

# “SEPARATING THE WHEAT FROM THE CHAFF”

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SYNGENTA RESEARCH LABS ON 9<sup>th</sup> APRIL 2014



**A ONE DAY SYMPOSIUM FOCUSING ON ADVANCES IN NATURAL PRODUCT ANALYSIS**

**Chromatographic & mass spectrometric analysis in vegetable matter, natural and food products will be explored by specialists from a variety of industries.**

**An exhibition of analytical instrumentation and presentations by leading manufacturers will form an important element of the symposium.**



## Lecture Titles, Abstracts & Exhibiting Companies

**Prof. Pat Sandra** - The Research Institute for Chromatography (R.I.C.), Aspects of advanced chromatography in food safety analysis.

Prof Sandra has a wealth of chromatographic and analytical experience speaking with great authority whether it is around techniques or applications.

**Towards High Peak Capacities in Fluid-based Separation Techniques for Natural Product Analysis**  
Research Institute for Chromatography, President Kennedypark 26, B-8500 Kortrijk, Belgium  
([pat.sandra@richrom.com](mailto:pat.sandra@richrom.com)).

In this contribution, routes to high efficiency and high peak capacity will be discussed from a theoretical and a practical point of view.

The possibilities to increase on peak capacity in one-dimensional liquid chromatography (LC) and supercritical fluid chromatography (SFC) will be addressed. By combining two orthogonal separation mechanisms in a comprehensive approach i.e. LC×LC and SFC×LC unprecedented features allow to separate the most complex natural samples. The robustness of the presented techniques will also be highlighted.

**Dr Paul Russell**

**Science Leader, Chemistry Safety & Environmental Assurance Centre**

**Chromatographic and statistical tools to inform the safety risk assessment of traditionally used natural products.**

A consumer goods industry point of view from the growing use of natural product extracts in food and home/personal care applications and the subsequent safety challenges of mass commercialisation.

**Robin Clery**

**Natural Products Group, Fragrance Research, Dübendorf, Givaudan Schweiz AG**

**Impact odourants in natural products-- How to know what the nose knows**

The techniques and applications in detecting and measuring trace flavour and aroma impact materials. Robin was formerly from ICI with a number of years of flavour and aroma analysis experience on their attempts to capture trace components in vivo and in vitro, from natural products from all around the world.

**Geoff Kite**

**Kew Gardens, London**

Challenges in natural product characterisation, since one of the aims at Kew is to produce a data bank of all natural products in terms of their characteristic (and unique) chemical composition. He will illustrate his talk with his work on flavonoid analysis by LC and LCMS and the difficulties around correctly identifying these species which often predominate in plant extracts.

**Towards the confident identification of simple flavonol *O*-glycosides by liquid chromatography – mass spectrometry**

**Dr Geoffrey Kite, Jodrell Laboratory, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB**

Flavonoid glycosides are among the most frequently observed components in analyses of aqueous alcoholic extracts of plants by liquid chromatography (LC). They are also the most studied in terms of on-line characterisation by UV spectrophotometry (UV) and serial mass spectrometry (MS<sup>n</sup>). However, numerous isomeric forms are possible even for relatively simple flavonoid glycosides, and this fact is often overlooked, or assumptions are made, in some studies that 'identify' flavonoid glycosides by LC-UV-MS<sup>n</sup> without reference to authentic standards. Such 'identifications' are more correctly expressed as 'annotations' of the most likely candidate flavonoid glycoside. Achieving confident identification of simple flavonoid glycosides in the absence of standards remains a challenge. The complexity of the flavonoid glycoside metabolome will be illustrated by examples from legumes containing several isomeric flavonol *O*-glycosides, and the need for high resolution chromatography to separate isomers will be emphasised. The use of such multi-isomer extracts as tools to improve the confidence in identifying simple flavonol *O*-glycosides will then be discussed with particular emphasis on recent developments in using MS<sup>n</sup> of the commonly observed sodiated adduct to discriminate certain disaccharide moieties of flavonol *O*-disaccharides .

**Syngenta's** scientific staff are also supporting the meeting with the following presentations from three of their scientists:

**Phil Clarke**

#### **How U is Your UHPLC?**

UHPLC has been commercially available for around 10 years but understanding for successful operation of the technique is still growing. Critical operational parameters will be discussed and the effect of these on the performance of separations will be demonstrated. Translation of methodology from HPLC to UHPLC and the use of the new generation of sub two micron solid core particles will be used to illustrate some of the challenges that still exist for both instrument manufacturers and practitioners of the technique.

**Brian Kemp**

#### **Isolating the Needle in the Haystack**

The isolation and characterisation of low level impurities is required to comply with the regulations for the registration of pesticides, and also to maintain supplies for use as reference standards in GLP studies. A variety of techniques are used to obtain material containing enriched amounts of these impurities, with the final steps being preparative chromatography

**Aniko Kende**

**Carotenoids in vegetables – they're good for you! Abstract pending**

**Jaap De Zeeuw**

**RESTEK**

**Considerations for improved measurement of traces in food matrices by minimizing the injection band width using normal and large volume splitless injection**

**Peter Bridge**

**VWR Merck**

**Title & abstracts to be submitted**

**Alan L Northage Senior Staff Scientist Shimadzu UK Ltd**

**Maximising the Separation and Quantitation of complex food related mixtures using GCMS**

Comprehensive GC, GCxGC or “GCSquared” are all terms used to describe a separation system in GC which uses two columns in series containing orthogonal stationary phases. At the point where the two columns join there is located a “Modulator” which repeatedly traps and releases components eluting from the first column onto the second column. The total peak capacity of the system is the product of the two individual peak capacities of the columns. In practise this technique often achieves a component separation increase of a factor of 5 or more. MS is the method of choice when it comes to qualitative and quantitative analysis of these components. This presentation looks at the challenges faced by GCMS in dealing with Comprehensive GCMS data and how a modern Quadrupole analyser excels at this.

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**EXHIBITING COMPANIES INCLUDE**

**Aquilant Scientific  
Thames Restek  
Thermo Fisher Italy  
VWR Merck  
Gilson  
Hichrom Ltd  
Genevac Ltd  
Bruker  
Shimadzu**

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## SPONSORSHIP AND EXHIBITION COSTS

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### GOLD LEVEL SPONSORSHIP £1750

Table top exhibition stand & 20 mins lecture time integrated into the programme

3 free delegate admission places

### SILVER LEVEL SPONSORSHIP £1250

Table top exhibition stand & 10 mins lecture time integrated into the programme

2 free delegate admission places

### BRONZE LEVEL SPONSORSHIP £750

Table top exhibition stand and 1 free delegate admission place

### DELEGATE ADMISSION PRICES

Member of the Chromatographic Society or one of its affiliated societies (BMSS, ELRIG or RSC)

£100

Promotional rate for non-members which includes ChromSoc membership for remainder of 2014

£120

Non member rate

£130

Bona fide student rate

£50

Electronic On-line registration link for delegates

<https://www.eventspro.net/mm/getdemo.ei?id=1070276&s= DU000J66S>

NOTE: VAT at 20% is additionally charged on all prices

TO DISCUSS YOUR SPONSORSHIP LEVEL AND/OR YOUR LECTURE CONTENT PLEASE CONTACT

Dr. Chris Bevan on [chris.anne.bevan@gmail.com](mailto:chris.anne.bevan@gmail.com)

TO BOOK YOUR EXHIBITION STAND AND SPONSORSHIP PLEASE CONTACT

Carol McNair

Meeting Makers

Block 4, Unit 4, Kelvin Campus

West of Scotland Science Park

2317 Maryhill Road, Glasgow, G20 0SP

Tel: +44 (0) 141 945 6880

Fax: +44 (0) 141 945 6899

Email: [carol@meetingmakers.co.uk](mailto:carol@meetingmakers.co.uk) WEB: <http://www.meetingmakers.co.uk>

## ORGANISERS



**The Chromatographic Society:** Founded in 1956, is an internationally connected organisation and UK registered charity devoted to the promotion and dissemination of knowledge on all aspects of chromatography and related separation techniques.

**The Chromatographic Society website**

[www.chromsoc.com](http://www.chromsoc.com)

**will publish future updates of the symposium programme as it develops.**

## VENUE

**syngenta**

**Jealott's Hill International Research Centre**

Bracknell, Berkshire

RG42 6EY, United Kingdom

Phone: +44 (0)1344 424701

Fax: +44 (0)1344 455629

Jealott's Hill is a key site in Syngenta's global Research and Development network. With an 85 year tradition of innovation, it is the company's largest site for new agrochemical R&D and product support. Many of the world's most important crop protection products were invented here.

Key activities at Jealott's Hill include research into discovery of new active ingredients, new formulation technologies, technical support of our product range and Seeds research. The site houses a number of centres of scientific excellence, both chemical and biological, that support our worldwide R&D activities.

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