

Science for a Healthy Life



FoRC
FOOD RESEARCH CENTER



Biobased Economy Workshop
April, 5 and 6, 2017 - FAPESP Auditorium

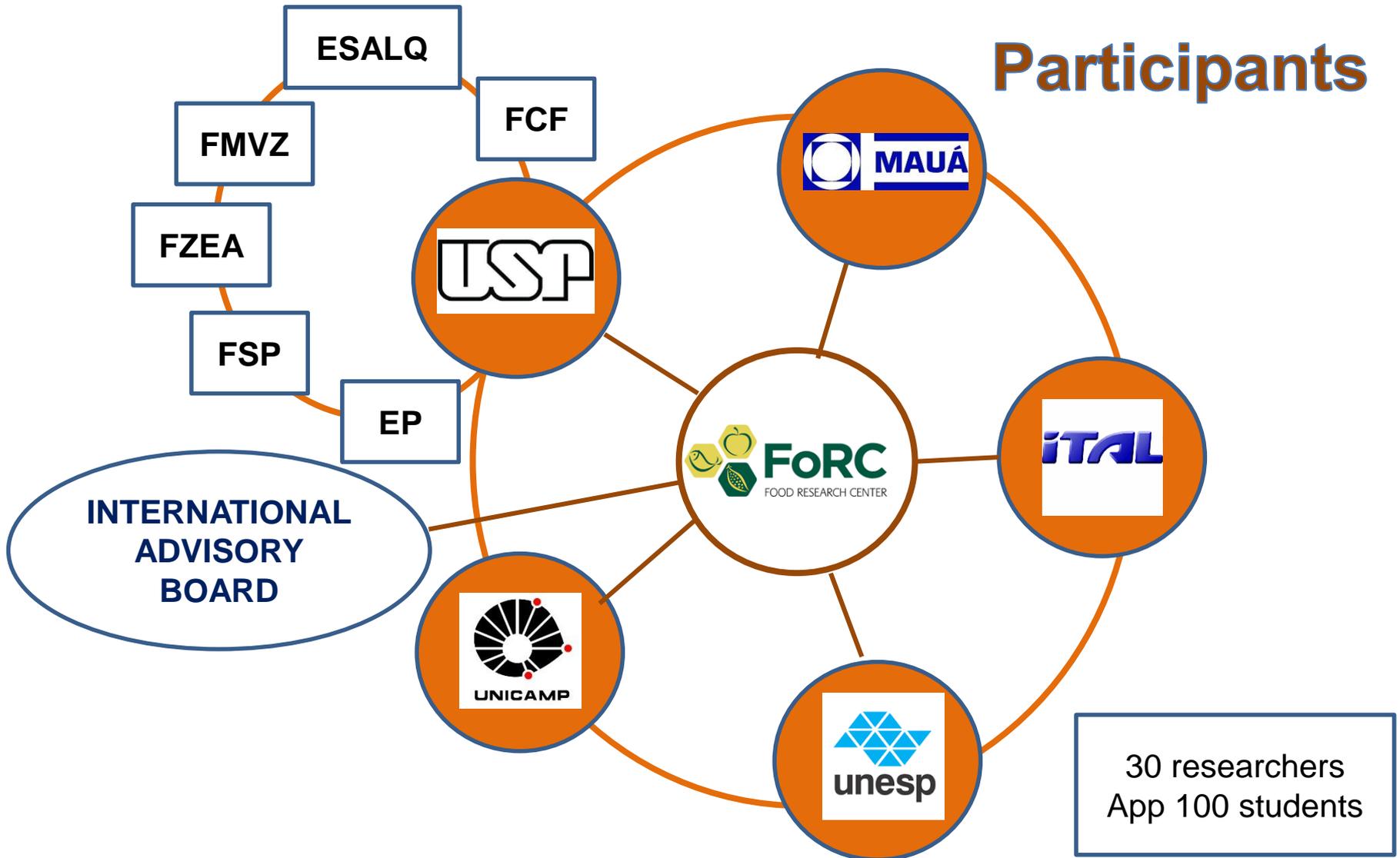
A Research, Innovation and Dissemination Center



Started 2013



Participants



RESEARCH



***Systems
Biology in
Foods***

***Food,
Nutrition
and
Health***

***Food
Quality
and Safety***

***New
Technologies
and
Innovation***



RESEARCH

Interconnected Pillars – Five main projects

A - Food carbohydrates and health

B - Bioactive compounds and functional ingredients in foods

C - Food Composition and the Brazilian Food Composition Table

D - Food safety, microbial hazards and beneficial microbes

E - New technologies in food processing

ON-GOING PROJECTS

Immunomodulatory polysaccharides from fruits and edible mushrooms

1. Extraction, purification and characterization of non-starch polysaccharides from fruits and mushrooms
2. Assessment of their immunomodulatory effect
3. Scaled-up production for use as functional ingredients

ON-GOING PROJECTS

Molecular mechanisms of the metabolism of carotenoids and anthocyanins in fruits

1. Identification of molecular mechanisms that regulate color formation
2. Determination of the metabolite profile by metabolomic techniques
3. Determination of the regulatory genes involved in ripening and color development using transcriptomic analysis

ON-GOING PROJECTS

Biodiversity and bioactive compounds

Objectives

1. Prospection of bioactive compounds (phenolic compounds and carotenoids) in different native and non-commercial Brazilian fruits
2. Determination of *in vitro* and *in vivo* (preclinical and clinical) activity against physiologically relevant reactions, epigenomic, transcriptomic, proteomic and metabolomic levels
3. Evaluation of potential applications as promoters of human health (influence of processing, storage, etc)

Oranges and grapes juices, grumixama, tomatoes, peppers, blackberries, açai, unripe banana flour

ON-GOING PROJECTS

Brazilian Food Composition Table

1. Update of the Brazilian Food Composition Table (TBCA – Tabela Brasileira de Composição de Alimentos), with data from Brazilian consumption surveys and meta-analysis;
2. Design of an app to help in formulations of personalized dietary plans

ON-GOING PROJECTS

Assessing microbial hazards and risks in foods – from primary production to consumption

1. Characterization and control of microbial hazards in organic and conventional vegetables
2. Modelling cross-contamination of foods at retail level

ON-GOING PROJECTS

Beneficial effects of interactions among microorganisms in foods

1. Signalling molecules (quorum sensing and cross-talk) and applications in foods
2. Protective microbial biofilms towards major Gram positive and Gram negative pathogens

ON-GOING PROJECTS

Microbial ecology in Brazilian foods

1. Metagenomic and metabolomic approaches for characterization of microbial communities in Brazilian foods (regional cheeses)
2. Explore population dynamics along the production chain as strategy for improvement of quality and safety

ON-GOING PROJECTS

Bioactive compounds produced by lactic acid bacteria to improve food quality and safety

1. Application of bacteriocin-producing lactic acid bacteria for food biopreservation
2. Prospection of vitamin-producing bacteria in milk for production of biofortified dairy products
3. Exploring the proteolytic activity of lactic acid bacteria for reduction of allergy to proteins (milk, soya).

ON-GOING PROJECTS

Active and passive nanocomposites and biopackaging

1. Development of gelatin or starch based nanocomposite films charged with laponite
2. Development of gelatin-based films with nanoemulsified active agents
3. Development of active films with herbal extracts

ON-GOING PROJECTS

Unripe banana flour (UBF): pilot-scale production and application in products

1. Pre-treatments and mathematical modelling in unripe banana drying, for production of flour as a functional food ingredient
2. Unripe banana flour (UBF) agglomeration for improvement of liquid instant and dispersion properties

www.usp.br/forc



The screenshot shows a web browser window displaying the FoRC website. The address bar shows www.usp.br/forc/english.php. The page features the FoRC logo (a stylized green and yellow hexagon with a leaf and a fruit) and the text "FoRC FOOD RESEARCH CENTER". A navigation menu includes links for HOME, ABOUT, INSTITUTIONAL, RESEARCH, EDUCATION, INNOVATION, and CONTACT US. The main content area has a large banner image showing a greenhouse, a field, and a grocery store. Overlaid on the banner is the text: "FoRC is a joint initiative of researchers from USP, UNICAMP, UNESP, Instituto de Tecnologia de Alimentos, Instituto Mauá de Tecnologia, and collaborating institutions abroad." Below the banner, the text "FoRC - FOOD RESEARCH CENTER" is displayed. A paragraph of text describes the center's mission: "For many years researchers at the University of São Paulo have planned to create the first Brazilian multidisciplinary research center focused on Food Science and Nutrition. This goal was achieved in 2013 with the launch of the Food Research Center (FoRC), one of the Research, Innovation and Dissemination Centers (RIDCs) supported by the São Paulo Research Foundation (FAPESP)." The browser's taskbar at the bottom shows various application icons and the system clock indicating 18:47 on 01/09/2015.

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FoRC
FOOD RESEARCH CENTER

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FoRC - FOOD RESEARCH CENTER

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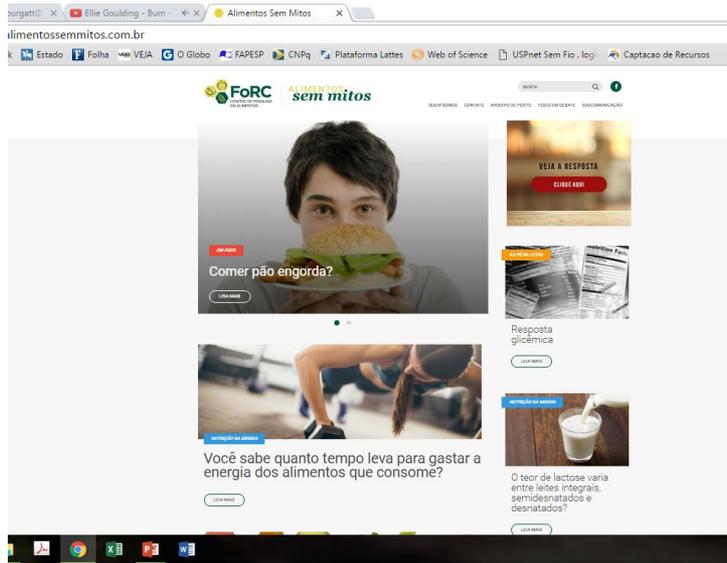


USP



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THANK YOU



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