

## Creation of a healthy fruit snack (FRESNACK)

### Summary

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Consumers are increasingly demanding safe, tasty, naturally flavoured, high-quality food that resemble fresh products. In order to meet these demands without compromising food safety, novel and emerging technologies can be applied to the development of fruit-based processed products. Of these technologies, microwave vacuum drying stands out. Drying is one of the most ancient methods of food preservation. The key objective of food drying is to extract water and solids up to a level where microbial contamination can be avoided. In conventional drying, products are dried at a high temperature over a long period of time.

Fruits and vegetables have a critical point of dry mass content. If the moisture content is reduced to this point during conventional drying, quality parameters remain unchanged. Thus, drying by combining hot air and a vacuum microwave is an efficient process from an energetic and economic point of view, as well as providing a product of higher quality than the popular fried snack.

In this context, the present pilot project aims to develop a minimally processed, fruit-based product that is convenient and safe, maintains sensory properties and nutritional quality, and has a sufficient shelf life to permit commercialisation (distribution). The development of a healthy snack made of fruit that has similar sensory properties and nutritional quality to those of the fresh fruit and highly convenient to use, may help to increase consumer confidence, satisfaction and, therefore, product acceptability. This would contribute to an increased level of consumer health and wellbeing, as well as introducing a new product onto the market that opens the door to an alternative to fresh fruit marketing and is in line with the current trend towards clean labelling.

### Objectives

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The main objective is to develop new products through the application of a new technological process that combines hot air drying (conventional) and microwave vacuum drying. These new products (healthy snacks) will be made from fruits (apples, pears and peaches) that have been thinly sliced and dried, with a shelf life of 4–6 months.

In order to achieve the stated objective, the pilot project will be carried out between March 2017 and September 2019, with a duration of 30 months from the start date of the project.

### Description of project activities

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1. DESIGN OF A MIXED DRYING PROCESS, COMBINING CONVENTIONAL DRYING AND MICROWAVE VACUUM DRYING FOR APPLES, PEARS AND PEACHES

-DESIGN OF A MIXED DRYING PROCESS FOR APPLES

-DESIGN OF A MIXED DRYING PROCESS FOR PEARS

-DESIGN OF A MIXED DRYING PROCESS FOR YELLOW PEACHES

-DRYING TREATMENT IMPACT STUDY

-SHELF LIFE AND FOOD SAFETY STUDY

-DATA ANALYSIS AND REPORTING

2. SESSIONS/SEMINARS FOR THE DISSEMINATION OF FINDINGS TO COMPANIES IN THE SECTOR AND STAFF INVOLVED IN THE AGRI-FOOD NETWORK

## Expected results and practical recommendations

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-Selection of a bath prior to the drying process that confers the desired properties to apple, pear and peach snacks. Selection of a drying treatment that produces apple, pear and peach slices (1.5–2 mm thick) of optimum quality, using the new technological process of combined hot air/conventional drying (HAD) and microwave vacuum drying (MVD).

-Apple, pear and peach snack samples for the shelf life and food safety study (sub-activity 1.5).

Description of their sensory and nutritional qualities and characterisation of their instrumental textures.

-Determination of the shelf life of the apple, pear and peach snacks. Evaluation of their vitamin retention throughout the shelf life. Evaluation of their colour evolution, measured instrumentally ( $L^*$ , a, b), and description of their sensory quality during storage. Study to assess the safety of the process used to obtain the apple, pear and peach snacks.

LI1.1. Presentation of the new apple-based snack. The healthy apple snack concept will be presented along with the studies regarding its shelf life, nutritional characterisation and sensory characterisation.

LI1.2. Presentation of the new pear-based snack. The healthy pear snack concept will be presented along with the studies regarding its shelf life, nutritional characterisation and sensory characterisation.

LI1.3. Presentation of the new peach-based snack. The healthy peach snack concept will be presented along with the studies regarding its shelf life, nutritional characterisation and sensory characterisation.

## Operational Group Leader

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Tipologia d'entitat:

**Indústria agroalimentària**

## Operational Group Coordinator

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Tipologia d'entitat:

**Centre de recerca**

## Other Operational Group members (beneficiaries of aid)

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Tipologia d'entitat:

**Empresa agrària**

## Other Operational Group members

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**Keyword-category**

**Territorial scope**

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Food quality / processing and nutrition  
Plant production and horticulture  
Supply chain, marketing and consumpt

**Province**  
Tarragona  
Lleida  
Girona  
Barcelona

**County**  
Segrià  
Gironès  
Baix Empordà

## Project dissemination (publications, seminars, multimedia...)

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Vídeo divulgatiu (públic)  
Jornades PATT de transferència  
Intervencions a fires agrícoles: Fira de Sant Miquel i Fira de Sant Narcís  
Jornades de disseminació al centres IRTA-FruitCentre i IRTA-Monells junt amb l'ECA (Escola de Capacitació Agrària)

## Project website

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www.fritravich.com  
www.actelgrup.com  
www.irta.cat  
www.giropoma.com  
www.costabrava.coop

## Other project information

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### Project period

### Approved budget

Starting date (month-year): Maig 2017

End date (month-year):

Project status: *Ongoing*

**Total budget: 198.000,00 €**

*Funding source DARP:* 82.080,00 €

*Funding source EU:* 61.920,00 €

*Own funds:* 54.000,00 €

## With the support of:

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*Basic regulation: Ordre ARP/96/2016, de 27 d'abril, per la qual s'aproven les bases reguladores dels ajuts a la cooperació per a la innovació a través del foment de la creació de grups operatius de l'Associació Europea per a la Innovació en matèria de productivitat i sostenibilitat agrícoles i la realització de projectes pilot innovadors per part d'aquests grups, i es convoquen els corresponents a 2016.*

Project id.: E+C 2016