

## **Combining UHPLC with advanced chromatographic techniques for selected food & beverage applications**

Frank Steiner, F.S., Germering/D, Tobias Fehrenbach, T.F., Germering/D, Christian Schmidt, C.S., Germering/D Fraser McLeod, F.M., Germering/D

Heiko Herrmann, Dionex Corporation, Solothurner Strasse 259, 4600 Olten,  
Switzerland

Ultra High Pressure Liquid Chromatography (UHPLC) is a rapidly growing technique that takes advantage of widely used HPLC columns but packed with sub-3  $\mu\text{m}$  particles. It offers ultra-high resolution with maximum peak capacity and significantly fastens analyses by using higher flow rates or shorter columns. However, the decreasing particle size of the packing material results in significantly increased back pressure, and therefore also in increased technical requirements on the LC system.

Analyzing even complex samples in the sub-minute range nowadays a further speed up will soon approach physical and technical limits. Hence the most significant improvements can be expected in perfecting automation and system utilization time.

This presentation describes the technical solutions using an UHPLC in its single and dual HPLC system configurations to maximize productivity by improving system utilization time and by keeping the operator workload to a minimum. The significant enhancement in productivity is shown and discussed on the application example of the separation of water-soluble vitamins. In addition, the advantages of running two different methods in parallel to simultaneously analyze both water- and fat-soluble vitamins – are discussed in detail. .