AGROFOOD

Universidade Vigo

Vicerreitoría de Investigación, Transferencia e Innovación

Oficina de I+D

HR EXCELLENCE IN RESEARCH

Presentation

It is a pleasure for me to present the catalogue of research in the Agrofood area at the University of Vigo, an institution that is acknowledged not only by its remarkable position worldwide, reaching the fifteenth place in the prestigious Shanghai ranking, but also by its constant innovation and commitment to excellence in this field.

Agriculture and food are fundamental pillars of our society. In this context, research plays a crucial role in gaining significant achievements. Our university has consolidated a broad network of multidisciplinary experts who work to address the intricacies in the food chain.

This document aims to show the R&D capabilities and services available at the University of Vigo to the socio-economic environment, by including the investigation areas and services provided by our research groups. This covers everything from agricultural and agro-food research, food technology, food and health omics, bioengineering and processes, to environmental biology and agroforestry engineering, among others.

More than just a compilation of capabilities, this document is a reflection of the commitment of the university's research staff, who show a deep understanding of the current and future challenges facing the agro-food sector, from improving cultivation methods to optimization of production processes, or the research of new ingredients to the development of sustainable technologies. Each page of this catalogue reflects the contribution of the university, where innovation and knowledge come together to get closer to the sustainable growth in the sector and a positive transformation of the industry.

We want to highlight two recent achievements that define our strength in research in the Agrofood field. Firstly, the creation of the Institute of Agroecology and Food (IAF), a milestone that reflects our commitment to sustainable practices and the deep understanding of food systems. This institute represents the epicenter of innovative ideas and solutions to the industry's most pressing challenges. Secondly, the installation of a state-of-the-art Agrofood pilot plant. Together with the CACTI (Center for Scientific-Technological Research Support) and CITI (Center for Research, Transfer and Innovation), these three cutting-edge infrastructures at the Ourense Campus offer our research staff and collaborators an exceptional space to translate theories into practical applications, thus accelerating the development and implementation of revolutionary solutions in this field.

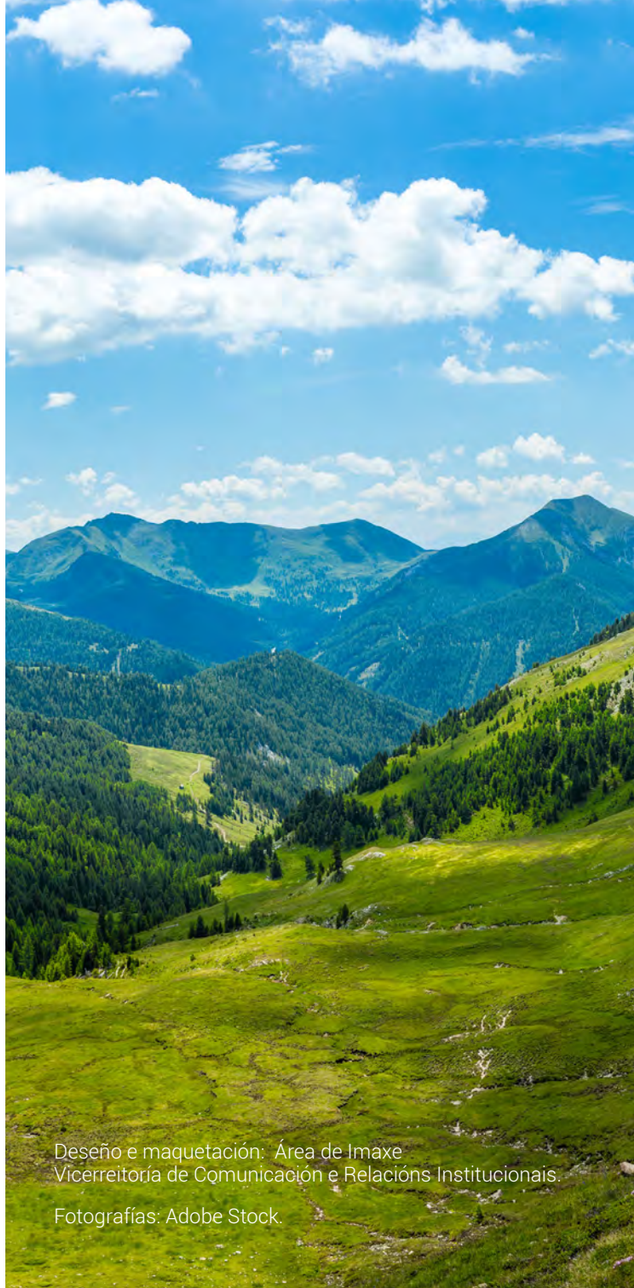
We hope that this catalogue represents a window for companies to explore our diverse areas of high quality research, from Agroecology to innovation in food processing processes and technologies.

Finally, I would like to highlight my gratitude, on one hand, to our Research Results Transfer Office (R&D office) for the time and effort dedicated to this initiative and, on the other, to the research groups involved, for their collaboration and contributions.

I hope it will be useful and further enhance public-private collaboration with a wide range of collaboration possibilities, which will allow us to address specific challenges and build a more resilient, sustainable and secure future for agriculture and food.

Belén Rubio Armesto
Vice-rector for Research, Transfer and Innovation

Índice



Deseño e maquetación: Área de Imaxe
Vicerreitoría de Comunicación e Relacións Institucionais.

Fotografías: Adobe Stock.

Institute of Agroecology and Food (IAA)

Presentation

The mission of the Institute of Agroecology and Food of the University of Vigo is to promote an interdisciplinary and excellent research environment with the capacity to offer new knowledge and solutions that contribute to the ecological transition process in a context marked by major global changes, including climate change, preserving biodiversity and contributing to the objectives of sustainable development.

The center, based in the Campus Agua de Ourense building, arises with the vocation of becoming a benchmark for R&D in order to promote more resilient, sustainable, safe and circular agro-food systems.

The institute has four strategic objectives:

- To achieve higher rates of scientific excellence through the development of an agenda aligned with European, state and regional R&D&I policies and priorities in the agro-food field;
- To develop, establish and attract research talent;
- To achieve a greater impact of the research carried out in the Galician environment;
- To position and make visible the Institute as a reference center in the field of Agroecology and Food. For that propose will be promoted the creation of the Iberian Food Laboratory in collaboration with the Polytechnic Institute of Braganza.

The research staff with a record of accomplishment related to the objectives of the IAA is in the process of being assigned to the center, which has as one of its short-term challenges to create a portfolio of services for the sector.

Priorities and R&D lines

The institute addresses several lines of work grouped into four research priorities:

Priority 1. Soil health and quality

Soil health is of great relevance for global sustainability, so it is essential to have at least 75% of healthy soils by 2030, in order to ensure the existence of healthy food, people, nature and climate. To meet this challenge, the recovery of degraded soils is key, and for this reason, the center addresses the following lines of R&D: (I) Soil fertility and carbon fixation (emerging line), (II) Soil and water contamination processes. Accumulation, dynamics, transport and effect on biota, (III) Recovery of degraded soils, and (IV) Soil economy (emerging line).

Priority 2. Management and crop handling

In a context in which the climate is less and less predictable, and farmland and water resources are shrinking or deteriorating, the intensification of agriculture represents an unprecedented challenge; on the other hand, it is necessary to reduce dependence on fossil fuels. With the purpose of promoting sustainable agriculture and production, and obtaining more resistant and resilient crops in the face of climate change, the following lines of work are carried out: (I) Reduction of chemical synthesis fertilizers, (II) Sustainable management of pests and diseases, (III) Management of adventitious vegetation, and (IV) Adaptation of crops to climate change.

Priority 3. Food quality and safety

Food quality refers to whether food is nutritious, safe, and acceptable to consumers. This implies that the food industry must intensify its efforts to certify the origin of food, its sustainable production and transformation, as well as improve the quality of its products to differentiate itself from the rest of the options on the supermarket shelves. In this respect, the institute develops the following lines: (I) Nutritious and safe food, (II) Sensory quality of food products, (III) Development of food products with high added value, and (IV) Food and health.

Priority 4. Management and recovery of by-products

Environmental pollution is one of the biggest problems faced by humanity today. A fundamental problem related to pollution is the disposal of the large amounts of waste that are continually produced. To contribute to the reduction of waste and its efficient reuse (transformed into by-products) around the concepts of «zero waste generation» and «circular economy», an ecological and effective strategy is essential. In this sense, the institute addresses the following lines of R&D: (I) Production of advanced biofuels, (II) Obtaining biocompounds with high added value, (III) Obtaining basic chemical compounds (emerging line), and (IV) Obtaining new materials (emerging line), (V) Transformation of waste into biofertilizers.

The lines of research listed are endorsed by numerous research projects both at the regional, national and European level that are being developed.

Keywords

Fertilizers, biofertilizers, pests, diseases, climate change, crops, adventitious vegetation, agriculture, food, phytosanitary products, pesticides, soils, plants, food, nutrition, health, probiotics, recovery by-products, biofuels, energy, biofuels, biocompounds, agro-industry, antioxidants , anti-inflammatory, antimicrobial, new materials, industrial waste.

Contact

David Fernández Calviño

Phone: +34 988 368 888

E-mail: iaa@uvigo.gal

Center: Institute of Agroecology and Food (IAA)

Auga Campus, Ourense

Innovation in Agri-food and Health (CI8)

Researchers

Ana María Consuelo Gago Martínez
Rafael Durán Barbosa
María del Carmen Sieiro Vázquez
Mercedes Gallardo Medina
María del Carmen Costas Ferreira
Lilian Rosana Ferreira Faro
Alejandro Penín Rodríguez
Lara Areal Hermida
José Manuel Leao Martins
Társila Romero Rodríguez
Pablo Estévez Bastos
David Miguel Castro Alonso
Jorge Giráldez Fernández
Alejandro Penín Rodríguez
Antonio Lozano León
María de los Ángeles Pichardo Gallardo
Diego Filipe Rocha Ferreira
Joana Terra Matos
Manuel Eduardo Gallardo Ortega

Research lines

- Development and validation of chromatographic and electrophoretic methods (LC, GC, CE, CEC), including their couplings with mass spectrometry, for the analysis of natural organic pollutants (aquatic biotoxins and others) and anthropogenic.
- Development and validation of sample treatment methods for the determination of organic contaminants present at trace level in complex matrices.
- Development and validation of methods for the determination and confirmation of emerging biotoxins (eg tetrodotoxins, ciguatoxins, cyclic imines, palitoxins, brevetoxins).
- Development and optimization of cellular assays for the evaluation of toxicity of emerging biotoxins using neuroblastoma cells (N2a).
- Development of extraction strategies by immunoaffinity.
- Presence of contaminating pesticides in food.
- Evaluation of neurochemical effects of different groups of pesticides present in food (glyphosate, glufosinate, paraoxon, neonicotinoids) and the possible protection of the effects by antioxidant substances.
- Evaluation of the presence and possible neurochemical effects of microplastics and nanoplastics present in the food chain.
- Evaluation of possible protective effects of active principles present in medicinal plants in animal models of neurodegenerative diseases.
- Detection, isolation, identification and typing of microorganisms (bacteria, yeasts and fungi).
- Search, characterization, selection and improvement of new microorganisms for the production of conventional foods, functional foods and probiotics. Starter cultures.
- Search, selection and improvement of new microbial enzymes of interest to the food and pharmaceutical industry, recycling and/or revaluation of waste and as biocontrol agents. Enzymatic biocatalysis.
- Selection and production of new bioactive and bioprotective substances, synthesized by microorganisms, particularly with antimicrobial activity.
- Process optimization for the food industry and improvement of its quality, functionality and organoleptic characteristics.
- Search, identification and determination of new bioactive compounds in foods of plant origin.
- Study of biomolecules with antioxidant properties in dietary vegetables and their derivatives (seeds, fruits, juices, fermented beverages) of interest to the food industry.
- New functional properties in autochthonous and organically grown foods, providing added value and contributing to the sustainability of the local agri-food sector.
- Study of the presence of melatonin in plants, its functions and its application for a more efficient and sustainable agricultural production.
- Improvement of the germination capacity of seeds of high agricultural and food value under adverse environmental conditions.

Services

- Development of methods for the determination of paralytic, diarrheal, amnestic toxins, neurotoxins and other emerging toxins in marine products and in the aquatic environment.
- Development of automated systems for the determination of biotoxins in bivalve molluscs and fish.
- Analysis of substances of possible clinical, commercial or industrial interest.
- Updating and optimization of analytical methodologies. Strategies to improve selectivity and sensitivity.
- Evaluation and advice on analytical methodologies. Quality control.
- Supports for sample preparation; purification of samples to avoid interferences.
- Analytical contrast. Contradictory analysis.
- Training courses for company personnel, especially in the development and application of analytical methodologies that include separation techniques and sample preparation strategies for complex matrices.
- Identification of microorganisms by biochemical and molecular methods.
- Synthetic microbiology.
- Isolation, cloning and expression of genes.
- Heterologous expression of proteins (in prokaryotic and eukaryotic systems).
- Selection and production of starters for the oenological, dairy and new fermented products industries.
- Identification and analysis of new functional properties of plant foods.
- Biotechnological applications to improve the germination capacity of seeds and crop production under adverse environmental conditions.
- Tests to control the maturation and abscission of fruits of economic and commercial interest.
- Detection of research, development and innovation opportunities for companies related to the research work of the team and advice on the search for financing to carry them out.

Keywords

Chemical analysis, separation techniques, mass spectrometry, ultraviolet, fluorescence, aquatic biotoxins, bivalve molluscs, fish, cytotoxicity, neurochemical effects, toxic biotoxins, food and environmental contaminants, dopamine, CNS, striatum, cerebral microdialysis, microbial biodiversity, microbiology synthetic, microbial biotechnology, wine, dairy products, aromas, enzymes, antimicrobials, probiotics, biocontrol, functional foods, antioxidants, bioactive components, melatonin, food industry, food, seeds, fruits, fermented beverages, germination, maturation, abscission, sustainability.

Contact

Ana Gago Martínez
Phone: +34 986 812284
E-mail: anagago@uvigo.gal
Center: Facultade de Química
Vigo Campus
Website: https://bidi.uvigo.gal/en/group/innovation-agri-food-and-health-multidisciplinary-approach-through-chemical-analysis

Omics of Food and Health (CF1)

Researchers

Beatriz Cancho Grande
María Rosa Pérez Gregorio
Carmen González Barreiro
Elena Martínez Carballo
María Figueiredo González
Patricia Reboredo Rodríguez
Raúl Garzón Vidueira
Raquel Rial Otero
Noelia Briz Cid

Research lines

- Environmental sustainability.
  - Study of the distribution and bioaccumulation of organic contaminants (both emerging and persistent) in the early stages of primary food production.
  - Evaluation of the use of animal waste (manure and slurry) as natural fertilizers from the perspective of the circular economy.
- Food quality.
  - Study of the fermentative microbiota and the oenological and sensory parameters of wines (both light and lactic bacteria) to the presence of residues of phytosanitary products (active substances and adjuvants) in the must.
  - Study of the chemical, enzymatic and microbiological mechanisms involved in the generation and subsequent evolution of aroma during the technological processing of various food matrices (products of plant origin: wine and oil).
  - Chemical and functional characterization of various raw materials (grapes, olives, strawberries, pistachios, honey, etc.) and farm-food products (wine and oil).
- Health.
  - Identification of biomarkers of environmental contamination in biological samples from both the human population, as well as game species, pets and birds.
  - Identification of biomarkers of positive effects on health: population with type 2 diabetes mellitus following dietary supplementation with virgin olive oil obtained from native Galician varieties.
  - Studies of bioaccessibility, bioavailability and bioactivity (antioxidant, antidiabetic, antihypertensive, neurodegenerative etc.) of functional foods.

Services

- Relationship between technological processes and sensory quality.
- Application of omics techniques (transcriptomics, proteomics and metabolomics) in the field of food safety and quality.
- Phytosanitary products and fermentative microbiota.

Keywords

Omic technologies, phytosanitary products, fermentative microbiota, food quality and safety, biomarkers, sensorial quality, environmental sustainability, bioactive compounds.

Contact

Beatriz Cancho Grande
Phone: +34 988 387 323
E-mail: foodhealthomics@uvigo.gal
Center: Faculty of Science
Ourense Campus
Webpage: https://foodandhealthomics.es

Plant, Soil and Use of Byproducts (BV1)

Researchers

Manuel Arias Estévez
Francisco Javier Rodríguez Rajo
Gil Garrote Velasco
David Fernández Calviño
Pedro Miguel Ferreira Santos
Andrea Parente Sendín
Rifka Nakib
Beatriz Rodríguez Martínez
Lucía Rodríguez López
Laura Meno Fariñas
María Flora Alonso Vega
María Shantal Rodríguez Flores
Pedro Antonio Araujo Nespereira
Juan Carlos Novoa Muñoz
José Eugenio López Periago
Noemi Calvo Portela
María del Carmen Seijo Coello
Andrés Rodríguez Seijo
María Fernández González
Vanesa Santas Miguel
Pablo García del Río
Beatriz Gullón Estévez
Fernando Rodríguez Rebelo
Raquel Vázquez Blanco
Sabela Álvarez López
Laura Rodríguez González
Alba Pérez Pérez
Melissa Méndez López
Álvaro Lobato Rodríguez
Claudia Campillo Cora
Ana Diéguez Antón
Aloia Romaní Pérez
Daniel Arenas Lago
Sergio Rojo Martínez
Cecilia Araceli Martínez Castillo
Paula Pérez Rodríguez
Lucía Carrera Otero
Cristina Pérez Novo
Antía Gómez Armesto
Rubén Amigo Fernández
Kenia Caridad Sánchez Espinosa
Olga Escuredo Pérez
Asma Ghorab

Research lines

- Aerobiology.
  - Study of pollen and aeroallergens in the atmosphere.
- Melissopalynology.
  - Characterization and typification of the botanical origin of honeys.
  - Physicochemical and organoleptic characterization of honeys.
- Phenology.
  - Phenological behavior of crops and wild species.
  - Phytosanitary status of crops.
  - Influence of climate change on native crops and species.
  - Predictive models of the beginning of the phenological phases of crops.
- Soil health and quality.
  - Contamination of soil and water by heavy metals and its effect on microorganisms.
  - Phytosanitary and emerging contaminants in soil and water.
  - Nanoremediation and phytoremediation.
  - Presence, accumulation and transfer of mercury and methylmercury between biotic and abiotic components of terrestrial and aquatic ecosystems.
  - Biodiversity and microbial activity in soils.
- Management and valorization of by-products.
  - Use of waste for agriculture.
- Production of advanced biofuels (integrated and advanced biorefinery).

Services

- Aerobiology.
  - Preparation of predictions about the content of pollen in the air of the main Galician cities and their pollen calendars.
  - Determination of the level of aeroallergens in the air.
- Melissopalynology.
  - Quality control of bee products.
  - Design of beekeeping farms.
- Phenology.
  - Determination of the phytosanitary status of the vineyards (gray rot, powdery mildew and mildew) of the vineyards.
  - Detection of alternariosis in potato crops and determination of the phytosanitary status of stored potatoes.
  - Dates of application of phytosanitary treatments of crops (potato, vineyards)
  - Prediction of the grape harvest.
- Chemical and microbiological analysis of soils and waters.

Keywords

Phenology, melissopalynology, phytosanitary, aeroallergens, aerobiology, allergology, allergies, spores, pollen, climate change, beekeeping, honey, heavy metals, antibiotics, vineyards, copper, mercury, pesticides, residues.

Contact

Manuel Arias Estévez
Phone: +34 988 368 899
E-mail: mastevez@uvigo.gal
Center: Faculty of Science
Ourense Campus
Webpage: http://bv1.webs.uvigo.es/es/investigacion/lineas-de-investigacion/

Biotechnology and Quality in Agrofood Industries and Environment (ByCIAMA)

Researchers

José Manuel García Estévez
Luis Alfonso Rodríguez López
Julia Carballo Rodríguez
María José Pérez Álvarez
Raúl Iglesias Blanco
Juan José Rodríguez Quiroga
Elisa Osorio Novas
Rosa María Farto Seguín
Carmen María Sieiro Gallardo
Ariana Pombar Gómez
Altea Villalón Melo

Research lines

- Microbiology of water and food.
- Selection of microorganisms for use in fermentative processes.
- Microbiological quality control of water, food and processes.
- Determination of antimicrobial activity. Biofilm control.
- Microbiological production of food, beverages and starter cultures. Optimization of fermentative processes and shelf life studies.
- Detection and control of food hazards/defects of microbiological and parasitic nature in water and food from the One Health perspective.
- Diagnosis and control of parasitic diseases in aquaculture and heliculture.
- Microbial management of agroforestry and food waste. Obtaining substances of interest.
- Development of biotechnological procedures to prepare natural food additives with nutraceutical characteristics based on agroforestry and industrial waste.
- Analytical and sensorial characterization of foods and beverages.

Services

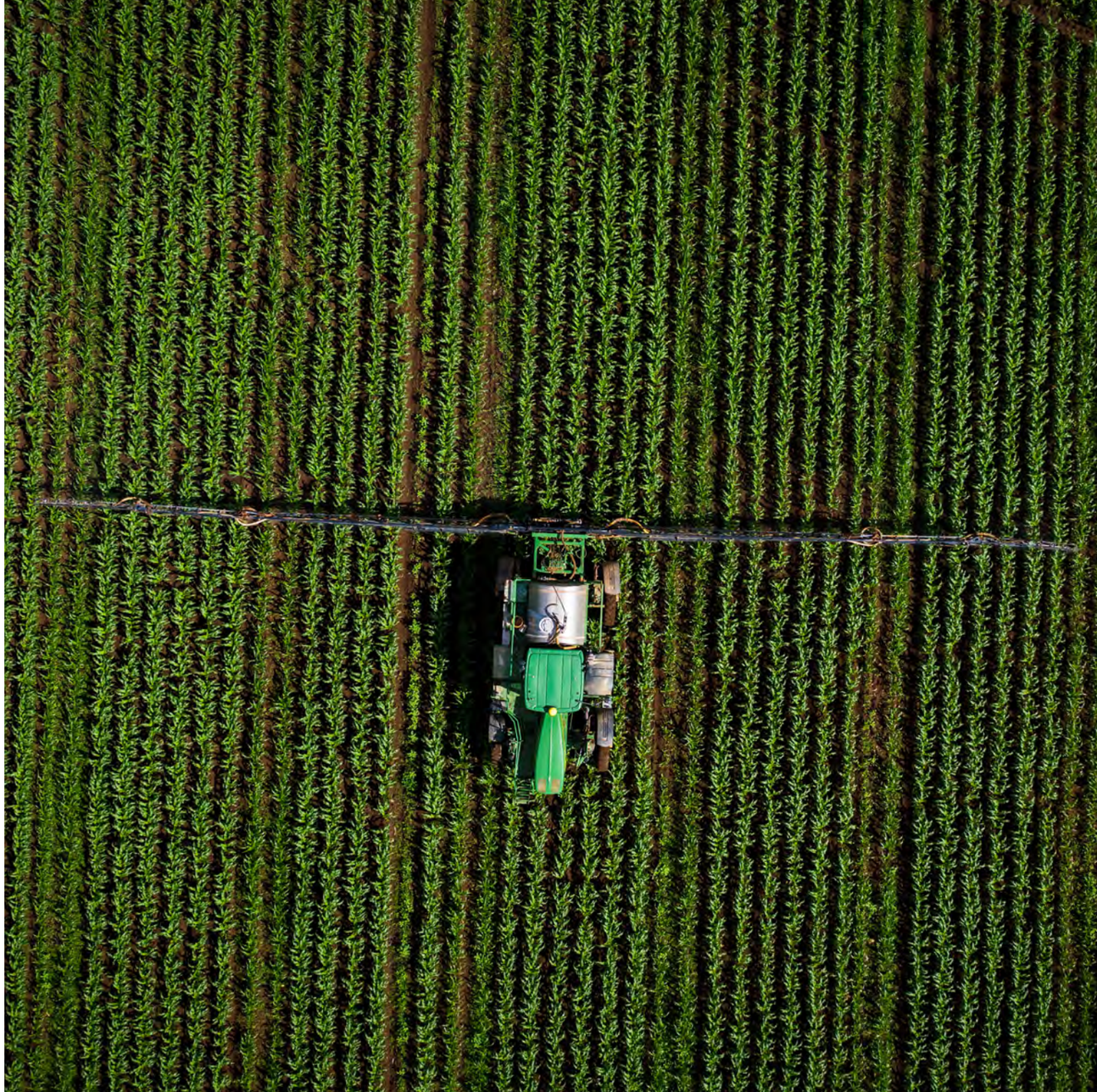
- Microbiological analysis and control of food, food raw materials and water in the officially accredited Microbiology Laboratory on the Ourense campus (certified by AENOR and accredited by ENAC).
- Product improvement and useful life studies.
- Optimization and selection of microorganisms for use in fermentative processes.
- Studies of biofilms in the agro-food sector.
- Detection/diagnosis of parasites in water, food, aquaculture and heliculture.
- Advice to different interest groups on the control of parasites and microbial pathogens in food, water and various zootechnical activities.
- Advice on microbiological aspects related to agroecology, water and food.

Keywords

Microorganisms, parasites, food, water, aquaculture, heliciculture, quality, control, safety, fermentations, additives, biomass, antibiosis, biofilms, One Health, zoonosis.

Contact

José Manuel García Estévez / María José Pérez Álvarez
Phone: +34 986 812 394 / +34 988 387 093
E-mail: jestevez@uvigo.gal / mjperez@uvigo.gal
Center: Faculty of Biology / Faculty of Sciences
Vigo campus / Ourense campus
Webpage: http://webs.uvigo.es/webc01



Agricultural and Food Research (AA1)

Researchers

Jesús Simal Gándara
Juan Carlos Mejuto Fernández
Lorenzo Miguel Pastrana Castro
María Aurora Soares da Silva
Sandra Gonçalves Marcelino
María Fraga Corral
María Luisa Rúa Rodríguez
Gonzalo Astray Dopazo
Antonio Cid Samamed
Nelson Pérez Guerra
Javier Echave Álvarez
Clara Fuciños González
Miguel Ángel Prieto Lage
María Carpena Rodríguez
Franklin Noel Chamorro Rivo
Mikel Añibarro Ortega
Ana María Torrado Agrasar
Lucía Marisa Maia Ribeiro
Virginie Isabelle Pedro Xavier
Filipa Alexandra Pires Fernandes
Matilde Rodrigues
Pascual García Pérez
Gloria Roldán Reascos
Antía González Pereira
Pauline Donn
Paula García Oliveira
Adriana Katherine Molina Vargas
Leonardo Corrêa Gomes
Laís da Silva
Eleomar de Oliveira Pires Júnior
Jianbo Xiao
Catarina Santos Pires Lourenco Lopes
Lucía Cassani
Carlos Seiti Shiraishi
Beatriz Helena Paschoalinotto
Tânia Cristina São Pedro Pires
Sepidar Seyyedi Mansour
Taofiq Ayodele Oludemi
Rafael Mascoloti Sprea
María de la Concepción Pérez Lamela
Paz Otero Fuertes
Hui Cao
Marta Diéguez Pérez

Research lines

- Sustainable food production.
  - Distribution of agricultural and environmental organic chemical contaminants in the food production chain.
  - Valorisation of agrifood waste and by-products for agricultural purposes.
  - Quantification, mobilization and transfer of products of veterinary origin (antibiotics) in the plant-soil-water system and its impact on the environment.
  - Development of biotechnological processes based on the use of enzymes.
- Novel food development.
  - Exploitation and valorisation of residual materials and byproducts from the food industry for the production of high value added compounds (bioactive peptides, enzymes, polymers, bacteriocins, food hydrocolloids, biopolymers).
  - Novel active food packaging and edible coatings.
  - New functional and healthy food products.
  - Improving the sensory and functional quality of foodstuffs
  - Development of smart nanodevices for the controlled release of food preservatives and bioactives with application in the food and pharmaceutical industry.
  - Application of technologies of encapsulation, microemulsification and gelification for the formulation of foods and functional ingredients.
  - Functional foods rich in antioxidants, and desirable aromatic quality.
  - Emerging technologies use for agrifood processes.
  - Production, purification, biochemical and functional characterization and application of microbial enzymes (wild type and recombinant enzymes).
  - Study of alternative sources of non animal protein: marine macroalgae and wastes from the agricultural production.
- Quality and safety food.
  - Development and improvement of techniques for identifying the origin, authenticity and traceability of raw materials, food ingredients, microorganisms with industrial interest and products.
  - Production systems, feeding and management to improve quality, productivity, stability and nutritional and functional characteristics of production and agricultural products, aquaculture and livestock.
  - Impact assessment of communication and training programs on nutritional eating habits.
  - Application of biotechnology for the selection, characterization, harvesting and processing of foods.

Services

- Fast methods of analysis of chemical, physical, physicochemical or biological analysis for food and food products (metabolics, proteomics).
- Epidemiological and nutritional studies.
- Modelling, design, optimization, validation and application of innovative processes of transformation, conservation and packaging systems.
- Analysis of minority compounds in food: natural as vitamins, added compounds as additives, and/or contaminants as pesticides, aliphatic and aromatic hydrocarbons etc.).

Keywords

Food safety and quality; new food ingredients and products; soil-water management and sustainable food production, enzymes.

Contact

Jesús Simal Gándara
Phone: +34 988 387 060
E-mail: jsimal@uvigo.gal
Center: Science Faculty
Ourense Campus
Website: http://aa1-uvigo.blogspot.com/p/contact.html

Environmental Biology (BA2)

Researchers

Josefa Garrido González
Salustiano Mato de la Iglesia
Francisco José Ramil Blanco
María Fuencisla Mariño Callejo
Francisco Javier Rocha Valdés
Benedicto Soto González
María Cabaleiro Alfaya
Paula Estévez Caride
Alejandro Polina González
Alejandro Polina González
Yasmina Martínez Barciela
David Gutiérrez Rial
Henar Antolinez Fernández
Aarón Lagoa Núñez
Iria Villar Comesaña
Sandra Victoria Rojas Nossa
Amanda Beatriz Luna Gil

Research lines

- Biodiversity and conservation.
- Taxonomy and faunistic of different groups.
- Benthic fauna of deep waters.
- Aquatic entomology.
- Hydrology, erosion and soil ecology.
- Mycobiota and flora studies.
- Management of marine living resources.
- Fisheries and culture of cephalopods
- Taxonomy of eumycetes.
- Studies on water quality through biological and physic-chemical parameters.
- Environmental impact assessment and river monitoring programs.
- Surveillance and research on arthropod vectors.
- Biodiversity and conservation of protected areas.
- Treatment of organic waste using biological systems: composting and vermicomposting.
- Evaluation and improvement of the municipal and industrial waste management model.
- Evaluation of the use of compost and vermicompost as soil amendment, substrate, and other applications.
- Studies on compostable and biodegradable biopolymers.
- Bioremediation: biological techniques for the treatment of waste and soils contaminated with organic and inorganic substances.
- Development and design of processes for the cultivation of invertebrates as a source of protein for animal consumption.
- Valorization of waste streams to obtain added-value resources.
- Use of waste for animal feed.
- Sustainable forestry use of non-timber resources.
- Management plans in forest mycology.
- Ecosystem services of pollinators.

Services

- R&D activities related to all lines of applied research.

Keywords

Biodiversity, taxonomy, bioindicators, water quality, composting, conservation, aquatic ecosystems, entomology, invertebrates, aquatic macroinvertebrates, benthic fauna, deep water, waste, culture, fishery resources, mycology, forestry use, erosion, hydrology, contamination, pests, vectors, circular economy.

Contact

Josefina Garrido González
Phone: +34 986 812 581; +34 986 812 781
E-mail: jgarrido@uvigo.gal / biologiaambiental@uvigo.gal
Center: Faculty of Biology
Vigo Campus
Website: https://biologiaambiental.webs.uvigo.es

Environmental Agro-Biology: Soils and Plants Quality (BEV1)

Researchers

Emma Fernández Covelo
Adela María Sánchez Moreiras
Manuel Joaquín Reigosa Roger
Luis Alberto Navarro Echeverria
Marta Pérez Diz
Manuel Ángel Rey Fraile
Purificación Marcet Miramontes
José María Sánchez Fernández
José Carlos Souto Otero
Carla Díaz Tielas
María Nuria Pedrol Bonjoch
Luis González Rodríguez
Antía Valiño Pérez
Ana López Malvar
Mohamed Dhia Eddine Hammami
Diego Soto Gómez
María Pardo Muras
Carolina Beatriz González Puig

Research lines

- Soil adsorption, desorption, influence of potential toxic elements.
- Pollution, soil fertility, soil quality, sustainability, carbon sequestration.
- Studies of interactions between plant species. Bioherbicides search and plant protection.
- Plant ecophysiology: physiology under adverse conditions, effects on photosynthesis and stress markers.
- Plant microorganism interactions: plants and microorganisms relationship between wood and soil. Search for selective fungicides.
- Phytoremediation, secondary metabolism, effect of secondary metabolites in different physiological traits.

Services

- Analysis and fertility studies in agricultural soils.
- Analysis of pollutants in soil.
- Analysis of soil and plant quality.
- Residue analysis.
- Studies of contaminated soil remediation.
- Studies of waste soil application.
- Studies of improved crop quality.
- Studies of improved fertility of agricultural soils.

Keywords

Soil, waste, pollution, fertility, sludge waste, evaluation, environmental impact, quality, pollution and soil fertility, contaminated soil remediation, reuse of waste, plant ecophysiology, stress, allelopathy, secondary metabolism.

Contact

Emma Fernández Covelo
Phone: +34 986 812 561
E-mail: emmaf@uvigo.gal
Center: Faculty of Biology
Vigo Campus
Website: http://agrobiologia.webs.uvigo.es/

Chemical Engineering 4 - Food Technology (EQ4)

Researchers

Francisco Javier Carballo García

María Inmaculada Franco Matilla

Sidonia Martínez Suárez

Elena Falque López

Juan Antonio Centeno Domínguez

Miriam Rodríguez González

Research lines

- Biochemical and microbiological characterization of traditional dairy and meat products with a view to their industrialization.
- Typification and biochemical and microbiological characterization of fish products, vegetables and beverages.
- Elaboration of autochthonous starter cultures for traditional dairy and meat products.
- Use of waste from the food industry and reincorporation as ingredients/additives in new foods.
- Development of new foods with more nutritious and healthy ingredients.
- Optimization of the preservation processes of vegetables and fish.
- Development of new canned vegetables and fish.
- Cheese rheology.
- Chemical characterization of the fruits of autochthonous chestnut (*Castanea sativa*, Miller) varieties from northern Spain.
- Effect of pig diet on the quality of carcasses, meat and meat products.

Services

- Biochemical, microbiological and rheological characterization of meat, dairy, vegetable and fish products.
- Study and optimization of technological processes for the production of foods (meat, dairy products, vegetables, fish, preserved foods and beverages).
- Development of new foods.
- Advice and training in the food industry: control and optimization of processes, sensory analysis and development of new food products.

Keywords

Starter cultures, meat products, dairy products, vegetables, preserved foods, food rheology, new food products, food preservation processes.

Contact

Francisco Javier Carballo García

Phone: +34 988 387 052

E-mail: carbatec@uvigo.gal

Center: Faculty of Science

Ourense Campus

Web page: https://bidi.uvigo.gal/en/group/enxeneria-quimica-4

Governance and Economics Research Network (GEN)

Researchers

Miguel Enrique Rodríguez Méndez

Patricio Sánchez Fernández

Elena Rivo López

Alberto Vaquero García

Mónica Villanueva Villar

Santiago Lago Peñas

Alejandro Domínguez Lamela

Marina Gómez Rodríguez

Research lines

- Public economics and governance.
- Regional and sectoral economics.
- Family businesses.
- Circular economy, energy and climate change.

Services

- Economic assessment (international, national or regional).
- Sectoral strategic analyses.
- Evaluation of public policies (fiscal, etc.).
- Economic analysis of energy and climate change, and circular economy.
- Economic evaluation of environmental impacts, efficiency metrics in the use of resources, circularity metrics.
- Elaboration of circular economy strategies (national, regional, business).
- Evaluation, follow-up and monitoring of family businesses.

Keywords

Public economics, regional and sectoral economy, family business, circular economy, energy, climate change, taxation, public policies, strategic analysis, environmental impact assessment, life cycle analysis, comparative politics.

Contact

Miguel Enrique Rodríguez Méndez

Phone: +34 988 368 725

E-mail: infogen@uvigo.gal

Center: Faculty of Business Sciences and Tourism

Ourense Campus

Website: http://infogen.webs.uvigo.es/

Organization Engineering (OE2)

Researchers

José Carlos Prado Prado
Jesús García Arca
Arturo José Fernández González
José Antonio Comesaña Benavides
Iria González Romero
Mar Fernández Vázquez-Noguerol
Alba Núñez Fernández

Research lines

- Logistics systems design and supply chain sustainable management, with special relevance in sustainable transport management.
- Continuous improvement, lean manufacturing and personnel participation systems.
- Management systems development and integration (quality, environment, risk prevention).
- Sustainable logistics design of container and packaging.

Services

- Transfer and research projects.

Keywords

Logistics, lean, continuous improvement.

Contact

Jose Carlos Prado Prado
Phone: +34 986 812 220
E-mail: jcprado@uvigo.es
Center: E.T.S. of Industrial Engineers
Vigo Campus
Website: http://gio.uvigo.es/

Bioengineering and Sustainable Processes - BIOSUV (EQ3)

Researchers

María Ángeles Sanroman Braga
María Asunción Longo González
Marta María Pazos Curras
Silvia Escudero Curiel
Diego Moldes Moreira
Emilio Rosales Villanueva
Francisco Javier Deive Herva
Antón Puga Pazo
María Salomé Álvarez Álvarez
Alba Giráldez Rodríguez

Research lines

- New enzymatic applications in industry.
  - Polymerization methods with lacasa enzyme in wood panels manufacture.
  - Production and application of microbial enzymes in food, detergent, chemistry or pharmaceutical industries.
- Development of emerging technologies for treatment, management and enhacencement of solid and liquid industry wastes.
  - Treatment of effluents and polluted soils.
  - Biobarriers.
  - Agroforestry waste applied to the wastewater and soil treatment.
- Biotechnological processes.
  - Valorisation of agroindustrial wastes as raw materials in biotechnological processes.
  - Use of biological processes (enzymes and microorganisms).
  - Bioreactors.
  - Biocatalysts.
- New applications in timber industry.
  - Modification of wood properties by enzymatic methods.
  - Lignin modification for new uses: dispersant, adhesive e absorbent.
- Green chemistry for biotechnological processes.
  - New separation strategies based on aqueous biphasic systems.
  - Biodegradability and toxicity of ionic liquids.
  - Recovery of metabolites with industrial interest from culture media.
- Characterisation of wastewater and polluted soils.
  - Wastewater characterization (COD, TOC, pH, conductivity, solids concentration, etc.).
  - Polluted soils characterization (granulometry, pH, conductivity, organic matter, metals and hydrocarbons content).

Services

- Organization of training courses:
  - Biochemical engineering.
  - Environmental engineering.
  - Applied biocatalysis.
  - Health and safety in chemical industry.

Keywords

Immobilization, timber industry, revalorization, biodegradation, biofuels, biocatalysis, bioprocesses, bioreactors, soil decontamination, proteins, enzymes, fermentation, industrial wastewater, depuration, advanced oxidative processes, waste valorisation.

Contact

María Ángeles Sanromán Braga
Phone: +34 986 812 383
E-mail: biosuv@uvigo.gal / sanroman@uvigo.gal
Center: School of Industrial Engineering
Vigo Campus
Website: http://biosuv.webs.uvigo.es/

Agrobiotech for Health (ABH1Q)

Researchers

Pedro Pablo Gallego Veigas
Carlos Daniel Bravo Díaz
María Concepción Tojo Suárez
Nuria Vila Romeu
María Esther Barreal Modroño
Emilio Gil Martín
Sonia Losada Barreiro
Francisco Jesús Rey Losada

Research lines

- Agroforestry biotechnology: propagation of plants and fungi of natural, medicinal, and commercial interest.
- Sustainable agroforestry production: development of mycorrhizae, biostimulants, and natural microbiota to increase tolerance and resistance to biotic and abiotic factors.
- Ecosystems: conservation, recovery, and valorization of two natural resources (plants and microbiota) and sustainable management.
- Application of artificial intelligence and machine learning tools to biotechnological processes.
- Production of bio composts of engendered value: antioxidants, anticarcinogenic, anti-allergenic, anti-inflammatory, and natural antimicrobials.
- Application of antioxidants to control the oxidative stability of emulsions and lipid-based matrices.

Services

- Micropropagation of plants: formulation of culture media, nutrient solutions, and natural substrates.
- Germination, multiplication, rooting, and acclimatization of plants of ecological, medicinal, and commercial interest.
- Development of new biostimulants and natural compounds.
- Plant valorization: elemental and metabolomic analysis and detection of compounds with bioactivity.
- Design of antioxidant formulations for the control of oxidative processes, particularly lipid-water emulsions.

Keywords

Plant biotechnology, sustainable plant production, agroforestry, biotic and abiotic stress, natural antioxidants, emulsions, and bioactive compounds.

Contact

Pedro Pablo Gallego Veigas
Phone: +34 647 343 124
E-mail: pgallego@uvigo.gal
Center: Faculty of Biology
Vigo Campus
Website: https://bidi.uvigo.gal/en/group/agrobiotech-health

Industrial Biotechnology and Environmental Engineering - BiotecnIA (EQ11)

Researchers

José Manuel Domínguez González
Claudio Cameselle Fernández
Esther de Blas Varela
José Manuel Salgado Seara
Francisco Tugores Martorell
Susana Margarida Alves Ferreira de Gouveia
Alicia Pérez Paz
Iván Costa Trigo
María Guadalupe Morán Aguilar
Nuno Muñoz Siejas
Helena Raquel dos Santos Fernándes
Sandra María Cortés Diéguez

Research lines

- Industrial biotechnology line (prof. responsible: J. M. Domínguez).
  - Isolation and characterization of microorganisms.
  - Recovery of bioactive substances from various wastes.
  - Design of bioreactors and optimization of bioprocesses for the use of agro-industrial residues and the obtaining of natural food additives.
- New sources of protein line (prof. responsible: J. M. Salgado).
  - Bioprocessing of insects to obtain protein hydrolysates.
  - Solid state fermentation to increase the protein content of macroalgae and agricultural by-products.
  - Preparation of low-cost nutritious diets to be applied in aquaculture.
- Environmental engineering line (prof. responsible: C. Cameselle).
  - Remediation and recovery of contaminated soil and groundwater.
  - Management and treatment of water and industrial effluents.
  - Management, treatment and recovery of industrial waste.
- Aroma and sensory line (prof. responsible: Sandra Cortés).
- Sustainability of processes and projects (prof. responsible: C. Cameselle).

Services

- Recovery of waste from the agri-food industry and marine resources.
  - Characterization of residues and by-products of the agri-food industry and marine resources.
  - Waste biorefinery to recover bioactive, sustainable and ecological metabolites such as lipids, polyphenols and proteins.
  - Development of ionic liquids and deep eutectic solvents to improve carbohydrate extraction.
- Development of biotechnological processes for the preparation of compounds of industrial interest.
  - Isolation, selection and identification of microorganisms.
  - Use of liquors rich in sugars as a culture medium for the production of bioactive molecules: biosurfactants, bacteriocins and natural additives.
  - Design and scaling of novel bioreactors.
  - Enzymatic engineering: design, production and purification of enzymes and functional ingredients of industrial and commercial relevance
  - Use of enzymes in the synthesis and/or hydrolysis of industrial products.
  - Bioprocessing of macroalgae by solid state fermentation.
  - Production of foods of high nutritional value for feeding in aquaculture.
  - Biological treatment of effluents from industrial activities in the textile and food sectors.
  - Production of protein hydrolysates with application in the agri-food and aquaculture sector.
- Valuation of edible insects.
  - Extraction of proteins from edible insects (approved as food by EFSA).
  - Elaboration of products derived from chitin with application in the agri-food sector.
- Analytical and sensory characterization of food and beverages, and biotechnology applied to traditional beverages.
  - Application of instrumental analysis and sensory analysis techniques, according to ISO standards and consumer tests, for the characterization and differentiation of food and beverages.
  - Monitoring of production processes, from raw materials to the final product, for its optimization.
  - Biotechnology applied to the production of natural beverages.
  - Design of new products with competitive analytical and sensory profiles.
- Environmental remediation and water/wastewater treatment.
  - Advanced processes for the elimination of contaminants in water and industrial effluents.
  - Recovery of waste.
  - Elimination of nutrients.
  - Treatment and removal of contaminants in soil and groundwater.

Keywords

Biotechnology, biorefinery, bioeconomy, bioconversion, bioprocesses in the agri-food industry, marine resources, additives, natural additives, bioreactors, insects, chitin, protein, bioremediation, traditional drinks, soil remediation, advanced water treatment, waste recovery.

Contact

Jose Manuel Dominguez Gonzalez
Phone: +34 988 387 429 / +34 988 387 416
E-mail: jmanuel@uvigo.gal
Center: Faculty of Sciences
Ourense Campus
Website: http://biotecnia.webs.uvigo.es/es/

Agroforestry Engineering (AF4)

Researchers

Enrique María Valero Gutiérrez del Olmo
Xana Álvarez Bermúdez
Luis Ortiz Torres
Juan Picos Martin
María de los Ángeles Cancela Carral
Carolina Acuña Alonso
Javier Mateo-Sagasta Dávila Ponce de León
Juan Luis Rodríguez Somoza
Andrea Janeiro Otero
Óscar González Prieto
Mario García Ontiyuelo
Carlos Peco Costas

Research lines

- Comprehensive management of hydrographic basins.
- Fragmentation and connectivity of protected areas.
- Galician mountain horse and wolf.
- Mapping technologies in forestry and environmental applications with LIDAR and satellite images.
- Machine learning technologies in forestry.

Services

- The quality of water in reservoirs and rivers, and checking its influence on the proliferation of the cyanobacteria Microcystis spp. (eutrophication), taking into account the factors that may influence.
- Effects of human activities and, specifically, the effects of land use change on biodiversity conservation.
- Valuation and management of natural resources: forest inventories, management of wild populations, censuses of continental populations of water fish and ecology, territorial ordering plans, hunting management plans, sustainable forest management, management of protected areas of the natural environment.
- Methodologies to assess the effectiveness of environmental recovery measures.

Keywords

Material transfer, biomass, pelletisation, briquetting, laboratory of biofuel energy characterisation, protected areas, LIDAR, natural resources, water quality, watersheds, biodiversity, forest inventories, land use, environmental restoration, eutrophication, beekeeping, pollinators, management of hunting and fishing resources.

Contact

Enrique María Valero Gutiérrez del Olmo
Phone: +34 986 801 938
E-mail: evalero@uvigo.gal
Center: School of Forest Engineering
Pontevedra Campus
Website: https://bidi.uvigo.gal/en/group/enxeneria-agroforestal

Biomass and Sustainable Development (EQ2)

Researchers

Herminia Domínguez González
María Remedios Yañez Díaz
Andrés Moure Varela
Juan Carlos Parajo Liñares
José Luis Alonso González
María Dolores Torres Pérez
Milena Álvarez Viñas
Sergio Martínez Gómez
Noelia Flórez Fernández
Tania Ferreira Anta
Sandra Rivas Siota

Research lines

- New prebiotic ingredients.
- Production and evaluation of antioxidants.
- Production of base compounds and biocomposites from lignocellulosic materials.
- Biofuels.
- Production of microbial metabolites.
- Extraction and purification of bioactive compounds.

Services

- Experimental evaluation of separation operations for specific purposes.
- Chemical transformations.
- Analytical characterisation of samples.
- Experimental evaluation of antioxidant capacity.
- Experimental evaluation of prebiotic effects.
- Functional food ingredients.
- Simulation and evaluation of processes.

Keywords

Biomass, biorefinery, bioactives, prebiotics, antioxidants, new materials, base compounds.

Contact

Herminia Domínguez González
Phone: +34 988 387 233
E-mail: xluis@uvigo.gal
Center: Faculty of Sciences / Research, Transfer and Innovation Center – CITI
Ourense Campus
Website: http://www.grupoeq2.es

Evolutionary ecology (RE6)

Researchers

Adolfo Cordero Rivera
Maruxa Álvarez Jiménez
María Calviño Cancela
Anais Rivas Torres
Raquel Juan Ovejero

Research lines

- Agricultural and forest pest ecology.
- Evolutionary ecology.
- Ethology: behavioural ecology.
- Molecular ecology.

Services

- Management and conservation plans for endangered species.
- Biodiversity inventories.
- Biological control of pests.
- Management of alien exotic species.

Keywords

Molecular ecology, endangered species, invasive alien species, ethology, evolution, insects, pests, agriculture, ecology, eucalypt, biodiversity, genetics, forestry.

Contact

Adolfo Cordero Rivera
Phone: +34 986 801 926 / +34 654 317 935
E-mail: adolfo.cordero@uvigo.gal
Center: School of Forest Engineering
Pontevedra Campus
Website: http://ecoevo.uvigo.es/

Organic Chemistry 1 (QO1)

Researchers

Ángel Rodríguez de Lera
María Rosana Álvarez Rodríguez
Belén Vaz Araujo
José Antonio Souto Salgado
Marta Domínguez Seoane
Claudio Martínez Fernández
Paula Lorenzo Fernández
Paula Mora Ayuso
Daniel Otero Calleiras
Óscar Iglesias Menduiña
Alberto José Pernas Álvarez
Javier González Ricarte
Víctor Pérez Revenga

Research lines

- Chemistry and biology of retinoids, carotenoids, and related polyenes.
- The new vitamin A5 in the health, apocarotenoids and growth of the rice crop.
- Stereocontrolled synthesis.

Services

- Structural determination (NMR, MS).
- Custom synthesis.

Keywords

Bioactive compounds, retinoids, carotenoids, apocarotenoids, vitamin A5, organic synthesis, medicinal chemistry, synthetic methods, structural determinations, NMR, MS.

Contact

Ángel Rodríguez de Lera
Phone: +34 986 812 316
E-mail: qolera@uvigo.gal
Center: Center for Research in Nanomaterials and Biomedicine (Cinbio)
Vigo Campus
Website: http://delera.webs.uvigo.es/

Pilot plant for food industries

Presentation

The pilot plant for agro-food industries will allow studies and scaling of processes and their control under conditions similar to those used in the agro-food industry. These facilities provide great technological support for the teaching, research and transfer functions of the research community and at the service of the agro-food industry sector:

- Design and development of new products.
- Study and optimize food preparation processes.
- Processing and control of food under similar conditions in agro-food industries.

R&D Lines

With the aim of covering the most important areas of the Galician food sector, four product processing lines have been designed:

- Dairy products line.
- Line of meat and fish and meat and fish products.
- Line of vegetable and preserved products and baking and pastry products.
- Alcoholic beverage line: wines and beer.

Equipment

- Fermentation or maturation chambers.
- Refrigeration and freezing chambers.
- Vacuum packaging equipment.
- New generation texturometer.
- Auxiliary equipment (pHmeters, conductivity meters, refractometers, drying ovens, centrifuge, water baths, etc.).
- Weighing platform; crusher-destemmer; stainless steel press; stainless steel tanks; always full vats; isothermal tank; plate filter; semi-automatic bottling machine; semi-automatic corking machine.
- Automatic maceration and cooking equipment, table plater, filler.

Keywords

Dairy, meat, fish, vegetables, preserves, baking, pastries, fruits, vegetables, vegetables, alcoholic beverages, beer, wine, food control, recovery.

Contact

Sidonia Martínez Suárez; Beatriz Díaz Reinoso

Phone: +34 988 368 792

E-mail: tec.plantapiloto.iaa@uvigo.gal; plantapiloto.iaa@uvigo.gal

Center: Auga campus building

Ourense Campus

Centro de Investigación, Transferencia e Innovación (CITI)

Presentación

The CITI seeks to promote the development of R&D&I in companies by creating collaborative spaces to promote and transfer knowledge from the university to the business community through joint R&D&I projects related to the agro-food field, biotechnology, energy, environment and information technologies.

Main lines

- Processes that seek to improve food quality.
- Obtaining bioactive molecules.
- Obtaining bio-fuels.
- Developing, assessing and scaling fermentation processes.
- Valorising residual liquid effluents.
- Production of biodegradable composites.
- Production of filaments for 3D printing.

Services

The pilot plant's versatility enables the execution of both scaling tests of the processes carried out in research laboratories and proofs of concept as well as pilot productions. The equipment is intended for agro-food, environmental and biotechnological fields. The service lines are mainly:

- Chemical and biological transformation lines.
- Separation, extraction and purification of compounds line.
- Food sanitation and preservation line.
- New Materials development line.

Contact

Ricardo Javier Bendaña Jácome

Phone: +34 667 648 534

E-mail: dir.citi@uvigo.gal

Avenida de Galicia, no. 2. Parque Teconolóxico de Galicia, Tecnópole. San Cibrao das Viñas

Ourense Campus

Website: http://citi.uvigo.es

Scientific-Technological Research Support Center (CACTI)

The Center for Scientific-Technological Research Support (CACTI) aims to acquire, manage and centralize the use of large scientific equipment with the aim of providing scientific and technological support to both members of the university community and Public Research Bodies (PRBs), at a national and international level, and private entities in our environment.

This service covers the most advanced scientific research services, including sustainable development and food security. Thus, CACTI, in its two headquarters in Vigo and Ourense, is configured as a center with a very high research infrastructure unequalled in our geographical environment.

SSADS-CACTI Vigo

Food security and sustainable development service of the CACTI of the Vigo Campus.

Technical staff

Alberto Acuña Couñago
Paula Álvarez Iglesias
Jesús Estévez Sio
Rosa María Lomba Pérez
Estefanía López Silva
Jorge Millos Alfeirán
Vicente Rodríguez López

Services

- Atomic spectrometry.
- Determination of nutrients and other physical-chemical parameters.
- Liquid chromatography.
- Gas chromatography.
- Characterization of materials.
- Elemental analysis.
- Determination of isotopic ratios.
- Scanner laboratory.

Keywords

Spectrometry, nutrients, chromatography, materials, fluorescence, radiography, gases, hydrocarbons, amino acids, pigments, minerals, plastics, additives.

Contact

Jorge Millos Alfeirán

Phone: +34 986 812 238

E-mail: jmillos@uvigo.gal

Centr: rúa da Fonte das Abelleiras

Vigo Campus

Website: https://cactiweb.uvigo.es/gl/servizos/seguridade-alimentaria-vigo/

SSADS-CACTI Ourense

Food security and sustainable development service of the CACTI of the Ourense Campus.

Technical staff

Carmen García Meijide

Cristina Pérez Novo

Services

- Emission spectrometer MP-AES 4210.
- Inductively coupled plasma spectrometer with mass detector (ICP-MS).
- Elemental Analysis Unit. Elemental analyzers.
- Chromatography Unit. Gas chromatography coupled to mass opectrometry.
- Chromatography Unit. Liquid chromatography.
    - Fluorescence Detector (HPLC-FL).
    - Ion Chromatograph with amperometric detector and conductivity detector.
- Surface analysis analyzer (BET).
- Mass Spectrometry Unit.
- Spectrophotometer Cary 60 UV-VIS.

Keywords

Chromatography, spectrometry, quality control, toxicology, fluorescence, metabolomics, proteins, sugars, lipids, contaminants, toxic residues, environmental control, drugs, pesticides, compound characterization.

Contact

Carmen García Meijide; Cristina Pérez Novo

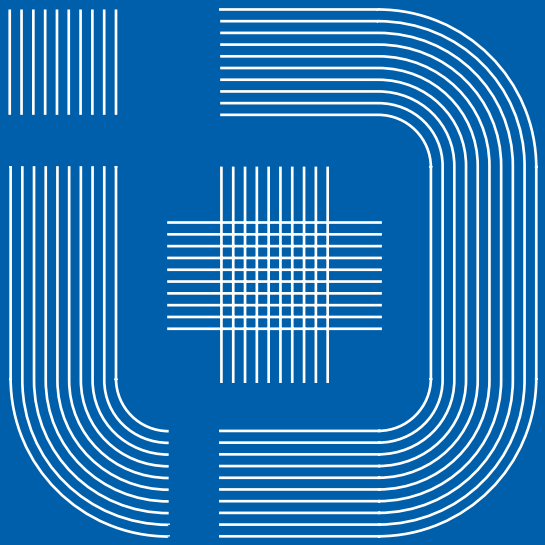
Phone: +34 988 387 414

E-mail: meijide@uvigo.gal / cperezn@uvigo.gal

Center: Avenida de Galicia, número 2, polígono de San Cibrao

Ourense Campus

Website: https://cactiweb.uvigo.es/gl/servizos/seguridade-alimentaria-ourense/



Universidade Vigo

Oficina de I+D

Filomena Dato Building
Campus universitario
36310 Vigo

Tel. 986 812 236
otri@uvigo.gal
uvigo.gal