RAPID AND RELIABLE BIOSENSOR TECHNOLOGY FOR CHARACTERISATION OF ADDITIVES AND CONTAMINANTS IN FOOD PRODUCTS

Ron Wolbert

Biacore International SA, The Netherlands

Biacore AB offers analytical systems that help to ensure the quality and safety of food products. In food analysis, Biacore Q system provides rapid and reliable determination of vitamin concentration in fortified foods, to meet both regulatory and customers demands for nutritional labelling.

For example, Biacore technology has more than halved the analysis time for folic acid, an important B vitamin, while offering considerably greater precision in the analysis results. The affinity-based biosensor technology pioneered by Biacore began in 1984 (www.Biacore.com/food) and has now obtained fundamental importance in life science and pharmaceutical research.

Dedicated products for food analysis. Food scientists have already shown that it is feasible to detect food B–vitamins, Residues, Allergens, Pathogens and Mycotoxins with Biacore technology. The range of potential applications is almost limitless.

BIACORE® Q is a new biosensor based system for: determination of analyte concentration; enabling label free measurements on coloured, turbid or opaque solutions; fully automated; designed to overcome time-consuming procedures and re-analysis; reproducibility and reliability results by elimination the variabilities of manual procedures; wizard based software for automatic data evaluation and easy to use; GLP/GMP registration and LIMS for routine measurements. In short, BIACORE® Q is the natural choice to improve productivity and efficiency in laboratory and production.

Reagent kits. Today Biacore has two Ready-to-use kits, Biotin Kit and Folic Acid Kits. With a fixed protocols and the user performs a simple aqueous extraction of the foodstuff, *e.g.* cereals, infant formula and vitamin premixtures. The time for one run of 20 samples is less than 7 h including sample preparation and result evaluation. Qflex™ Kit Vitamin B12 and B–2 offers a rapid and reliable quantification of the vitamin B12 content. Quantification of Vitamin B12 is often complicated by the nature of the sample matrices and the low concentrations normally present in typical samples. The combination of Qflex™ Kit Vitamin B12 with BIACORE technology provides quantification of 40 samples within 18 h, including sample preparation and results evaluation. The Qflex™ Kit is a new kit format, which is designed to provide the flexibility required during method development together with the reliability essential for routine assays.

Qflex™ Kits for Sulfadiazine and Sulfamethazine is intended for screening of veterinary drug residues, *e.g.* in meat and milk.

Qflex™ Kit Clenbuterol is intended for screening of β–agonise residues in, *e.g.* bovine urine.

Food safety. Accurate food analysis is needed in order to ensure that the products marketed as so called "organic" ecologically correct products meet the high standards demanded by producers and consumers. This has led to the evaluation of this technology in a demonstration project, FoodSENSE (www.slv.se/ /FoodSENSE), sponsored by the EC. This requires fast, robust analytical instruments that can be used directly in the production process. Biacore technology has proved to be suitable for this type of monitoring, such as for detecting antibiotic residues in meat and milk automatically without any sample preparation work.

Author's address for correspondence: Ron Wolbert, Biacore International SA, Stationsplein 2, NL-4811 BB Breda, The Netherlands; e-mail: ron.wolbert@biacore.com