Tackling food losses together – researchers at the ZHAW are looking for new approaches in production

The Institute of Food and Beverage Innovation at Zurich University of Applied Sciences (ZHAW) is searching for practical solutions for reducing food losses. The researchers believe that the concept of the circular economy offers an approach. For instance, innovative technologies enable the specific preservation or the tailored improvement of foods from secondary product streams. Insights into this year's ZHAW food conference at the beginning of September.

Impression from the ZHAW food conference: vegetarian mince made of spent grains from brewing as a low-CO_2 meat substitute. (Photo: © ZHAW/Tevy)

Opportunities and challenges of the circular economy

The Wädenswil food conference takes place each year. At the event on 1 September, the Institute of Food and Beverage Innovation (ILGI) at Zurich University of Applied Sciences (ZHAW) focussed on the topic of circular economy in food processing and therefore the optimised use of valuable raw materials.

In the view of the ILGI researchers, circular economy in food processing means reducing the percentage of unused raw materials, upcycling secondary products and food waste and returning them to the food chain as well as utilising unsold goods and their ingredients. The event organised by the ZHAW provided more information about the opportunities and challenges that currently exist in this field. Invitations had been extended to various experts from the areas of business and research, who presented their potential solutions.

Reducing CO_2 emissions

All of the participants were agreed that food processing offers enormous potential for reducing food waste and therefore significantly lowering CO_2 emissions. One option is to process food that uses fewer resources.

In her presentation, for instance, Dr Béatrice Conde-Petit of Bühler AG in Uzwil emphasised that the wasteful use of water is impacting on mankind. Food technology processes that minimise extensive water usage and contamination and take biodiversity into account are therefore given top priority at Bühler.

Dr Béatrice Conde-Petit of Bühler AG speaking on the topic of 'More food with fewer resources: opportunities and challenges for the food industry'. (Photo: © ZHAW/Tevy)

Less energy input thanks to new processes

Prof. Stefan Töpfl of Osnabrück University of Applied Sciences and technology consultant at the German Institute of Food Technology (DIL) in Quakenbrück reported on process technology innovations for resource-efficient production. He showed what effect on shelf life can be achieved by evolving food packaging. His presentation also covered the substitution of thermal energy with high pressure or ohmic heating in processes for preserving food.

The principle of ohmic heating is based on the direct application of electricity to foods. As the heat is generated in the product, and not by using hot surfaces, heating takes place considerably faster and saves energy. In high pressure processing (HPP), hydrostatic pressures act on the food for a few minutes.

Specialised in upcycling secondary streams

In her presentation, Linda Grieder of RethinkResource concentrated on digital trading with industrial secondary streams. This is focussed on finding new applications for materials that are otherwise lost during production. Headquartered in Zurich, the aim of one of the innovation agency's strategies is the establishment of a database for secondary stream products. The platform is used to network suppliers and for trading the products.

The specific implementation of a secondary product stream results in new business models, as Anian Schreiber of KOA showed. Under the brand name KOA, the start-up launched a juice and a powder concentrate made from cocoa fruit pulp, which has barely been used in processing to date.

DNA marker to replace information on paper

Speeding up the transparency of raw material traceability is an additional tool in the field of the circular economy. Dr Emma Cavalli of Haelixa, a spin-off of ETH Zurich, explained why this helps to break down the complexity of supply chains. The company uses DNA technology to achieve this. This is how the company has developed a digital option for tracing products. In this process, the necessary information that was previously enclosed on paper in the form of labels or certificates is replaced by a DNA marker. This is read by the decoder, which has been developed in parallel, so that the percentage of vanilla pods originating from a specific plantation in Madagascar is clearly recognisable, for example.

Further information and contact

ZHAW Zurich University of Applied Sciences
Wädenswil
Media Relations Department Life Sciences and Facility Management
Cornelia Sidler
Tel.: 058 934 53 66.
cornelia.sidler@zhaw.ch
www.zhaw.ch/de