



KEY TECHNOLOGIES

THE MICROBIOLOGICAL QUALITY OF FOOD

Key words: *pathogenic bacteria (Listeria monocytogenes, Salmonella, E.coli 0157 H7, Bacillus cereus), challenge-test, growth, heat resistance, HACCP, DLD*

Adria Normandie works in the field of health hazard control, involving the following:

- ▶ Predictive microbiology: running challenge-tests on various pathogenic bacteria (*Listeria monocytogenes*, *Salmonella*, *E.coli* 0157 H7, *Bacillus cereus*) and participating in the set-up of a French database of predictive microbiology (sym PREVIUS). The tests are run on a food matrix in pilot manufacturing conditions. They assess the incidence of processes (heat processing, for instance), or of the preservation conditions, on the development of pathogenic microorganisms.

HUMAN POTENTIAL

- ▶ A Microbiology Unit at the Research and Development Department with 1 microbiological engineer and 2 research assistants; Laboratory of Microbiological and Physicochemical Analysis (1 engineer and 8 technologists); Technological Assistance Unit with one food technology engineer and one research officer; Quality Department with one engineer (AFAQ auditor) and 2 project leaders (training and consulting at companies)



Adria Normandie

- ▶ The Durable-Life Date (DLD) validation through ageing tests on food products stored in different cold chains (monitoring of regulation flora)

- ▶ The set-up of a quality organisation such as HACCP in a company

SPECIAL EQUIPMENT

- ▶ Microbiology: various equipment for microbial cultures, microscopy, programmable double-boiler for heat resistance measurements, spectrophotometers, refrigerated rooms, and so on

- ▶ Technology Hall (500 square metres) with various equipment for making convenience food: see the file on Technological Innovation

METHODS, SKILLS AND EXPERTISE

- ▶ Counting, non-selective and selective media, isolation and identification of pathogen and spoilage microorganisms
- ▶ Counting of legally required flora
- ▶ Culture in model environments and on food matrixes
- ▶ Growth measurement (latency and generation time) and measurement of optimal growth parameters, measurement of heat resistance (TDT tubes and capillary tubes)
- ▶ Physical and chemical product control (pH, Aw, composition, and so on)
- ▶ Training in hygiene
- ▶ Audit and hygiene assessment of the site
- ▶ Analysis of critical points

APPLICATION EXAMPLES

- ▶ Development of Escherichia coli 0157H7 in atmosphere-controlled packs of lettuce
- ▶ Optimisation of the challenge-test methodology with Listeria monocytogenes in food products
- ▶ Incidence of heating and cooling kinetics on the heat resistance of Bacillus cereus spores
- ▶ Incidence of modified atmosphere on the DLD of convenience food
- ▶ Set up of the HACCP system in a meat-processing company

SUPPORT TO BUSINESS SET-UP PROJECTS IN BASSE-NORMANDIE

The Basse-Normandie Region has rolled out all its resources to support business projects in the following areas:

- ▶ General funding
- ▶ Business project support
- ▶ Training programs
- ▶ Corporate user services at operations site
- ▶ Technology transfer to companies: www.gravir.org and www.iaa.cra-normandie.fr

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For further information:

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