

## ***Development of innovative post-harvest treatments for fruits and vegetables***

- Develop and validate **sustainable post-harvest treatments to reduce pest risks** (e.g., active and edible coatings\* or UV-C treatment + post-harvest storage under controlled atmosphere, electrolyzed water, Radiant Energy Vacuum REV - vacuum dehydration).
- **Develop natural extracts obtained from subproducts valorization** for phytosanitary applications.
- **Encapsulation of active substances (biopesticides, for example) in bio-based matrices** (e.g., pectins isolated from citrus peels, husks and straws from cereal processing, cellulose and hemicellulose, and combinations of them, etc.). Formulations can be designed for delayed release, temperature sensitivity, varying solubility, or sequential release of active substances.

\* We can work on different active compounds and evaluate different application methods (e.g., dipping, spraying, or electrospinning).

## ***Validation, performance assessment and standardization***

- Conduct **pilot-scale validation** of the treatments simulating real post-harvest and logistics conditions.
- Evaluate **impacts on food quality, safety, and shelf-life**, ensuring treatments are compatible with **EU food safety and trade regulations**.
- **Analytical tests for trace substances in the final products**.
- **Market study on European consumer perception** (surveys in different EU countries).
- Support **methods/treatments' adaptation** to existing industrial post-harvest lines to ensure practical implementation.
- Contribute to **protocol design and standardization** of the treatment procedures (dose, duration, etc.).
- Contribute to **guidelines** development to ensure repeatability, regulatory compliance, and safety.

# We're CNTA




NATIONAL CENTER FOR FOOD  
TECHNOLOGY AND SAFETY.

*Cutting-edge  
knowledge and  
technology.*

## Team

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-  **+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



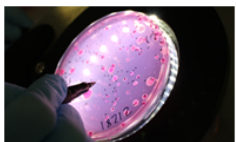
## Circular food ingredients

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



- 🔬 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



- 🔬 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)



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





Like a **PRO**

**EPICSHIFT**



wasteless

**CO FRESH**



model<sup>2</sup>bio



**FEASTS**

Fostering European Cellular Agriculture for Sustainable Transition Solutions



**CHORIZO**

# Extensive EU R&D funding expertise



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