



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

Introduction

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. The objective of the project was to develop an innovative system to remove aromas from cork stoppers based on a combination of various adsorbent and biosorbent materials. Achieving this objective helps to improve the competitiveness of cork companies, foster the use of natural and renewable products such as cork stoppers and address the competition from alternative stoppers by reducing the problem of aromas associated with corks.

Lessons learned

The end result of the project is two aroma removal systems, one for the natural cork stopper manufacturing process and the other for the agglomerated cork stopper manufacturing process with two discs for sparkling wine in liquid and steam conditions. A mixture of natural biosorbents was obtained that captures 50-95% of haloanisoles under laboratory conditions. 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 following practical recommendations may be drawn from the

project: - Recovered activated carbons are a good option for the removal of defective aromatic compounds present in corks. - The selected materials can be applied in both aqueous and dry environments. - The materials have a shelf life of more than six months. - Application of these compounds in company extraction systems improves their efficiency The following conclusions may be drawn from the project:

- There is significant potential for removing unwanted aromas in corks by using biosorbents at different points in the production process, adapted to the needs of each company.
- It is worth exploring the design of biosorbent containment prototypes to solve the challenge of biosorbent containment without limiting their adsorption properties

The information presented in this factsheet was developed by the FOREST4EU partner, drawing on the innovations and knowledge generated by the indicated operational group with their explicit authorization.

Further information

<https://www.icsuro.com/projectes/sistema-deliminacio-dhaloanisols-tca-i-altres-aromesdefectuoses/>

<https://www.icsuro.com/la-bioabsorcio-daromes-suro>

Company contact, e-mail: uniopagesos@uniopagesos.cat





Funded by the European Union

Funded by the European Union (Grant n. 101086216). Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or REA. Neither the European Union nor the granting authority can be held responsible for them.







FOREST4EU

 FOREST4EU Project
 FOREST4EU Project
 info@forest4eu.eu

Website

