

RESEARCH LINE: PROCESS ENGINEERING IN THE FOOD INDUSTRY

Description: Development of new products and processes; Engineering and optimization; Economic viability; Physical properties of foods; Microencapsulation; Biofilm development; Membrane Technology.

MINIMALLY PROCESSED FOODS, USE OF EDIBLE COATINGS, DEHYDRATION BY IMPREGNATION WITH SOLUTES.

Professor Miriam Dupas Hubinger

Laboratory of Process Engineering– LEP

Description: Development and characterization of new functional and/or nutraceutical compounds from typical Brazilian raw materials, such as tropical fruits rich in antioxidant compounds, using spray drying technology and different encapsulating agents.

PROCESS ANALYTICAL TECHNOLOGIES AND NON-DESTRUCTIVE METHODS IN THE FOOD INDUSTRY

Professor Douglas Fernandes Barbin

Laboratory of Refrigeration– LR

Description: Application of non-destructive techniques in the food industry. Near-infrared spectroscopy, computer vision, and hyperspectral Imaging applied to food

FOOD COLLOIDS AND BIOPOLYMERS: DEVELOPMENT OF NEW INGREDIENTS AND PROCESSES FOR ENCAPSULATION OF FUNCTIONAL COMPOUNDS.

Professor Rosiane Lopes da Cunha

Laboratory of Process Engineering– LEP

Description: Rheological characterization of solid foods at low and high deformation rates aiming at modeling the material's relaxation and correlation with its structure. Correlation of mechanical properties at rupture and process conditions. Functionality of biopolymer ingredients through physical properties. Structure-rheology of complex biopolymer systems: simple or multiple gels and emulsions. Repulsive and attractive interactions determined by phase behavior.

ENCAPSULATION AND CONTROLLED RELEASE OF BIOACTIVE COMPOUNDS.

Professor Ana Carla Kawazoe Sato

Participant Professor Luiz Henrique Fasolin

Laboratory of Process Engineering– LEP

Description: Encapsulation systems for use in food. Use of natural compounds and evaluation of stability under different conditions of processing, storage, and digestion.

BIOPOLYMERS FOR INNOVATION IN PRODUCT AND PROCESS DEVELOPMENT.

Professor Ana Silvia Prata Soares

Laboratory of Food Innovation– LINA

Description: Development of innovative processes and products with less impact on the environment and human health, using Brazilian raw materials or by-products from the agro-food industry. Areas covered: physicochemical mechanisms in the structuring of biomaterials, including microparticulate systems such as complex coacervation, ionic gelation, spray drying. Fluidization and drying for particle production: optimization of operating conditions and formulations. Replacement of synthetic additives. Microencapsulation for the development of new products. Recovery and valorization of by-products from the agro-food industry.

FUNCTIONAL PRODUCTS FROM NATIVE BRAZILIAN PLANT SPECIES BY MEMBRANE CONCENTRATION.

Professor Miriam Dupas Hubinger

Laboratory of Process Engineering– LEP

Description:

Production of concentrated aqueous extracts from propolis by nanofiltration. Production of aqueous extracts of native fruits from the Cerrado, rich in antioxidants.

PRODUCTION OF NATURAL POLYMER FILMS.

Professor Miriam Dupas Hubinger

Laboratory of Process Engineering– LEP

Description: Production of edible films from Brazilian raw materials for use as food packaging and coatings. Physicochemical characterization and processing study.

DRYING AND PRODUCTION OF SPRAY-DRIED MICROPARTICLES FOR THE DEVELOPMENT OF FUNCTIONAL FOOD.

Professor Miriam Dupas Hubinger

Laboratory of Process Engineering– LEP

Description: Development of functional foods from typical Brazilian tropical fruits, rich in compounds of interest, by spray drying and encapsulation. Development of protein hydrolysates to add value to raw materials. Hydrolysates obtained by enzymatic hydrolysis, from poultry,

giblets, and mussels are subjected to spray drying and microencapsulation, using different encapsulating agents. Encapsulation of flavors of interest in the food industry.

FOOD DRYING.

Description: Optimization of process conditions for the preservation of bioactive compounds and functional properties of foods. Evaluation of the glass transition effect during drying and storage of dehydrated products. Evaluation of different dryers, such as convective dryer, fluidized bed, and spouted bed dryer and spray dryer.

ENCAPSULATION OF BIOACTIVE COMPOUNDS

Professor Louise Emy Kurozawa

Laboratory of Food Innovation– LINA

Description: Study of different techniques, such as spray drying and complex coacervation. Development of new wall materials by enzymatic hydrolysis of proteins