

## Procurement of unsaturated/saturated fat from meat trimmings for high value-added products (SATURN)

### Summary

The SATURN project aims to carry out a pilot project to study the technological feasibility of the recovery of the fat fraction rich in unsaturated fatty acids obtained from the fractionation processes of the various trimmings generated during the cutting of pork meat.

The different types of fat generated in cutting rooms include soft fat, udder fat, side fat from the half-carcass and/or "skirt"; hard fat, from various belly trimmings, carcass fat, from above the shoulder; secondary fat, derived from trimmings of subcutaneous tissue obtained from carcass cutting, etc. The production of this type of trimmings with a high percentage of fat varies between 3-5 million kg/year, depending on the productivity of the companies.

The incorporation of an ingredient rich in unsaturated fatty acids can improve the health profile of meat and meat products while providing more palatable sensory attributes in various food matrices or become a seasoning ingredient in itself. Currently, there is a by-product (abattoir trimmings) that is 60-70% fat, of which a significant fraction corresponds to a polyunsaturated profile.

The interest in recovering these fatty acids from pig carcasses lies in the fact that these unsaturated fatty acids, which are mainly oleic acid, from the omega-9 family, and linoleic acid, from the omega-6 family, are known to be healthy for maintaining cardiovascular health in humans. Furthermore, the incorporation of these unsaturated fatty acid-rich fractions into food products could lead to more palatable products, as well as increase in their nutritional value.

Fractionation is a unit operation based on cooling the fat to a certain temperature in order to separate the crystallised fraction. In this process there is no modification of the internal structure of the fat molecules, it is only a selective separation process of the triglycerides based on the differences in the melting points of the fats. Therefore, the proposal involves a process of studying the recovery of the unsaturated fraction of the different pork trimmings.

### Objectives

The main objective of the project is to **recover the fat from different pork trimmings produced from the cutting of meat** in abattoirs destined for animal feed, starting from its analysis to obtain an ingredient rich in unsaturated fatty acids and an ingredient rich in saturated fatty acids to evaluate its high added value in terms of industrial applicability.

### Description of the actions planned in the project

The following list of activities are planned under the SATURN project:

ACTIVITY 1. Fractionation of the fat to obtain a fraction rich in unsaturated fatty acids.

ACTIVITY 2. Analysis of the unsaturated/saturated fat fractions obtained in Task 1 of the project.

ACTIVITY 3. Applicability of unsaturated and saturated fat fractions in food matrices.

ACTIVITY 4. Technical-economic feasibility of the fat fractionation process.

ACTIVITY 5. Project management, coordination and dissemination.

### Expected results and practical recommendations

The project aims to achieve the following:

- Identify and characterise the fats obtained from the trimmings.
- Study the fractionation process to obtain a fraction rich in unsaturated fatty acid and, therefore, another fraction rich in saturated fatty acids will be obtained.
- Evaluate the need for unsaturated fatty acid fraction aptness operations to remove unpleasant odours through deodorisation processes.
- Identify and characterise the recovered unsaturated and saturated fatty acid-rich fat fraction.
- Study the applicability of fat fractions rich in unsaturated fatty acids and fractions rich in saturated fatty acids in different food sectors.
- Assess the technical feasibility of implementing fractionation on an industrial scale: the process of obtaining fat fractions with different fatty acid profiles.

### Leader of the Operational Group

ORGANISATION: TRIPNET, SL

### Coordinator of the Operational Group

ORGANISATION: INNOVACC CATALAN MEAT AND ALTERNATIVE PROTEIN CLUSTER

### Other members of the Operational Group (grant recipients)

ORGANISATION: MATADERO FRIGORÍFICO DEL CARDONER, SA

ORGANISATION: CÀRNICA BATALLÉ, SA

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

ORGANISATION: EURECAT FOUNDATION

### Subject area(s) of application

- |                                     |                                       |
|-------------------------------------|---------------------------------------|
| <input type="checkbox"/>            | Agricultural production system        |
| <input type="checkbox"/>            | Agricultural practice                 |
| <input type="checkbox"/>            | Agricultural equipment and machinery  |
| <input type="checkbox"/>            | Livestock farming and animal welfare  |
| <input type="checkbox"/>            | Vegetable production and horticulture |
| <input type="checkbox"/>            | Landscape / Territorial management    |
| <input type="checkbox"/>            | Pest and disease control              |
| <input type="checkbox"/>            | Fertilisation and nutrient management |
| <input type="checkbox"/>            | Soil management                       |
| <input type="checkbox"/>            | Genetic resources                     |
| <input type="checkbox"/>            | Forestry                              |
| <input type="checkbox"/>            | Water management                      |
| <input type="checkbox"/>            | Climate and Climate Change            |
| <input type="checkbox"/>            | Energy management                     |
| <input checked="" type="checkbox"/> | Waste and by-product management       |

<input type="checkbox"/>	Biodiversity and environmental management
<input checked="" type="checkbox"/>	Food quality/processing and nutrition
<input type="checkbox"/>	Supply chain, marketing and consumption
<input type="checkbox"/>	Competitiveness and agricultural and forestry diversification
<input type="checkbox"/>	General

### Geographical area(s) of application

PROVINCE(S)	REGION(S)
BARCELONA	BAGES
GIRONÈS	SELVA

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

<https://www.innovacc.cat/2022/07/27/7-projectes-aprovats-de-la-linia-grups-operatius-2021-projectes-amb-ajut-dacc/>

### Project website

<https://www.innovacc.cat/2022/07/27/7-projectes-aprovats-de-la-linia-grups-operatius-2021-projectes-amb-ajut-dacc/>

### More information on the project

PROJECT DATES	TOTAL BUDGET
<b>Starting date:</b> July 2021	<b>Total budget:</b> €168,540.00
	<b>DACC funding:</b> €77,941.80
<b>Current status:</b> Under way	<b>EU funding:</b> €58,798.20
	<b>Own funding:</b> €31,800.00

### With funding from:

Project funded through Operation 16.01.01 (Cooperation for Innovation) through the Catalan Rural Development Programme 2014-2022.

*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.*

