Biorenewables Development Centre

Plants • Processes • Products

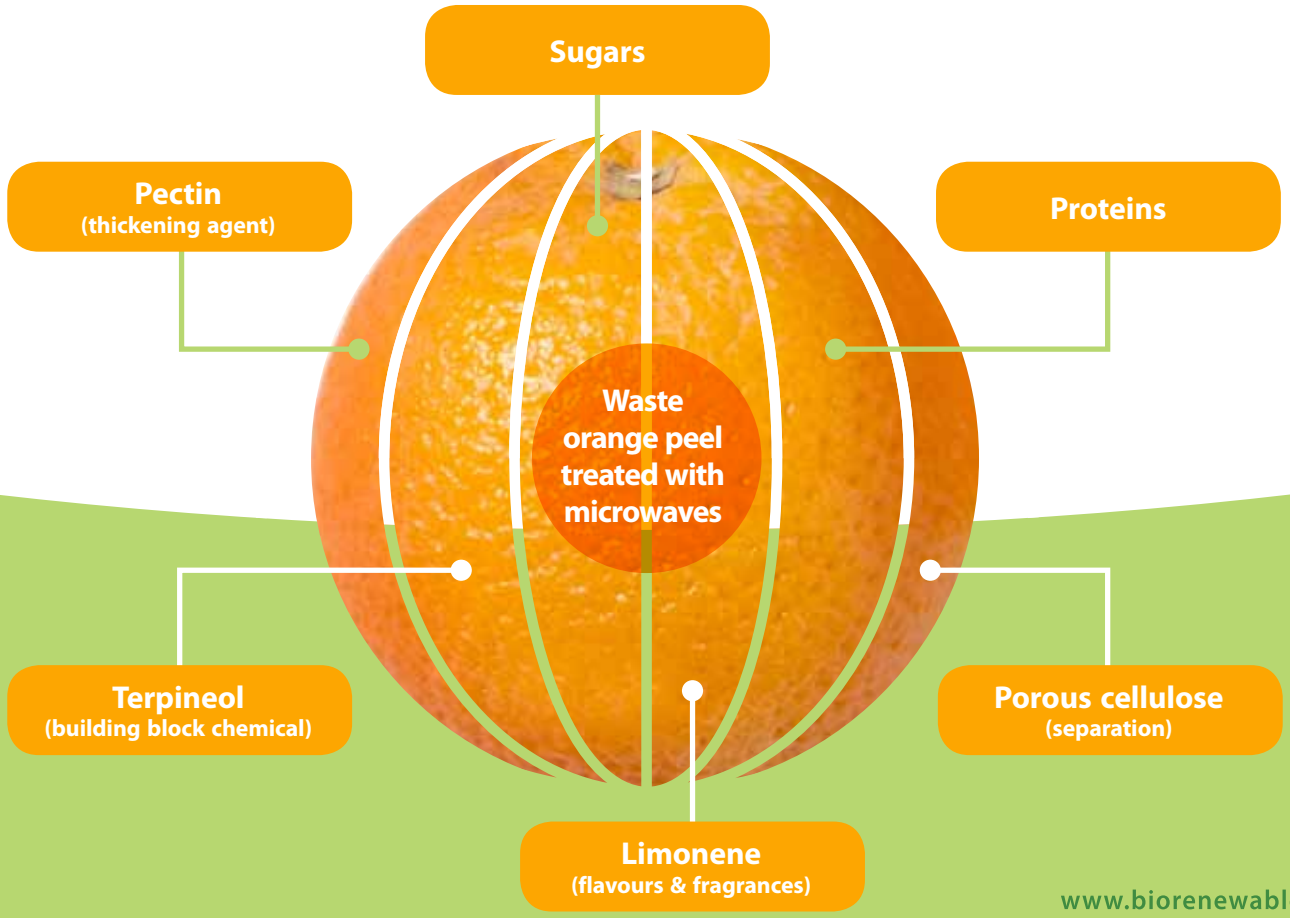
A greener orange

High value chemicals from food waste

The UK produces millions of tonnes of food waste every year, much of it from the food industry and agricultural sectors. Disposing of this waste is costly, uses up valuable landfill space and generates greenhouse gases, such as methane. But there is a better way: the Biorenewables Development Centre (BDC) at the University of York is helping companies to rethink their approach to food waste and tap into its potential as a renewable source of high-value chemicals, materials and fuel.

Oranges are an excellent example of a wasted resource: after extracting the juice, around half the fruit is discarded. It's estimated that, in Brazil alone, eight million tonnes of waste peel is discarded every year. And yet a wide range of commercially valuable compounds can be produced from orange peel.

Researchers in the Green Chemistry Centre at the University of York have shown that microwave treatment of the peel releases chemicals useful in flavours, fragrances, food and medicines. Further steps can produce other components, used in the manufacture of antioxidants, bio-plastics, surface coatings and biofuels. These processes, which have been developed in the laboratory, are now being scaled up in the BDC's modular processing facilities to a level that is relevant to industrial application.



Biorenewables Development Centre

Plants • Processes • Products

The Biorenewables Development Centre (BDC)

Creating value from orange peel is just one example of how new processes can be developed to convert biowastes and plants into products, often replacing the use of fossil-based chemicals. Making more use of renewable feedstocks is one way in which industry can move to a low carbon, bio-based economy.

The BDC is a not-for-profit company, created to assist industry with this transition. It offers a unique combination of analytical science, fast track plant breeding and novel extraction and processing technologies.

The BDC builds on internationally-recognized research at the University of York and bridges the gap between laboratory development and commercial manufacture by providing business and academia with open access scale-up processing facilities.

BIS Department for Business Innovation & Skills

The University of York

CNAP Centre for Novel Agricultural Products

Green Chemistry Centre of Excellence

EUROPEAN UNION Investing in Your Future
European Regional Development Fund 2007-13

Project sponsor scy

Plants

Processes

Products

The BDC is supported financially by the European Union. The project has attracted £6.5 million of investment from the European Regional Development Fund as part of Europe's support for local economic development through the Yorkshire and Humber ERDF Programme 2007-13.

The Department for Business, Innovation and Skills (BIS) awarded the BDC a £2.5 million capital grant in 2012 to create an open access pilot scale facility focusing upon the extraction of high value chemicals from plants.

www.biorenewables.org biorenewables@york.ac.uk +44 (0)1904 435364