

Ecodesign and sustainability of bio-based products

- **Design and validate a sustainable, reproducible and scalable process for obtaining postbiotics** ingredient from functionally relevant strains + functional assessment, safety, standardization and regulatory compliance.
- **Identify technical performance requirements for bio-based materials for food applications**, including food contact, preservation needs, barrier properties and material functionality.
- **Define specifications for final bio-based packaging solutions** and **validate their functional performance** under industrial conditions: barrier behaviour, durability (heat/sterilisation), Modified Atmosphere compatibility, shelf-life extension potential, and Food Contact Compatibility (FCC: global and specific migration).*
- **Pilot-scale validation** of novel packaging solutions, including pre-series production (50–100 kg/h) of packaged food products to assess industrial feasibility.*
- Selection of representative food matrices and **definition of end-use performance criteria to evaluate the effectiveness of bio-based packaging across different value chains.**
- **Assessment of enhanced functional characteristics** of the new materials at pilot scale for their integration in food industry processes.

* A partner is required to provide the final packaging material.

Pre-normative research and standardization support

- Identify **gaps in methods and quality standards** for novel bio-based ingredients and fermentation-derived products.
- **Verify the regulatory status** of new bio-based materials and products for food contact applications at national (Spain) and EU level.
- **Demonstrate safety of new packaging materials**, including FCC (global and specific migration), and tests required under EU FCM legislation.

Stakeholder engagement and community building

- Engage **industrial partners** from the agri-food sector through CNTA's network of associated companies.
- **Evaluate and promote the readiness of packaging producers, food companies and consumers** (Spain and EU) to adopt new bio-based solutions using focus groups, interviews, surveys, workshops and co-creation methodologies.
- Support **knowledge transfer** through guidelines and dissemination materials targeting relevant stakeholders in the agri-food sector.

CNTA was a partner of **PARABIOTICS** and **PREDISMET**, which aimed to identify and develop probiotic, prebiotic and/or postbiotic agents that modulate the gut microbiota, and to characterize them functionally and safely for future food or health-applications. In the project **NEWPACK**, CNTA validated the production of two new bio-plastics based on PHB-PLA blends with antioxidant/antibacterial properties and nanoadditives from cellulose and chitin.

We're CNTA




NATIONAL CENTER FOR FOOD
TECHNOLOGY AND SAFETY.

*Cutting-edge
knowledge and
technology.*

Team

especiè CNTA 



-  **+250 Professionals**
-  **+500 Associated companies**
-  **Governing board**
Institutional and associated
companies



Facilities and equipment

- 14 Labs**
- 12 Pilot plants for food processes**
- 3 Platforms for advanced characterization :**
Metabolomics, cell culture and C. elegans

**6 working
centers:**
San Adrián,
Alesón, Calahorra, Logroño, Madrid, Pamplona



CNTA in 2025

Research
Reports
Consumer studies
Analytical services
Consulting
Training
Events

47
Knowledge uptake
projects

172
Contractual R&D
projects

97
Training
actions

88.961
Technological services
reports for companies

480
Associates

+

813
Clients

=

1293

**Companies
trust CNTA**

Our R&D capabilities



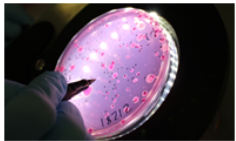
Circular food ingredients

New upcycled ingredients | Isolation of bioactive compounds | Encapsulation | Sustainable proteins



Food product development

Smart formulations | Clean label | Novel foods | Alternative proteins | Extrusion & texturization | Sensory evaluation



Innovative preservation strategies

Thermal & non-thermal treatments (UV, plasma, HPP, etc.) | Antimicrobials & biopreservatives | Chlorine alternatives



Food biotechnology & fermentation

Strain collection | Microbiome characterisation | Pre/pro/postbiotics | Process optimisation | Precision & biomass fermentation



Sustainable food processes & packaging

Active coatings | Food contact product validation | Biomass stabilisation & conditioning | Post-harvest solutions



Digital & AI tools

Artificial vision (NIR, Spectral tech) | Data science & AI | Process modelling & simulation | Process efficiency & quality



Advanced food characterisation & 'omics'

Ingredient & product functional evaluation (*in vitro* & *in vivo* platforms, e.g. *C. elegans*) | Metabolomics



Consumer studies & acceptance

EU-wide surveys, in-depth interviews & focus groups | Market strategy | SSH | Online platform (>5k consumers)

**MUNDO
SABOR**
by CNTA

Our pilot equipment



Formulator | Autoclave | UHT lane and aseptic packaging | Microwave treatment | Cold plasma

- 🔬 Post-harvest treatments and operations
- 🔬 Ready-to-eat products and cooked meals
- 🔬 Manufactured meat and dairy products
- 🔬 Fluid bed coater/dryer for encapsulation
- 🔬 Active and smart packaging, ecodesign



Controlled atm. storage & drying rooms | Packaging and thermoforming eq.

- 🔬 High-Pressure processing unit (HPP)
- 🔬 Extrusion technologies (dry & HME extrusion)
- 🔬 Fermentation processes (solid, liquid, precision) – from 50 ml up to 150 L bioreactors
- 🔬 Sidestream valorisation (stabilisation, extraction, purification)



Dry/HME/cooking extrusion: 4x pilot extruders

- 🔬 *In vitro* digestibility platform
- 🔬 HPLC and metabolomics platform
- 🔬 ISO-compliant tasting rooms (sensory booths)
- 🔬 Laboratories and whiterooms



Ultrasounds | Sidestream valorisation | 150L bioreactor



Like a **PRO**

EPICSHIFT



wasteless

CO FRESH



model²bio



CHORIZO

Extensive EU R&D funding expertise



María Busolo Pons, Ph.D.

European Projects Researcher

+34 948 670 159 | +34 606 137 255

mbusolo@cнта.es



Natanael Viñegra de la Torre

European Projects Researcher

+34 948 670 159 | +34 647420831

nvinegra@cнта.es



Morena Silvestrini

European Projects Researcher

+34 948 670 159 | +34 677885252

msilvestrini@cнта.es



Daniel De la Puente Ranea

Head of EU Projects

+34 948 670 159 | +34 677885265

ddelapuerta@cнта.es