requires novel approaches that combine different research areas. State-of-the-art methodologies and advanced techniques will be incorporated in this research for validation of the new tools and towards the efficient monitoring of transgenic soybean and maize derived products from diverse regions. The application of biosensors in food analysis is well suited due to their easy miniaturisation, simple instrumentation and cost-effective. The use of biosensors is promising since they answer to the demands of high sensitivity, specificity, and fast analysis. In this project, novel qualitative and quantitative bioanalytical methodologies (DNA- and protein-based) are proposed to answer the demands on multitarget analysis to screen and identify authorised and unauthorised GMO.

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