

ANFACO-CECOPESCA



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PROXECTO COFINANCIADO



XUNTA DE GALICIA
CONSELLERÍA DE
ECONOMÍA E INDUSTRIA



FONDO EUROPEO DE
DESENVOLVEMENTO
REXIONAL
"Unha maneira de facer Europa"

UNIÓN EUROPEA

1. ANALYTICAL SERVICES



ANFACO-CECOPESCA's laboratories boast state-of-the-art scientific-technical facilities to meet the highest demands of our clients. Since 1996, in accordance with standard EN ISO/IEC 17025, our laboratories have been accredited by the Spanish accreditation body, ENAC, to perform physical-chemical, microbiological, toxicological and biomolecular assays on agro-food products, water and packaging (Technical Annex No. 96/LE230 for assays on agro-food products and packaging and Technical Annex No. 96/LE1440 for assays in the environmental sector).

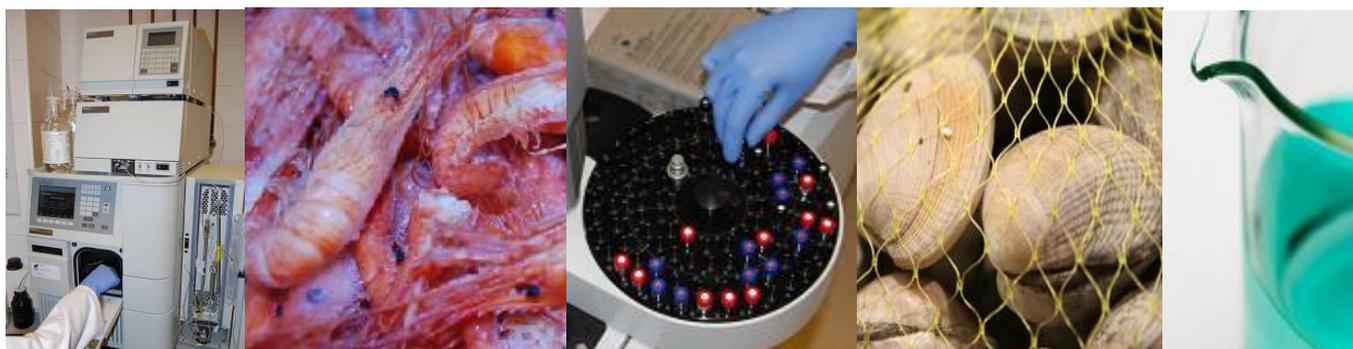
1.1. LABORATORY ANALYSIS

ANFACO-CECOPESCA is a private laboratory that offers the widest range of accreditation in the fisheries and aquaculture sector.

The analytical services offered are summarised below

FOOD AND FEED:

- **Nutritional composition** of food: fat, proteins, carbohydrates, energy values, cholesterol, vitamins, minerals, etc.
- **Freshness** parameters: histamine, TVB-N, TMA, DMA, etc.
- **Additives** (sulphites, polyphosphates, carbon monoxide, etc.)
- **Allergens** (gluten, milk, egg, vegetable protein, soy, shellfish, fish, molluscs, celery, etc.)
- **Abiotic contaminants:** Polycyclic aromatic hydrocarbons (PAHs), aliphatic hydrocarbons, heavy metals (Cd, Hg, Pb, Cu, As, etc.), persistent organic pollutants (dioxins and furans, PBDEs, PCBs), organotin compounds, veterinary drug residues (nitrofurans, chloramphenicol, etc.), aflatoxins, 3-MCPD, camphechlor, etc.
- **Biotic contaminants:**
 - Microbiological control by classic methods (plate count, tube, NMP) and rapid methods (TEMPO, Mini VIDAS and RT-PCR machines). Serotyping.
 - Control, quantification and characterisation of toxins: botulinic, staphylococcal, ASP, PSP (STX and derivatives), lipophilic (DSP, YTXs, PTXs, AZAs and SPXs).
- **Parasites:** Visual inspection. Detection and genetic identification of parasites in fish and meat products: species from the genera, Anisakis, Pseudoterranova, Contracaecum, Hysterothylacium, Microsporidia, Trichinella, etc.
- **Viruses in food:** Hepatitis A, norovirus, white spot syndrome, yellowhead, etc.
- **Detection and quantification of GMOs** (genetically modified organisms). **Product sensory analysis.**





⇒ OIL, VINEGAR, TOMATO, SALT AND SPICES:

- Genuineness tests on oils and other parameters included in specific legislation, etc.

⇒ WATER, SEWAGE SLUDGE AND SEDIMENTS:

- Microbiological analysis of different kinds of water: drinking, sea, bathing, ice, glaze, etc.
- Physical-chemical analysis of water: mains, well, sea, effluent, sludge and sediments

⇒ PACKAGING:

- Quality control in packaging: Inspection of closures, sealing, coatings, modified atmosphere composition, etc.

⇒ SURFACES, HANDLERS AND ENVIRONMENT: DISINFECTION CONTROL

⇒ ISSUING OF CHEMICAL, VETERINARY AND EXPORT CERTIFICATES

PIONEERS IN SPECIES IDENTIFICATION

In recognition of the quality of our analytical services, we are the only laboratory that has been **accredited by ENAC in accordance with NT-18** for the assay category, **Detection of species and/or taxonomic groups** by real time or final PCR with confirmation by sequencing, and the assay category, **Identification of species or genera of fish, cephalopods, mussels and meat** by DNA sequencing and phylogenetic analysis, both with a **List of Assays Under Accreditation (LAUA)**. The LAUA is an open list to which species are continually added and is supported by the implementation of the real time PCR and/or sequencing technique which, together with the use of our extensive database of species-specific sequences, is a powerful genetic tool that enables analysis of the product groups indicated, among others, present in the market and covered by accreditation that provides technical and international validity.

- **Species Identification Analysis:** genetic identification of species of fish, cephalopods, mussels and meats. We offer accredited analysis for identification or authentication of food products within these categories.
- **Detection of mixtures of species** in fish, meat and dairy products: processed meats, cheeses, etc. (Verification of correct labelling).
- **Detection of species:** included in this new flexible accreditation range is analysis of allergens such as crustaceans, fish, molluscs, etc., increasingly important assays in company self-monitoring processes and analyses used as contamination control tools in cases such as the detection of horse meat in products.

1.2. ADVISORY AND ASSESSMENT SERVICE FOR ANALYSED SAMPLE RESULTS

For companies that work with ANFACO-CECOPECA's laboratory for quality control, we offer:

- **Studies of trends** in company quality control based on the analytical results obtained, and
- An advisory service for the **management of incorrect results:** study of causes and recommendations for the implementation of corrective actions and preventative measures.

This service is free of charge if a certain analytical volume is reached (see terms and conditions).

ALSO...

- ✓ **Sample collection service** (see terms and conditions)
- ✓ **Free online result consultation service**
- ✓ **Attention, speed, quality assurance**
- ✓ **More than 50 years of experience**



2. PREPARATION OF SCIENTIFIC-TECHNICAL STUDIES

- **LABELLING STUDIES** Verification of correct arrangement of information required to appear on labelling for consumers according to the type of product and presentation (first sale, bulk sales, packaging – canned, jarred, frozen, etc.). Drafting of reference guides
- **TRANSFORMING FACTOR STUDIES** on contaminants in foodstuffs in accordance with Article 2 of Commission Regulation (EC) No 1881/2006.
- **MARKET RESEARCH STUDIES** to obtain accurate information, prior to starting a business project, about the intended field of operation and, in particular, to establish the existence of real sales opportunities and the feasibility of supplying goods or services in the intended quantities to meet the requirements of the entrepreneur.
- **SHELF LIFE AND STABILITY STUDIES** Determination of the maximum point at which a product retains approximately 80% of its sensory properties (High Quality Point) and the product's maximum fitness for consumption time according to its characteristics (chilled, frozen, canned, ready-made meal, pasteurised, packaged in modified atmospheres, etc.).



➤ CANNED FISH AND SEAFOOD MATURATION STUDIES

- **CONSUMER STUDIES** These include new product consumer acceptance studies (national level) and assessment studies to rate products against the brands of direct competitors.
- **GOOD PRACTICE GUIDES** for specific groups, vessels, etc.
- **IDENTIFICATION AND AUTHENTICATION STUDIES** for fish and meat products in terms of labelling
- **CLEANING SYSTEM VALIDATION STUDIES** for production plants.
- **STUDIES TO DETERMINE EFFLUENT COEFFICIENTS** in accordance with Spanish Law 9/2010 of 4 November concerning Galician waters and Spanish Decree 136/2012 of 31 May.
- **ALLERGEN STUDIES** Validation of absence of cross contamination of allergens during factory production changes.
- **THERMAL PROCESS DESIGN AND ASSESSMENT STUDIES** Heat penetration/distribution testing to ensure proper cooking, pasteurisation and sterilisation processes.
- **OTHER STUDIES TAILORED TO THE NEEDS OF THE CLIENT** (e.g. Anisakis)

3. TECHNICAL SUPPORT SERVICES FOR LABORATORIES



- ⇒ **Advisory service on analytical methods:** Setting up and/or validation of analytical methods in company laboratories.
- ⇒ Document management, design and organisation of laboratories.
- ⇒ **Setting up of new analytical methods** of interest to our clients in ANFACO-CECOPESCA's laboratories. Development of molecular techniques to ensure food safety: Allergens, GMOs, surface contamination control, etc.
- ⇒ **Development of molecular techniques to ensure food safety:** allergens, GMOs, surface contamination.
- ⇒ **Calibration of analytical equipment** (chromatography, atomic absorption, etc.), including calibrations in accordance with standard EN ISO/IEC 17025.
- ⇒ **Organisation of inter-comparison exercises** for companies and laboratories.
- ⇒ **Analytical appraisals and official control sampling.**
- ⇒ **Specific laboratory training:** implementation of ISO 17025, validation, assay quality control, calculation of uncertainties, calibration of laboratory equipment, regulations applicable to laboratories, etc.
- ⇒ **Comprehensive advisory service** for self- and official-monitoring laboratories.

4. TECHNICAL SUPPORT SERVICES FOR PRODUCERS

4.1. FOOD SAFETY AND AUDITING

- ⇒ **Advisory service for the development and implementation** of quality management and food safety systems:
 - Development, implementation and verification of quality assurance, self-monitoring and food safety standards (ISO 9001, ISO 22000, BRC, IFS, etc.).
 - Development, implementation and verification of critical control point management systems (HACCP).
- ⇒ **Advisory service for analytical planning** in production plants: selection of control parameters based on risk/severity of occurrence associated with processes, minimum control frequencies and plant self-monitoring.





- ⇒ **Advisory Service for Resource Sustainability.** Development and implementation of certification systems for marine and aquaculture resources.
- ⇒ **System and process auditing.**
- ⇒ **Supplier auditing** (national, EU and non-EU countries).
- ⇒ Management and advisory service for **resolving incidents** relating to plant food safety.
- ⇒ **Vertical traceability auditing throughout the chain.**

4.2. CONSULTANCY AND SPECIALISED SERVICES

Consultancy

- ⇒ Technical consulting for **resolving incidents** in companies relating to compliance with product and process regulations.
- ⇒ **Tailored guidance documents** on the law applicable to each company.
- ⇒ Tailored reports on **new legislation.**
- ⇒ Review of **company compliance with consumer information regulations** in terms of packaging and/or promotional item labelling, presentation and advertising.
- ⇒ Processing of public authority licences and permits relating to environmental matters: water, effluent, waste and emissions, etc.
- ⇒ Legal-technical judgments on technical matters specific to companies.
- ⇒ **Advisory service on grants and subsidies available to companies, and their management.**
- ⇒ Advisory service to companies on **other specific subjects** of interest.



Specialised services: Calibrations

- ⇒ **Drafting and monitoring of calibration plans** specific to each company in accordance with standard EN ISO 9001.
- ⇒ **Performance of calibrations and issuing of calibration certificates** with recognised traceability in accordance with standard EN ISO 9001: chilling and freezing systems, stoves, thermometers, manometers, isobaric chambers, scales, masses, gauges, etc.

4.3. PRODUCT AND PROCESS OPTIMISATION

- Support for **process management and control optimisation**, either by installing computerised management and variance calculation systems (supported, if necessary, by ICT technology) or by applying Lean Manufacturing, 5S or other alternative work philosophies.
- **Advisory service for designing and commissioning industrial plants** (aquaculture, extraction and processing), vessels, unloading areas and ancillary companies (cold stores, ice making plants, etc.).
- Support service for **designing plants in accordance with** food safety, hazard prevention, environmental management and ergonomics regulations
- Support for **production line automation** projects and process effectiveness and efficiency improvement.
- **Control and optimisation of thermal processes:** heat distribution and penetration testing. Establishment of optimum conditions to ensure commercial sterility.
- **Advisory service for product redesign and development of environmentally-friendly products.**



5. OTHER TECHNICAL SUPPORT SERVICES



5.2. Environmental Sustainability

- Study and implementation of tools for process energy control and optimisation.
- Optimisation of water consumption in production processes.
- Determination of ecological footprint (carbon and water). Establishment of common methodologies per product. Improvement analysis and proposals.
- Environmental consulting and appraisals

5.1. External Cooperation:

- Advisory service to competent authorities for meeting the requirements of applicable European regulations.
- Inspection and sampling training.
- Advisory service for the improvement of national control plans in order to meet the objectives set by the EU.
- Advisory service to companies to help them comply with client and EU specifications. Establishment of operational guidelines tailored to country situation and company needs.

5.3. Training

- Organisation and conducting of seminars, workshops and specialised courses tailored to the characteristics and needs of participating companies relating to the services described in the preceding paragraphs: quality, process control, energy, environment, analytical methods, sampling, product marketing in the EU, EU market information, etc.



6. R&D SERVICES

6.1. R&D services relating to the following lines of research

ANFACO-CECOPECA is a leading technology centre for the development of R&D projects in the fisheries and fish and aquaculture processing sectors and is registered in the Spanish Ministry of Economy and Competitiveness' register of centres (RD 2083/2009 - No. 11).

ANFACO-CECOPECA promotes the development of R&D at state and international level for the generation of knowledge that can later be transferred to the sector in order to enhance its competitiveness. It plays a key role as a catalyst for business innovation in the marine and food sector with a focus on R&D, providing companies with the necessary tools to help them undertake their own R&D and supporting them in the development of research and its management.

ANFACO-CECOPECA is currently diversifying its R&D activities towards other segments of the food industry, innovating in emerging technologies and providing research services to the food industry in general.

ANFACO-CECOPECA's research work is divided into six prioritised lines of action for the marine and food industry: **Food and Health; Live Resources, Aquaculture and Traceability Management; Food Safety; New Food Preservation Technologies; Process Engineering and Energy Efficiency; and Environment and Exploitation of Marine Products**, all of which currently make up a wide variety of lines of research.



a. Food and Health

Health, nutrition and wellbeing.

Research aimed at demonstrating the health potential of fish products and developing health claims.



- ➔ Collection and chemical and functional characterisation of bioactive molecules.
- ➔ Research into functional and nutraceutical foods.
- ➔ Scientific basis for nutritional and health claims. In-vitro assessment of the bioavailability of functional ingredients: Human cell and tissue cultures.
- ➔ Scientific basis for nutritional and health claims. In-vitro assessment of the bioavailability of functional ingredients: Biochemical methods and cell cultures.
- ➔ Application of new ingredients and additives.
- ➔ Application of natural extracts as substitutes for ingredients and less healthy additives or to improve nutritional, organoleptic and preservation quality.
- ➔ Application of biotechnology to obtain improved foods.
- ➔ Obtaining of microorganisms and enzymes for the production of functional ingredients.

b. Live Resources, Aquaculture and Traceability Management

Improvement of aquaculture production through the development of methodologies for disease diagnosis and control.

Authenticity and transparency in the market.

- ➔ Assessment of the genetic diversity of marine and terrestrial populations.
- ➔ Management of fish and shellfish resources.
- ➔ Development of molecular techniques to ensure the origin, authenticity, quality and traceability of raw materials.
- ➔ Development of molecular techniques to ensure food safety: allergens, GMOs, surface contamination control, etc.
- ➔ Development of rapid molecular tools for prevention, diagnosis, pathogen control and production improvement.
- ➔ Development of molecular techniques for the study, control and regulation of gene expression to improve animal production.
- ➔ Control and treatment of veterinary drug residues. Determination of antibiotic and other drug suppression times. Natural alternatives to the use of chemicals in the aquaculture industry.



- ➔ New ingredients for feed and formulation.
- ➔ Selection of new diets based on genetic, proteomic and biochemical parameters.
- ➔ Use of probiotics in aquaculture.
- ➔ Optimisation of cultivation and feed protocols.
- ➔ Study of the genetic regulation of biological processes (reproduction, larval development, nutrition and immunity).
- ➔ Optimisation of slaughter methods for animal welfare and product quality.
- ➔ Water quality. Development of pathogen early warning systems.
- ➔ Reduction of the impact of aquaculture facilities. Fish farm waste and effluent management.
- ➔ Technical support for improving aquaculture facilities (microalgae, live feed, molluscs).

c. Food Safety

Advanced, next generation technologies applied to the analysis of emerging risks.

Rapid and autonomous response capability at the service of companies.

- ➔ Advanced detection systems for studying biotic and abiotic contaminants, emerging pathogens, antibiotic and toxin residues in human food and animal feed.
- ➔ Biochemical, physical-chemical, molecular, microbiological and immunological methods to monitor and prevent food hazards.
- ➔ Predictive food microbiology. Mathematical models.
- ➔ Toxicology and food safety. Biotic and abiotic effects of contaminants on cell cultures.
- ➔ Strategies for the reduction or elimination of biotic and abiotic contaminants and emerging pathogens in food.
- ➔ Marine biotoxins: new detection methods, toxicology, biochemical targets and decontamination of molluscs.
- ➔ Early warning systems for toxic episodes.
- ➔ Synergistic effects of biotic contaminants and other toxic compounds.



d. New Food Preservation Technologies

Adapting to the demands of today's consumer.

New, easier to prepare, minimally-processed, healthier and competitively-priced products.

- ➔ High pressure sterilisation and pasteurisation, microwave, electric pulses, etc.
- ➔ Labels and active and intelligent packaging systems to control the quality and safety of food.
- ➔ New packaging materials (biodegradable packaging, flexible sterilisable plastic, etc.) and recycled packaging materials in the food industry.
- ➔ Development of films and new edible covering materials for preservation.
- ➔ Implementation of new processes and emerging technologies. Pre-prepared and pre-cooked products.
- ➔ Development of new forms of fresh/chilled food presentation to improve shelf life.



e. Process Engineering and Energy Efficiency

Optimisation of production processes, cost reduction and development of new specific machinery.

Efficiency as a means of achieving more environmentally- and economically-sustainable production.

- ➔ Development of industrial prototypes and process automation.
- ➔ Robotics applied to production processes.
- ➔ New ICT technologies for process improvement. Technology and its application to the processing, distribution and marketing chain.
- ➔ Development of foreign body detection systems using ultrasound and RF, high voltage electric fields and infrared (artificial vision).
- ➔ Development of ultra-fast, next-generation technologies based on near-infrared spectroscopy (NIRS) for the on-line control of raw materials and finished products.
- ➔ Management and optimisation of energy resources.
- ➔ Study of alternative energies.
- ➔ Carbon and water footprints.
- ➔ Research into new fuels.



f. Environment and Exploitation of Marine Products

Support for companies in environmentally-responsible production.

Search for new business solutions to enhance the sustainability of the sector from an environmental and economic standpoint.



- ➔ Obtaining of bioactive substances from marine organisms, cell cultures or whole animals.
- ➔ Utilisation of by-products. Obtaining of high added value compounds for use in the pharmaceutical, cosmetics and food industries.
- ➔ Recovery of algae waste for the pharmaceutical and cosmetics industries.
- ➔ Effluent management and waste treatment. Research into the development of biofuels.

6.2. Services relating to R&D management

➤ Advisory service to companies searching for solutions to their technological demands and information on grants for the implementation of R&D projects in Spain and Europe.

➤ Technology and/or product review.

➤ Detection, planning and channelling of R&D projects of interest to business. Drafting of proposals for government grant competitions and their processing.

➤ Search for collaborating entities at national and international level.



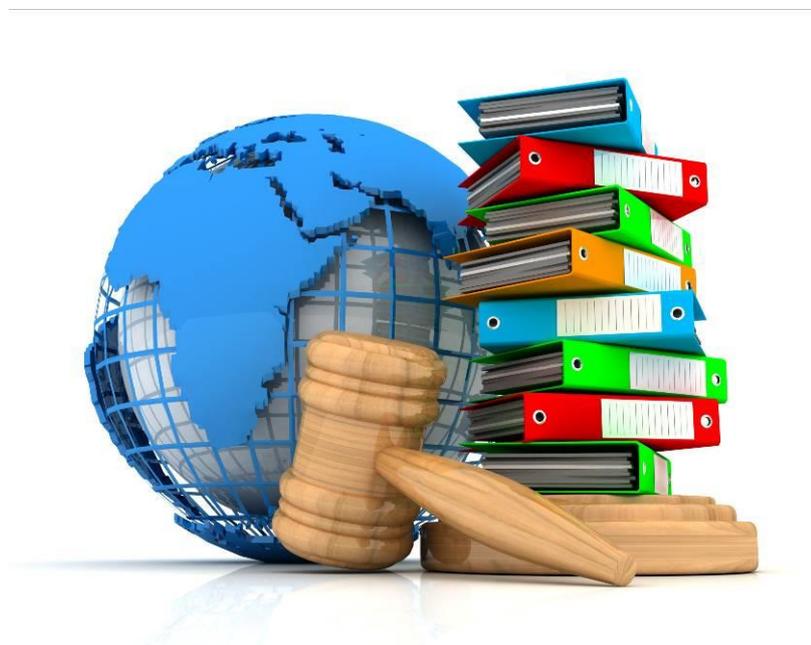
➤ Drafting of technical, economic and R&D monitoring reports.

➤ Advisory service for the exploitation and protection of research results.

➤ Support for the funding of R&D work: detailed reports on corporation tax deductions.

7. Legal Advisory Services

- ➔ **Food law:** Specific legal advice (judgments, reports, etc.), advocacy in administrative disciplinary proceedings and procedural intervention in any matters concerning the implementation of regional, national or EU food legislation: food production, hygiene requirements, ingredients, labelling, advertising, legal aspects of marketing, quality, nutrition, etc.
- ➔ **Environmental law:** Specialised legal advice and administrative and procedural intervention in matters relating to effluents, water surcharges, effluent coefficients, effluent permits, waste management, atmospheric emissions and contaminated soils, as well as other issues relating to concessions and permits.



- ➔ **Other areas of administrative law:** Specialised legal advice and procedural intervention in administrative and administrative adjudicatory proceedings, especially in matters of urban and coastal planning, concessions, public procurement, data protection, competition and intellectual property.
- ➔ **Employment law:** Specialised legal advice on matters relating to employment, social security and occupational health and safety, as well as the application and interpretation of the sector's collective agreement, collective bargaining at company level and equality and non-discrimination policies. Advocacy and advice in matters relating to the Employment Inspectorate and jurisdiction.
- ➔ **Advice on other areas of law** (civil, commercial and criminal) in matters relating to payment procedures, payment terms, civil liability claims and actions, criminal liability of legal entities, drafting of contracts and unfair competition, among other matters.

8. Foreign Trade Services

The aim of our foreign trade services is to facilitate international trade, always in response to company needs. Our services include:

- Assistance on issues of international trade and trade policy: tariffs, trade restrictions, policies applicable to products, etc.
- Import and export relating to non-EU countries: Advice on product import and export processes, applicable regulations and required documentation.
- Preparation of market research for non-EU countries specific to companies: analysis of the target country and data relating to consumption, company market share, foreign trade data, etc.
- Drafting of sectoral statistics.
- Drafting of statistical reports tailored to the needs of companies.
- Creation of fact sheets on EU and non-UE countries.
- Drafting of lists of importers in target markets
- Handling of enquiries on international trade and management of problems before the relevant public authorities
- Organisation and management of trade missions (direct and inverse) for companies to market their products
- Attendance at trade fairs



FURTHER INFORMATION:

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