

## **Enzymatic esterification of anthocyanins extracted from food waste for advantageous, high-value industrial application in cosmetics and food (AnthoLip)**

Richard Blackburn, University of Leeds

A wide range of enzymes has been used over the past decades in organic chemistry to catalyze numerous reactions including reductions, oxidations and esterifications. Being considered as one of the most powerful tools in Green Chemistry they offer, besides their eco-friendly and sustainable nature, several advantages like regio- and enantio-selectivity in reactions along with the possibility of recovering and recycling the catalyst. We developed an acylation protocol for anthocyanins with enzyme-catalyzed biotransformation aiming to valorize of food industry waste into more stable and more hydrophobic compounds. A 72 h reaction held at 55 °C using an enzyme (*Candida antarctica* lipase B) immobilized on acrylic resin, combined with silicon dioxide as dehydrating agent, followed by purification, allowed conversion ratios up to 50% to be achieved. Full characterization and evaluation of the physical properties of the resultant compounds was obtained.

## **13 November – Morning plenary talks**

### **Drivers and barriers for the adoption of new technologies**

Gavin Milligan, William Jackson Food Group

Adoption of new technologies is by no means guaranteed. Strategic decisions by corporate entities will typically be taken on the basis of economic considerations, which are unlikely to favour investments which may be viewed as risky. The presentation will explore some of the key influences on food and drink businesses and how these can be reflected in the way that organisations respond to novel processes or materials.

### **Ethical aspects to valorising food waste**

Daniel Crossley, the Food Ethics Council

The valorisation of food waste offers potential opportunities for food businesses to save money, avoid waste and reduce environmental impacts. However, it also raises ethical concerns that it is important to address – relating to the type and transparency of processes involved, the impacts of using resources in that way, who is affected and more. Dan Crossley from the Food Ethics Council will ask some of the ethical questions that valorisation of food waste poses. What are the alternative uses that might provide different value to stakeholders? What is the fairest use of resources and which sectors should get priority use of by-products and waste? Who should take responsibility for impacts? And how can we avoid lock-in to what might be an unsustainable system?

## **13 November – Anthocyanins from fruit & vegetable waste**

### **Developing collaborations in food waste valorisation – an industrial perspective**

Steve Taylor, Celbius Ltd

This talk will consider the role of collaborations and grants from an SME perspective, including the benefits and drawbacks that are encountered. For young companies numerous factors need to be evaluated when forming collaborations and applying for grants. These include both technical and commercial factors, and care must be taken to achieve a successful outcome