AROMA PROFILING OF PET FOOD USING HIGH-CAPACITY SORPTIVE EXTRACTION AND TD–GC×GC–TOF MS

Ruslan Dedishov

SepSolve Analytical, United Kingdom

Pet food manufacturers place great importance on the aroma of their products, as off-odours may be unappealing to both the pets and their owners. Confident identification of the volatile organic compounds (VOCs) from pet food can help these companies better understand the factors governing the release of pleasant and unpleasant aromas. VOC aroma profiles are typically analysed by solid-phase micro-extraction (SPME), which although a fast and simple technique, can be limited in terms of sample capacity, reproducibility and sensitivity. An alternative to SPME is high-capacity probe-based sorptive extraction, which results in higher sample loadings because of the large volume of PDMS phase. Typically, a SPME fiber has a sorbent volume of just 0.5 μL, while the sorptive extraction probes used in this study contain 65 μL of sorbent. When used in conjunction with secondary refocusing by thermal desorption (TD), the result is greater sensitivity across a wide analyte range. Further analytical benefits can be achieved for analyte separation and detection, by using comprehensive two-dimensional gas chromatography coupled with time-of-flight mass spectrometry (GC×GC–TOF MS). The enhanced separation capacity of this approach is ideal for handling the complex aroma samples of pet food, because it allows the entire composition to be screened in a single analysis, with confident identification of compounds that would ordinarily co-elute. Here we demonstrate the value of high-capacity sorptive extraction with TD–GC×GC–TOF MS to investigate the volatile compounds present in the headspace of pet food and discuss how these compounds might influence their aroma profiles.

Biography

Ruslan Dedishov is Technical Sales Professional at Markes International GmbH. During the last 2 years he was focused on supporting and leading projects in the field of trace analysis using GCMS technology. Before this role, Dedishov was developing and coordinating OEM business division at Knauer GmbH. Dedishov holds a degree in food chemistry from Julius Maximilians University of Wuerzburg, Germany.

germany@markes.com
rdedishov@markes.com