

Authentication of dairy products: Detecting geographic origin and cattle diet of milk and cheese products

Within a European research project, EUROFINS SCIENTIFIC has investigated the possibility of determining the origin of dairy products using isotopic techniques. The analyses focus on the isotopic measurement of $^{13}\text{C}/^{12}\text{C}$ and $^{18}\text{O}/^{16}\text{O}$ ratios in several milk and cheese components. These values depend on the geo-



graphical origin of the product, on the climate and on cattle diet.

The $^{18}\text{O}/^{16}\text{O}$ ratio in milk water is directly related to the $^{18}\text{O}/^{16}\text{O}$ ratio of feed water, which in turn is linked to geographical origin. In addition, it exhibits seasonal variations due to evapotranspiration phenomena leading to an enrichment in ^{18}O during the summer. This measurement thus provides relevant information on the geographical origin of the milk or the season of production. The cattle's diet has an influence on the ^{13}C content of the milk components: a cheese made from milk produced by animals fed exclusively on C3 plants (grass, hay...) contains lower levels of ^{13}C than a cheese from cattle whose feeding regime includes maize silage (C4 plants). Changes from winter

to summer feeding can also be picked up from the variation of the ^{13}C content throughout the year.

Our new analyses provide isotopic fingerprints of the dairy products, which by comparison with authentic samples, can be used to detect certain fraudulent practices and to authenticate the geographical origin. They can also provide an efficient means of enforcing the restricted rules associated with PDO labelled products. The detection of maize silage in the cattle diet using the ^{13}C analysis of milk or cheese is now available in our laboratories. The feeding of grass versus maize may be an important differentiator in consumer perception of dairy products ●

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EUROFINS SCIENTIFIC opens a new high-tech pesticide laboratory in Hamburg

Two leading labs combined in a state-of-the-art site

EUROFINS SCIENTIFIC has consolidated its worldwide leading market position as a supplier of laboratory support services by expanding its position in the field of analysis of chemical residues in food, e.g. the analysis of pesticides. Dr. Specht & Partner GmbH, who developed the internationally renowned "Specht-Method", the basis of Germany's official method for pesticide analysis, has moved to a new location in Hamburg-Harburg, Großmoorbogen 25, jointly with the pesticide group of Wiertz-Eggert-Jörissen GmbH (W.E.J.). The biology department of W.E.J. has also moved to the same location with its competence centre for Molecular Biology. The site performs high volume tests to screen and quantify genetically modified organisms (GMO) as well as developing new GMO detection methods.

"We will concentrate even more on the requirements and needs of our clients. The two pre-existing labs fit ideally to form one laboratory, pooling competence to provide a resource unparalleled in Europe. The fusion of these two labs gives us the critical mass to speed up R&D, automation and IT modernisation and to develop the outstanding know-how within the group." com-

ments Dr. Andreas Gahl, Managing Director of EUROFINS SCIENTIFIC in Germany.

The new complex employs 70 highly skilled specialists in 2500 m² of custom-built lab space. This change will combine resources and create new capacity which is expected to consolidate a leading position for the group in this exciting area of analytical services. The introduction of leading competence centres is part of the scale-up programme of the EUROFINS SCIENTIFIC Group, geared to offer its clients analytical capabilities that represent the gold standard on a global basis.

"A new key-account management system is going to be established to offer focussed high level advice to our clients in both, Germany and across the rest of Europe with the competencies of both laboratory groups being used more efficiently in R & D." comments Dr. Gahl.

Dr. Specht & Partner develops new quantitative and qualitative methods to detect chemicals used in agriculture. The company has an international reputation for improving detection limits and setting the standards for the industry. This allows customers to assure the highest possible safety standards for their products. The laboratory



has a unique database and experience of all the chemicals routinely applied to vegetable and crop plants around the world. With the globalisation of trade, quality control and the analysis of food residues, e.g. pesticides, in food products is gaining increasing importance for ensuring consumer protection ●

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