

# Development of a system to remove TCA from cork stoppers using adsorbents and biosorbents

## Summary

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The manufacture of stoppers is currently the application with the highest added value for cork as a raw material with 98% of the Catalan cork sector's revenue coming from the manufacture of corks for still wines and sparkling wines. The industry has a turnover of almost €230 million, has an export level of around 50% and employs more than 1200 people.

Given that it is a high-quality product, the challenge is to remove sensory deviations in order to comply with requirements of the wineries and stave off the threat of alternative stoppers. These alternative stoppers have consolidated their position in the market, mainly due to the controversy generated around the presence of haloanisoles (like TCA) and other volatile compounds which may be present in the cork and affect the bouquet of the wine. This has forced the cork sector to implement technologies for the detection and/or removal of these aromatic compounds.

There are currently systems to remove aromas in the market, but they are mainly aimed at cork granules, not bottle corks, given that they are 'aggressive' elimination systems that may affect the cellular structure of the material.

The proposed system is based on the use of adsorbents and biosorbents with the aim of retaining the aromas extracted in the various cork production stages.

The innovation developed in the project has an impact on productivity and sustainability levels both territorially and in the winemaking and cork industries in general.

## Objectives

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The objective of the project is the development of an innovative system to remove aromas from cork stoppers based on the combination of various adsorbent and biosorbent materials. The achievement of this objective will enable an increase in the competitiveness of cork companies, fostering the use of natural and renewable products such as cork stoppers and responding to the competition imposed by alternative stoppers by reducing the problem of aromas associated with corks.

## Description of initiatives outlined in the project

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ACTION 1. Assessment of the effectiveness of different adsorbents and biosorbents.

ACTION 2. Selection of processes within cork production where the removal system can be applied. One process for each company.

ACTION 3. Design and manufacture of the removal system. This action depends on the materials selected in action 1 and the processes selected in action 2.

ACTION 4. Monitoring of the removal system and assessment of the best conditions for the removal of volatile compounds from cork samples. Creation of an operational protocol for the prototype.

ACTION 5. Dissemination of the results.

## Expected results and practical recommendations

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The results expected from the project are two aroma removal systems, one for the natural cork manufacturing system and another for the double disk agglomerated cork manufacturing process for sparkling wines, which reduce the presence of aromas in the end product.

At the end of the project, the systems will be in operation and their effectiveness will have been validated. The use of these systems will enable the modernisation of part of the production process.

The project proposes the optimisation of the current processes used to reduce aromas by applying a system to capture the aromas that are extracted with current technologies. This capture system is based on adsorbent compounds with a greater affinity for aromas than cork, enabling an increase in their removal without supposing major changes to the systems currently used by the companies. The result of the project is the development of an innovative system for the removal of aromas present in cork stoppers based on adsorbents and biosorbents that is flexible and therefore applicable to the production processes of the companies participating in the project.

### Task force leader

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### Task force coordinator

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### Other task force members (grant beneficiaries)

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### Subject area(s) of application

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Food quality/processing and nutrition  
Supply chain, marketing and  
consumption  
Waste, by-products and residues  
management

### Geographical area(s) of application

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#### **Province(s)**

Girona

#### **Region(s)**

Gironès  
Baix Empordà

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

The dissemination plan will be implemented at the start of the project to inform the public of the subsidy, throughout the project to announce the technical progress made, and at the end of the project. In all three cases, this will be done on different levels:

1. Web portal of the participating companies and the research centre. In the case of the research centre ([www.icsuro.com](http://www.icsuro.com)), news articles will be published on its web portal.
2. Dissemination of the goals and results the grant beneficiaries wish to share will be through the following channels:
  - Social media. The most significant and general interest objectives and results will be published on social media.
  - e-newsletter At least two articles on the project, which will respect the privacy of the companies, will be written and published by the researchers.
  - Informative plaque. An informative plaque will be mounted at the point of the process where the prototypes are installed, along with a brief description of the system and its use.
4. Conferences and seminars. It is planned to hold a technical seminar during the project.
5. Technical article Upon completion a technical article will be published in an agricultural journal.
6. Technical seminar. Around the end of the project a technical seminar will be held to present the prototypes and the results. Like the dissemination actions, the seminar will be aimed at the technicians of cork companies, wineries and other agri-food companies suffering aroma contamination problems. The content of all the dissemination actions will be previously agreed by all the participants in the project.

## Project website

[www.icsuro.com](http://www.icsuro.com)

## More information on the project

### Project dates

Starting date (month-year): June 2018

Completion date (month-year):

Current status: *Underway*

### Budget approved

**Total budget:** €140,980.00

*DARP funding:* €57,615.60

*EU funding:* €43,464.40

*Own funding:* €39,900.00

### With funding from:



Generalitat de Catalunya  
**Departament d'Agricultura,  
Ramaderia, Pesca i Alimentació**



**Fons Europeu Agrícola  
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*Order ARP/133/2017, of 21 June, approving the regulatory bases of grants for cooperation for innovation through the promotion of the creation of European Association for Innovation task forces in terms of agricultural productivity and sustainability and the execution of innovative pilot projects by these groups.*

*Resolution ARP/1868/2017, of 20 July, calling for applications for grants for the year 2017.*

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