

Laboratory for Microbiological Control of Food Products

• OBJECTIVES

The strategic objectives of Food Products Microbiological Control Laboratory are the following:

- to develop control and prevention strategies for emerging food borne pathogens, thereby helping to reduce the unacceptably high incidence of food borne disease and to improve the competitiveness of FOOD industry.

- to offer a comprehensive array of analytical tools to identify unwanted contamination issues.

- the implementation of the knowledge in the modern fermentation concept.

Our laboratory research provides us with the opportunity to bring about innovative methodologies to meet new industry challenges.

• ACTIVITIES

Growth curves

Factors affecting growth and survival

Inhibition mechanisms

Indicators for microbial food spoilage

Food fermentations

• MAIN EQUIPMENT

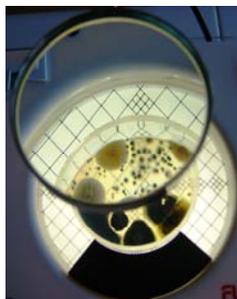
Biologic Microscope and Video Camera Incorporated



Laminar Flow Cabinet for Sterile Experiments



Colony Counter



Fluorescence Microscope and Video Camera Incorporated



- **MAIN THEMATICS**

Optimization of resuscitation and enrichment of food borne pathogens for rapid detection methods in food diagnostics

As food, due to processing and the preservation techniques, presents non-optimal conditions for microorganisms, the pathogens are stressed or sublethally injured. The aim is to determine the conditions of resuscitation and enrichment of pathogens for detection and conventional microbiological analyses.

Predictive modeling of microbial inhibition and inactivation through lactic acid and pH

In food industry, organic acids are popular preservatives as they are active against a broad spectrum of spoilage organisms and already effective at low concentrations. We investigate the individual effects of undissociated lactic acid and pH on both growth and inactivation.

Use of new decontamination techniques for minimally processed vegetables

Nowadays consumers are looking for fresh, healthy, ready-to-use and additive-free foods with the retention of the nutritional characteristics and safety. The objective is to investigate the potential of different techniques to decontaminate minimally processed vegetables. As vegetables are an important source of vitamins and antioxidants in the human diet, a comparison between the decontamination efficiency and the effect on the organoleptic properties and on the nutritional quality will be made by means of these techniques.

The use of micro-organisms as immobilized biological catalysts

By immobilizing yeast cells on a solid support, high cell densities can be obtained. Thereby, a higher volumetric productivity could be achieved during the fermentation of wort, which, in combination with continuous fermentation, results in a significant decrease of the production time of beer. The objective is to investigate the immobilization process, where the adhesion properties of both the carrier material and the yeast, are being evaluated. Also, the physiology of the immobilized yeast will be studied.

- **THE LABORATORY**

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Scientific production 2005 - 2007: 9 publications, 2 books

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<http://www.fia.usv.ro/laboratoare>