Fraunhofer Project Center for Innovation in Food and Bioresources at ITAL

Secretariat of Agriculture and Food Supply - SAA
São Paulo State Agency for Agribusiness Technology - APTA
Institute of Food Technology - ITAL

Ministry of Science, Technology and Innovation - MCTI
Financing Body for Studies and Projects - FINEP
National Council for Scientific and Technological Development - CNPq

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The production of food and agricultural products is one of the most important sectors of the Brazilian economy contributing with over 18% to the Gross Domestic Product of the country.

Sustainable increase in the competitiveness of the Brazilian food and agricultural production can be achieved by innovations in process technologies and the development of new products with higher value. For this purpose the Institute of Food Technology (ITAL) from the Secretariat of Agriculture and Food Supply of the State of São Paulo and the Fraunhofer Institute for Process Engineering and Packaging (IVV) are installing a Fraunhofer Project Center for Innovation in Food and Bioresources in Campinas, São Paulo, Brazil.

The main focus of the Center is to establish a culture of research and development that is driven by innovation with the aim to increase the value added across integrated food and bioenergy production chains. To reach this aim, new partnerships and functional networks between Brazilian and German research centers, universities and industrial partners have to be created with the intention to initiate and carry out joint research and development projects, to apply for joint patents and to realize the exploitation of the results via industrial partners or research incubator units for joint start-up companies.

The Center will strengthen the ongoing interactive cooperation efforts between the centers of ITAL and departments of Fraunhofer IVV.

Aims of the Fraunhofer Project Center
- Promote science, technology and innovation “Made in Brazil”.
- Create added value along and across the food production chains, introducing & implementing new technologies in industrial production.
- Simultaneous production of food and energy to prevent the competition of both.
- Apply for patents in this strategic area to provide competitive advantage to its partners.
- Develop new technologies adapted for the needs of small and medium enterprises.
- Promote international exchange of scientists and students.
- Promote cooperation and joint R&D of Brazilian and German companies.

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Energy and Materials from Renewable Resources

A main focus of the Project Center is the isolation and utilization of by-products from food production. Agricultural by-products like oilseed press-cakes contain lots of highly valuable substances that can be used in non-food applications, such as polyphenols as antioxidants for fuels, polymers or cosmetics, or proteins as high-value additives in packaging, tire mixtures and adhesives. Another focus will be the valorization of wet biomass, oil plants, agricultural and industrial waste materials by transforming these materials into storable and exportable energy carriers like coal and biofuels.

Innovation in Packaging Systems

The increasing demand of packed foods is posing new challenges towards the food industry requiring new packaging solutions for high quality, safety and longer shelf-life. Developing packaging with suitable barrier functions or active compounds, such as oxygen scavengers, will be one focus of the Project Center to meet these needs. Another focus will be the development of sustainable packaging by the use of renewable materials. Fractions from agricultural by-products such as proteins will be used as coatings and additives in paper fibers will be used in polymer compounds.

Functionality, health and nutritional aspects of food

Overweight and food related diseases like arteriosclerosis and diabetes are having an ever-increasing impact on the health of the Brazilian population at large. The Center will develop new ingredients and formulations for foods with health benefits, e.g. fibre-enriched-foods with cholesterol lowering effect or ingredients for increasing gastrointestinal health. One aim is to incorporate adequate amounts of active ingredients into the food without influencing texture and taste to reach broad consumer acceptance. In close cooperation with universities and clinical research centers the effectiveness will be scientifically established.

Quality and sensory aspects of food

In Brazil products like coffee and cocoa have a huge potential for the development of innovative, higher value-added products. Processes like fermentation and vacuum treatment are essential for the development of specific aroma compounds, facilitating the development of new flavours and tastes for high-quality products. The experience of Fraunhofer and ITAL in process development and the identification of flavour compounds will contribute to premium and novel chocolate and coffee products.