

## DATES

8th October – Holiday Inn, Darlington

10th October – Holiday Inn, Edinburgh

15th October – Alderley Park, Macclesfield

16th October – Hilton Hotel, Cardiff

17th October – Hilton Hotel, Reading

## DETAILS

**All events are FREE** and run from 10.30am to 1.30pm. They will consist of a technical presentation on DiLLME by one of our analytical chemists, a chance to see DiLLME working, and we will even throw in a buffet lunch for free.

## BOOK NOW

Either scan the code, email us on **[enquiries@anatune.co.uk](mailto:enquiries@anatune.co.uk)** or call the office on:

**+44 (0)1223 279210.**



## Liquid-Liquid Extraction Specialist

### **Jonathan Dunscombe**

Senior Application Chemist,  
Anatune Ltd

We love showing people the techniques that we're capable of delivering. However, this usually has to be done in our Cambridge lab which can be a bit of a journey for many. We're packing up DiLLME and taking it on the road.

If you're interested in getting better data reproducibility, reducing your solvent usage or just want to see robots moving about doing cool stuff, let us know which of the dates you'd like to attend. Places are limited, so it is essential that you reserve a place in good time.

**Photograph the above QR code with your smartphone camera to sign up on our website.**

Dispersive Liquid-Liquid MicroExtraction is for analytical chemists who are reliant upon traditional, manual, liquid-liquid extraction to prepare samples prior to analysis and are dissatisfied with the errors, inconvenience, costs and risks associated with a 150-year-old technology.



#### **AS182 Fully Automated Method Using DiLLME for Extractable and Leachables Studies**

GlaxoSmithKline were interested in exploring the benefits that automation could bring to extractable and leachable applications. In this work, a Dispersive Liquid-Liquid MicroExtraction (DiLLME) methodology is utilised to automate this process. DiLLME is a solvent extraction technique that utilises an organic solvent as a dispersing agent in combination with an extraction solvent (usually a chlorinated solvent such as dichloromethane), to aid in recovery and extraction time. Samples are mixed with this solvent mixture to form an emulsion before centrifugation to separate the extraction solvent ready for injection into the GC.

Samples were analysed using an Agilent 7200 Q-TOF for a comprehensive quantitative technique.



#### **AS186 Automating Dispersive Liquid-Liquid MicroExtraction for EPA 8270**

USEPA method 8270 details the extraction of over 70 analytes from a wide range of matrices. This application note demonstrates how the method can be automated using GERSTEL technology to conduct DiLLME. A two-stage extraction process starts at pH 7 – ensuring extract neutral and basic compounds. Following this, an extraction at pH 2 extracts the acidic analytes using DiLLME, resulting in a fast screening method that can be used for quantitative and qualitative analysis. Samples are analysed using Agilent's 5977B with High Efficiency Source, providing the necessary sensitivity to reach mid ppt levels with much smaller sample sizes than previously achievable.



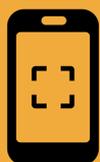
#### **AS217 Comparison of the Agilent 5977B MSD with High Efficiency Source and 7250 Q-TOF for Analysis Using DiLLME of Semi Volatile Organic Compounds**

For method developers, it can sometimes be difficult to choose the correct piece of equipment most suited to the task. In mass spectrometry, intimate knowledge of the instruments available can make a big difference in making that choice. In this application note, the benefits and differences between a high-end Q-TOF, Agilent's 7250 Q-TOF and a highly sensitive single quadrupole, the 5977B with High Efficiency Source are explored to help inform those development choices. Using DiLLME as the extraction technique, a Semi Volatile Organic Compound screening technique is evaluated to explore what each instrument has to offer.



#### **AS224 - Automated Solvent Extraction (LLME and DiLLME) of Flavours from a Selection of Fruit Beverages**

As scientists it's important to evaluate emerging techniques to ensure the laboratory stays current, up-to-date and competitive. In this work we explore the suitability of using DiLLME as an extraction technique for flavours from a range of fruit beverages. This technique is compared with Headspace Solid Phase MicroExtraction (SPME) for use as an alternative extraction method. Standard SPME techniques require the heating of samples in order to enter the headspace, bringing with it the potential to change the sample matrix which can be problematic. Four sample types are analysed, ranging from fruit flavoured water to 100% squeezed orange juice to assess the extraction profile using DiLLME and HS-SPME.



**Photograph the QR codes with your smartphone camera to see the full app note or ask a member of Anature for a hard copy**