



## Operational Group:

ProEnergy - New food products and bioenergy from fruits of low commercial value and agroindustrial wastes.

*ProEnergy - Novos produtos alimentares e bioenergia a partir de frutos de baixo valor comercial e resíduos agroindustriais.*

### Practical problem

Post-harvest handling generates a large amount of by products (10 %). Minimal processing of fruits and vegetables produces high volumes of wastes (40%). Materials although very perishable have high nutritional and functional value. Traditional approaches are cost requiring and not effective.

### Partners

#### Type:

Research /Teaching

Agri Enterprise

Agri Association

#### Name:

ISA - Instituto Superior de Agronomia; FCUL - Faculdade de Ciências da Universidade de Lisboa; INIAV – Inst. Nacional de Investigação Agrária e Veterinária

CAMPOTEC - Conservação e Transformação de Hortofrutícolas, SA; GRANFER - Produtores de Fruta, CRL; FRUBAÇA - Cooperativa de Hortofruticultores, Crl; COOPERFRUTAS - Cooperativa de Produtores de Frutas e Produtos Hortícolas de Alcobaça, CRL

APMA - Associação de Produtores de Maçã de Alcobaça

### Project

#### Objectives:

To promote a sustainable approach to support fruits & vegetables industries, taking into account nexus "byproduct-food-energy". The main objectives are:  
-To implement new technologies for obtaining novel products and ingredients;  
-To produce bioenergy through the optimization of anaerobic co-digestion.

#### Expected results:

Implementation of the "circular economy" concept;  
quantification & classification from the by-products and waste of industrial units;  
functional foods formulation and stabilization; microencapsulated functional ingredients;  
bioenergy production and its use for thermal treatments;  
bio fertilizers production

#### Results so far/first lessons:

Results from previous partners' projects:  
-Prototypes of fruit pulps (apple and pear base) and vegetables with high bioactivity, validated on laboratory scale;  
-The ISA team also has expertise in the production of bioenergy from industrial wastes. National Patent No. 103676 In Bulletin INPI 38/2008.

#### Who will benefit:

**People** - Consumers focused on health and wellness  
**Profit** -The industrial units, which core business is post-harvest handling and fruits and vegetables processing.  
**Planet**

Start: October/2017  
End: September/2020

Budget: 371.394 €

