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### **Plenary Pl-1**

## **Recycling of organic waste as part of circular economy: Solution to prevent environment spreading of contaminants and microbial resistance including application of nano- and microparticles**

**R Aasen**

The Norwegian Institute of Bioeconomy, Dep. of Bioresources and Circular Technologies, Vollveien 7, 1432 Ås, Norway

E-mail: Roald.Aasen@nibio.no

**Abstract.** Recycling of organic waste resources is required in order to develop a circular economy and sustainable living. Organic waste resources can contain heavy metals, organic contaminants, residues of human and veterinary pharmaceuticals, and antimicrobial resistance (AMR) that might represent a risk to the environment or the human health. Organic wastes resources containing xenobiotics, AMR or AMR genes are for instance manure from treated livestock, sewage sludge, fish sludge, organic waste from flower production. Waste management and remediation technologies should be designed and optimized to reduce the content of xenobiotics, AMR or AMR genes in organic waste resources. This presentation will discuss application of nano- and microparticles in environmental technologies focusing at recycling of organic waste.

### **Plenary Pl-2**

## **Compound-specific isotope analysis to improve food traceability**

**L Bontempo, M Paolini and F Camin**

Department of Food Quality and Nutrition, Research and Innovation Centre, Fondazione Edmund Mach (FEM)

Via E. Mach 1, 38010 San Michele all'Adige, Italy

E-mail: luana.bontempo@fmach.it

**Abstract.** The scandals of recent years have left their mark on consumer confidence in food products. For this reason there is increasing demand for analytical techniques able to provide data on issues such as the traceability, authenticity and origin of foods and beverages. Stable isotope ratios have been used for food authentication for thirty years, and in the last few years emerging methods aimed at individual chemical compounds have provided a means of obtaining a more in-depth understanding. In particular, a technique that shows enormous promise in this area is gas chromatography combustion/pyrolysis - isotope ratio mass spectrometry (GC-C/Py-IRMS). This technique can be applied to a wide array of foods and beverages, generating data on key food components such as amino acids, fatty acids, aroma compounds and carbon dioxide (in carbonated beverages). This data can be used to verify the geographical origin of foods and food ingredients and the use of synthetic or organic fertilisers, as well as to determine the synthetic or natural origin of food ingredients. GC-C/Py-IRMS is thus one of the most powerful techniques available at the moment to detect fraudulent, illegal, or unsafe practices in the food and beverage industry.