



ECO-INNOVERA



VALUXTRACT

**Valorization of New High Added Value Compounds
from European vine and wine production solid
wastes
– technological, economical and social issues -**

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ISVV
INSTITUT DES SCIENCES
DE LA VIGNE ET DU VIN
BORDEAUX AQUITAINE



**UNIVERSITÉ DE
BORDEAUX**

6 PARTNERS

3 years

Coordinator : University of Bordeaux

Main relevant topic **3** : **Recycling**,
Contribution to topic **1**: **Paradigm Change**

3 countries : Germany (1), Switzerland (1) and France (4)



- Geisenheim Research Center, Economics and Market research & Enology
Pr. R. Jung, Pr. G. Szolnoki
- Ecole d'Ingénieurs de Changins
Pr. J. Ducruet
- University of Technology / ESCOM Compiègne
Pr. E. Vorobiev, Pr. M. Turk
- SOFRALAB (SME)
Dr. S. Manteau

Objectives

Vine and Wine production



Solid wastes

Vine shoots



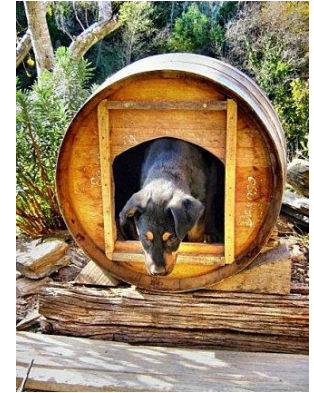
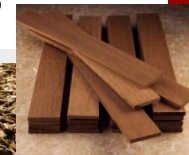
Pomaces, lees



Seeds



Oak chips, staves
and barrels



Valorization?

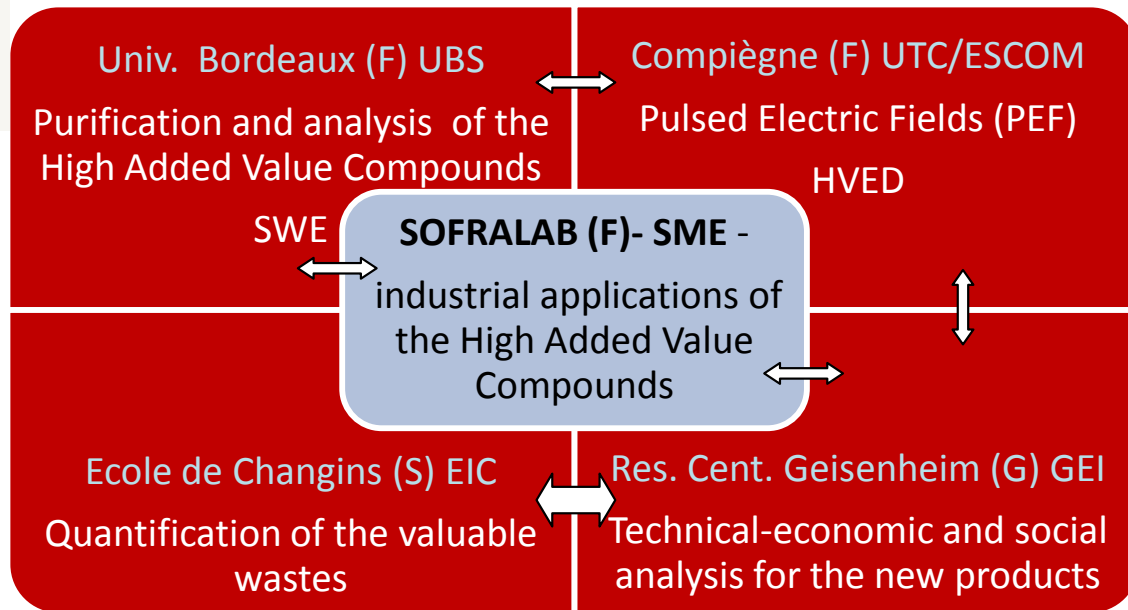
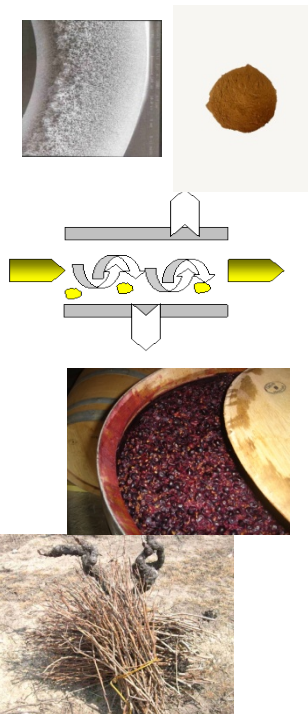


Aim of the project: valorization of the solid wastes using green processes to produce valuable compounds for different applications:

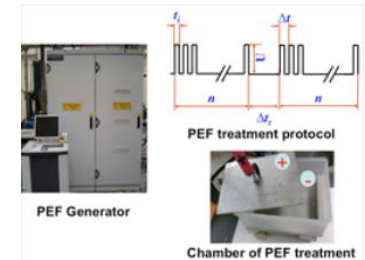
- extraction, fractionation and purification of polyphenols from vinification wastes for pharmaceutical and agro-food industries;
- extraction of tannins and aromatic compounds from wood wastes (vine shoots, barrels and chips) for wine or food flavor industries.

Main goals :

- Evaluation of the technical and economical feasibility of the processes for the extraction of HAVC;
- Identification of the best set parameters (treatment time, specific energy,...) to optimize the extraction yield of compounds from products (organic wastes and wood wastes);
- Set up treatment protocols of practical use for the industry;
- Analysis of the impact of the treatment on the product quality;
- Cost, environmental, economic and social analysis for the valorization of the new compounds.



Main work of partners and main interactions.



WP1 : Extraction techniques (coordination : UTC), 1PhD, 1post-doct.

Test the three new processes: PEF, HVED and SWE with the identification of the optimal process conditions for the extraction of the HAVC

1. Interaction between the parameters of the treatments (field strength, pressure, treatment time...) and the extraction conditions
2. Optimization of the parameters
3. Validation for the best HAVC

WP2 : High Added Value Compounds (coordination : UBS), 1 PhD

Purification of the extracts, in order to obtain extracts highly concentrated in HAVC. Fractionation and enrichment of the extracts in HAVC

1. Elimination of the suspended solids
2. Fractionation and concentration by membrane processes (UF and NF), analysis
3. Final purification with resins, analysis

(HPLC analysis of the main classes of polyphenols), antioxidant activities (ORAC and DPPH values), aroma composition (GC/MS) and physical and chemical properties (color, solubility, stability...)

WP3 : Economic, social, environmental issues (coordination : EIC/GEI), 1 PhD

Promote the marketing of the HAVC (economic impact of the solid wastes and of the HAVD production) knowing the environmental issues and the social perception.

1. Production of the solid wastes
2. Carbon footprint
3. Consumer's perception and evaluation of the costs



- Project taking into account the **three dimensions of sustainability** on the same level: environmental, economic and social.
- **Business opportunities and benefits the environment** by optimizing the use of resources including the energy use.
- Eco-innovation for **many European countries** (France, Spain, Italy, Greece, Switzerland, Germany, Hungary...).
- Consortium able to address the **whole sector of vine, wine production and polyphenols valorization** and could develop in the deliveries clear and realistic recommendations.
- **Processes** (PEF, HVED, SWE) **environmental-friendly** with a limited environmental impact. These extraction techniques provide higher selectivities, shorter extraction times and do not use toxic organic solvents. This could be very beneficial for the industrial sector in terms of recognition and image, as well as in terms of economic consequences
- Opportunity to collect informations about the **consumer's perception for wines produced with environmental-friendly processes** but also how they perceive the **use of natural products resulting from waste recycling** and develop of highly specific products focused on consumers needs. This kind of information is not available actually.



VALUXTRACT

The project answers the following points included in topic 3 of the Eco-Innovaera project:

- ✓ **Adapt the existing process of recycling** for a better separation and recovery of the waste materials;
- ✓ Eco-innovation for the recycling technologies and **new HAVC from the solid wastes**;
- ✓ **Overcoming social and market barriers** for using “by-products” from wastes;
- ✓ **Create a market** of the new products;
- ✓ **Closing loops** for the new recycling process and the residual solid wastes;
- ✓ **Production of high values molecules** from solid wastes

and contribute to topic 1: **Paradigm Change**

- ✓ Solve resource scarcity by **resource efficiency and recycling** (economic issue);
- ✓ **Foreseen societal changes** regarding environmental valuation (social issue);
- ✓ Develop of highly specific products focused on **consumers needs**;
- ✓ **Anticipate the impact of the modification of the production due to the environment constraints on the market and on the society.**

Success of the project ?



Social acceptance



regulation



cost

