

PONAN'TECH

A CONSORTIUM OF TECHNOLOGICAL AGRI-FOOD RESOURCES IN THE PAYS DE LA LOIRE REGION



© Zol - Fotolia.com

Ponan has given itself the mission of transferring technology and accompanying innovation, by bringing together the specific skills of its founding partners and combining them with the additional skills which can be mobilised on a regional scale in technical centres (CETIM, CTCPA), and analysis laboratories (IDAC) in order to answer the needs of companies as well as sectors of food industry.

Ponan'Tech aims are to bring together partners and to share human and material means to offer answers to the complex questions of companies in terms of innovation, of technology transfer through specific research programmes or the provision of services.

PONAN'S DYNAMISM

Nantes centre for food and nutrition «pôle nantais alimentation et nutrition» (PONAN) gathers together research teams and laboratories as well as institutions of higher education in Nantes and the surrounding area. The network boasts **more than 350 researchers, teachers-cum-researchers, engineers and technologists** linked to the large national research organisations such as CNRS, INRA, INSERM, IFREMER, and to establishments of higher education situated in the local area: University of Nantes, ENVN, ENMN, ENITIAA, AUDENCIA, CNAM, that is to say **more than 1000 students** trained in these fields.

Since it was founded in 2004, PONAN has developed liaisons between the teams, centres and establishments, and has nurtured the emergence of new synergies in higher education and training. In the field of research, PONAN has enabled unifying projects to develop between laboratories and disciplines, such as the regional AISQAL (Integrated Approach to the Safety and Quality of Foodstuffs) programmes and NUPEM (Perinatal Nutrition and Metabolic Footprint), which bring together numerous teams from both Angers and Nantes.

The applied research programmes answer the demands of centres of competitiveness or clusters. These programmes are conducted in response to regional national invitations to tender (ANR), or indeed European ones (PCRD), in the framework of mixed technological units (UMT) or mixed technological networks (RMT). The operational objective is to define the technological tools of common interest (platforms, sounding boards, etc.) and to put at companies' disposal extremely diversified local expertise.



SERVICES SUPPLIED

- Assessment and expertise of food safety
- Development of products, processes and new equipment
- Expertise in thermal treatments (*deep-freezing, cooking and smoking, etc.*)
- Development of sensors and automation
- Hygienic conception of equipment
- Assessment of the sensory qualities of food products
- Valorization of co-products
- Quality systems : ISO 22000, IFS, BRC ...
- Development of internal skills in companies, training
- Accompanying new companies ...

ENVN - LA CHANTRERIE
BP 40706. 44307. Nantes cedex 3
Tél : +33 (0)2 40 68 28 05 ou 77 77
e-mail : ponan@vet-nantes.fr



Réalisation : Rémi Mer consulting : 02 40 63 97 72 & design graphique : Yvan Larboulette : 02 51 84 29 29
Crédits photographiques couverture : © Arnaud Chapu / © KaVam / © DX - Fotolia.com

RESEARCH



A HUB OF EXCELLENCE FOR TOMORROW'S FOOD



TRAINING



TECHNOLOGY



A HUB FOR TRAINING AND FOR HIGHER EDUCATION
A HUB FOR RESEARCH
A HUB FOR TECHNOLOGICAL INNOVATION FOR FOOD INDUSTRY
WORKING TOGETHER ON PROJECTS, A NETWORK OF SKILLS



PONAN COURSES

HIGHER EDUCATION IN NANTES

Establishments of higher education offer courses at bachelor (professional-oriented courses), masters and PhD levels. Some of these courses are managed jointly by several institutions, including the University of Nantes, the ENVN (Nantes National Veterinary School), ENITIAA (the National School of Agribusiness and Food Technology Engineers) and the CNAM (National Conservatory of Arts and Crafts) of the Pays de la Loire region. In total, the hub represents **more than 1000 students** in the Nantes-Saint Nazaire area.



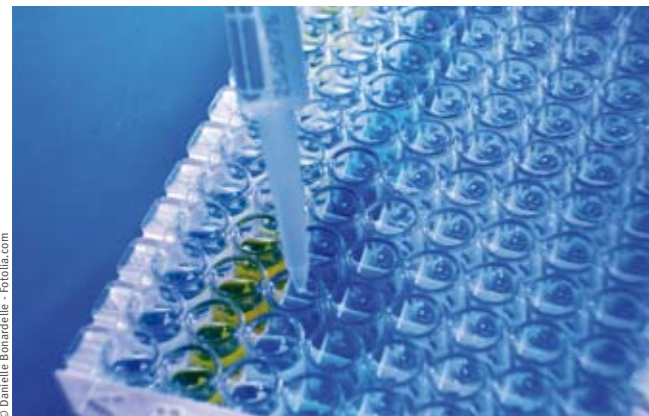
COURSES PECULIAR TO ONE INSTITUTION :

• **University of Nantes : Masters degree in Economic Law (M2)**, Speciality in Economic Activity Law, with two options : Agri-food industry Law and Competition and Consumption Law.

• **ENITIAA : Engineer in charge of Quality Control and Research and Development in the Agri-food industry.**

• **Nantes Veterinary School : Doctor of veterinary medicine**, with two additional specialisations, one in veterinary public health and the other in health and quality management in poultry and rabbit production units.

• **CNAM of the Pays de la Loire : Engineer in Living Organism Science, with an option in Agri-food industry**, by distance learning. Certified engineer's degree at Master 2 level.



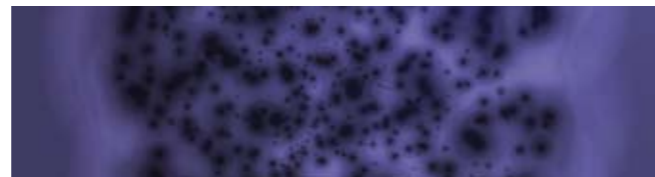
JOINTLY-MANAGED COURSES :

1- PROFESSIONAL-BASED BACHELOR DEGREES IN AGROBUSINESS (L3)

• Agrobusiness and food :

In charge of food resources: production, distribution and conservation of food products (a partnership between the University of Nantes - ENITIAA and 6th form high schools) with 4 options :

- In charge of production units in the agri-food industry
- In charge of production and distribution in institutional food service
- In charge of energy and refrigeration in the agri-food industry
- In charge of hygiene and food safety in the agri-food industry



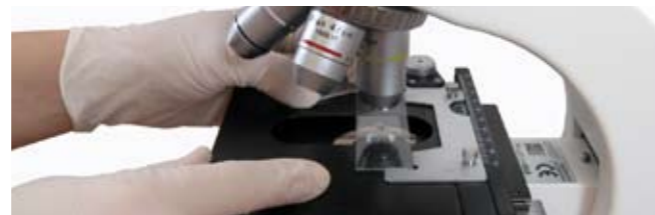
2- MASTERS (M2)

• **Masters in Chemical and Agri-food Engineering** (joint accreditation between ENITIAA and the ENVN), with two specialities :

- Expertise in Food Quality and Safety in the Agri-food Industry,
- Conception, Formulation and Production of Innovative Food Products

• **Masters in Chemical and Agri-food Engineering & Masters in Biological and Medical Sciences** (joint accreditation between ENITIAA and the ENVN), speciality in Research in Food Science and Human Nutrition, with three options :

- Development of Food Quality
- Human Nutrition
- Chemical and Microbiological Food Hygiene



PONAN FOR RESEARCH

PONAN IS DEVELOPING SOLID SKILLS CENTRED ON FIVE MAIN THEMES INVOLVING LABORATORIES OF DIFFERENT ORIGINS :

1 THE CONSTRUCTION OF FOOD QUALITY :

The public's increasing concern for the environment, and consumers' growing demands in terms of the «health» dimension of food products, has led research teams to integrate these societal objectives in a better way in the different levels of the food chain, from the production of agricultural raw materials to their processing and the marketing of the finished products. The objective of the research programmes is, first of all, to develop the conditions of production of plants and livestock in terms of sustainable agriculture, then to control the qualitative variability of the raw materials and their by-products and finally to control the quality of the food products whilst integrating nutritional recommendations.

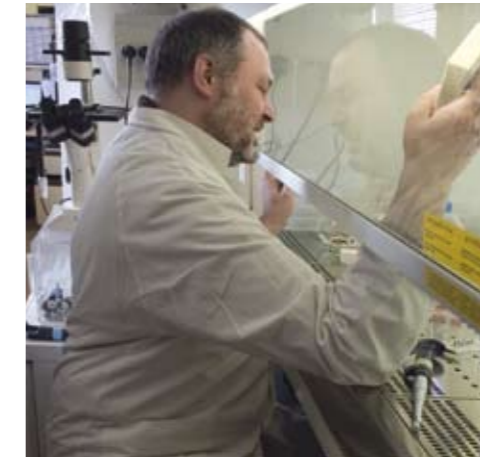


2 ENGINEERING OF PROCESSES LINKED TO THE AGRI-FOOD INDUSTRY :

Three themes are tackled by different teams mainly affiliated to the GEPEA («Process engineering for Environment and Food» laboratory (UMR CNRS) or to the IFREMER (Institute for Research into Maritime Exploitation) :

- 1 - The phenomena, coupled with complex matrices, with the study of refrigeration processes, thermomechanical treatment and reactive extrusion. The main applications focus on model products, such as bakery items and seafood, etc.
- 2 - The study of processes whilst taking into account the characteristics of the products and their properties of use. These studies focus on dispersed systems (powders, emulsions, foams, microcapsules etc.) on certain specific technology (high pressure) and on the aromatic valorisation of marine biore-sources.
- 3 - The study of the processes of valorization of photosynthetic micro-organisms and the treatment of the co-products and the effluents generated by the marine and aquacultural industries. The scientific aspects concern problems of transfer, mixing and transport of fragile and/or complex suspensions and solutions. There are two objecti-

ves, the first being the management and modelling of bioreactors and the second being the study of biomolecular separation processes.



3 FOOD SAFETY :

The aim is to ensure the physical, chemical or biological safety of foodstuffs by taking into account the different stages in the food chain. The integrated approach has been indispensable since 2005 (EU ruling 178/2002 and «Hygiene Package») and enables the precision of the processes relative to the safety of foodstuffs and the responsibilities from the primary producer to the distributor. The research projects focus on the quantitative appreciation of biological and chemical risks. Research in human and social sciences, integrating risk management, complete this approach.



4 NUTRITIONAL PREVENTION OF CHRONIC ILLNESSES :

This main line, centred on the activities of the CRNH of Nantes (Centre for Research in Human Nutrition), one of the 4 French research centres, comprises four themes :

- **Perinatal and child nutrition** : the impact of nutrition on the development and the maturation of the nervous system and the intestinal barrier,

- **Nutrition and atheroma** : the identification of the molecular bases of the risk factors and the development of new therapeutic strategies,
 - **Nutrition and the nervous system** : nutritional factors and development/maturation of the (central and enteric) nervous systems; nutritional factors and digestive neuropathies,
 - **Nutrition and cancer** : the impact on colon and brain cancer (glioma)

Partners of the CRNH : INRA, Nantes University Hospital, INSERM (Nantes and Angers); ENVN.



5 HUMAN AND SOCIAL SCIENCES LINKED TO THE AGRI-FOOD INDUSTRY :

The research analyses the evolution in the food system. It involves researchers in economic sciences, management, sociology, law and geography, working on three main themes :

- **Role of public policies** : the effects of public policies on agricultural enterprises and the incidence of international negotiations on agri-food exchanges and the opening up of European markets. Analysis of new principals of food law from the viewpoint of international rules and the standards and barriers in exchanges.
- **Organisation of production and distribution on the food chain** : analysis of the strategies of the main players at the heart of the sectors, the influence of logistics and traceability, and finally food law and the responsibilities of companies.
- **Representations and consumer trends in the food sector** : showing the consumers' determining factors in terms of food innovations. Food law in terms of consumer protection : safety, signs of quality and brands.

