SAFETY.TOOL - Development and application of a new food safety assessment tool for the cured ham production process

Summary

In recent years, the meat industry has developed a number of different strategies to produce healthier products and meet market demands. The technological strategies are mainly based on reformulation processes: reducing and/or eliminating components or including others that improve the nutritional profile, while always preserving the quality and microbiological safety of the end product.

In the case of cured ham, current consumption trends are moving towards products with a lower salt (NaCl) content. There is also a growing interest in and demand for nitrifier-free cured hams.

Salt and nitrites are important factors in controlling pathogenic micro-organisms, such as *Clostridium botulinum*, during the processing and preservation of foods such as cured and matured meat products. Companies producing cured ham and whole cured meat pieces therefore face major challenges, as both salt reduction and nitrite elimination have significant implications for food safety.

This project aims to develop a tool to ensure the food safety of different types of cured ham without nitrifying agents and low in salt.

Objectives

To develop a new tool based on predictive microbiology and computer tomography for assessing food safety in the production process of low-salt, nitrifier-free cured ham, and its application in three different types of processes and raw materials.

Description of the actions planned in the project

Activity 1. Physical-chemical product characterisation predictive models using computerised tomography.
Activity 2. Development of specific predictive microbiology models for cured meat matrices.
Activity 3. Development of an assessment and decision-making tool to ensure food safety in the low-salt, nitrifier-free cured ham production process.
Activity 4. Characterisation of the production process of different types of cured ham and processing methods.
Activity 5. Safety assessment of the manufacturing process.
Activity 6. Dissemination of the results.

Expected results and practical recommendations

- Obtaining mathematical algorithms predict the physical-chemical characteristics of cured-matured meat products throughout the production process.

- Obtaining mathematical algorithms to predict the chances of *C. botulinum* growth in cured-matured meat products.
- Creating the assessment tool by integrating the algorithms obtained.
- Obtaining the necessary information from each of the processes to assess their safety.
- Information on the safety of the current process if nitrifiers are removed and salt content is reduced (or not), for the different categories in the study.

Leader of the Operational Group

ORGANISATION: RAMON VENTULA, SA

Coordinator of the Operational Group

ORGANISATION: IRTA - Institute of Agrifood Research and Technology

Other members of the Operational Group (grant recipients)

ORGANISATION: BOADAS 1880, SA

ORGANISATION: CORPORACIÓ ALIMENTÀRIA DE GUISSONA, SA

Other members of the Operational Group (not recipients of the grant)

ORGANISATION: CATALAN MEAT AND ALTERNATIVE PROTEIN CLUSTER (INNOVACC)

Subject area(s) of application

☐	Agricultural production system
☐	Agricultural practice
☐	Agricultural equipment and machinery
☐	Livestock farming and animal welfare
☐	Vegetable production and horticulture
☐	Landscape / Territorial management
☒	Pest and disease control
☐	Fertilisation and nutrient management
☐	Soil management
☐	Genetic resources
☐	Forestry
☐	Water management
☐	Climate and Climate Change
☐	Energy management
☐	Waste and by-product management
☐	Biodiversity and environmental management
☒	Food quality/processing and nutrition
☒	Supply chain, marketing and consumption
☒	Competitiveness and agricultural and forestry diversification
☒	General

Geographical area(s) of application

PROVINCE(S)	REGION(S)
Girona and Lleida	Baix Empordà, Garrotxa, Gironès and Segarra

Dissemination of the project (publications, conferences, multimedia, etc.)

Different dissemination actions are planned to effectively explain the project and communicate the results and to reach the whole target public included in the scope of the project: associations, sector conference, explanatory article, infographics and publishable report, social media and explanatory video.

Project website

More information on the project

PROJECT DATES	TOTAL BUDGET
Starting date: July 2021	**Total budget:** €223,363.20
	DACC funding: €103,294.94
Current status: Under way	**EU funding:** €77,924.26
	Own funding: €42,144.00

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Order ARP/113/2021 of 20 May, approving the regulatory bases for grants for cooperation for innovation by promoting the creation of European Association for Innovation operational groups in the areas of agricultural productivity and sustainability and the execution of innovative pilot projects by those groups, and Resolution ACC/1660/2021, of 27 May, announcing the call for the grant.

Generalitat de Catalunya
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