

Agraria

# Ricerca partner FAFB-EU-LCP-5

01 dicembre 2017

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Richiesta di una Organizzazione no-profit portoghese alla ricerca di partner italiani da includere in un loro progetto nella tematica FAFB.

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----- PARTNER SEARCH FAFB-EU-LCP-5 -----  
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<Reference n.: FAFB-EU-LCP-5>

<Deadline: 11/09/2007>

<Programme: FAFB>

<Project Title: Sustainable Solutions for Residues from Wine Processing>

<Financial Scheme: Large collaborative project>

<Description: call KBBE-2007-3-3-04:

USEFUL WASTE - Novel biotechnology approaches for utilizing wastes, including aquaculture wastes, to make high added value products

## INTRODUCTION:

The European Union is the biggest producer and exporter of wine. Barrels have been extensively used to store and age wine and other beverages for centuries (Waterhouse et al, 1994). Most casks used to age wine, spirits and another wine derivative products are made of oak (Pérez-Coello et al 1997) mainly from two sources: American Oak (*Q. alba*) and French oak (*Quercus robur* and *Quercus petraea*). The expected life of a barrel is a important factor for the aging on wine. Although several factors such as wine composition, barrel maintenance techniques, or barrel fermentation can affect the extraction process, the age of the barrel is of primary importance in the quality of wines (Towey et al, 1996), and decides the renovation

rate of barrels in a winery. Due to the fact that the extractable compounds in oak is finite, the rate of extraction and the amounts of compounds extracted decrease as the barrel is used in successive years (Towey et al, 1996 and Rous et al, 1983). As the barrels become older, they usually become contaminate with undesirable microorganisms that promotes undesirable aromas to the wine. (Pérez-Prieto et al, 2002). In average, each barrel has a shelf-life of 5 to 6 years. After this period, they are considered as residues being stored by the company or sold to other companies that produce lower quality wine.

Furthermore, the European Commission, in October 11 of 2006, changed the regulation regarding the wine production, accepting the use of oak wood chips to enhance the wine properties.

This regulation, which obliges that the pieces of oak must come exclusively from Quercus genus, that can be used in natural state or heated on a low, medium or high temperature and can not have suffered any chemical, enzymatic or physical processes except the heating, appeared after oak chips are already in use in some other countries, as for example United States, Australia, Chile and New Zealand. The usage of oak chips is increasing. However, after their usage they can not be reused due to their microbiologic change.

#### PROJECT OBJECTIVES:

Waste resulting from wine processing, such as the already mentioned oak barrels and oak chips are produced in large quantities. Until now, few or none solutions after use were given.

The main objective of the project is to find sustainable solutions to oak barrels and chips that result from wine processing.

During the project it's expected to:

- Identify and quantify the residues resulting from wine producing
- Characterize the residues (chemically, microbiologically...)
- Study alternative solutions for the residues, namely:
  - o biomass,
  - o valorization and reuse - e.g. in pavements, furniture, ...,
  - o energetic valorization