

News about Biovino



POCTEP Biovino is a Spain-Portugal transboundary project, whose objective is to lay the theoretical and technical foundations to establish a biorefinery platform employing winery wastes and by-products.

In this issue you can find the latest results obtained.

Biorefineries associated with the winery sector



The institutions BLC3 and CETIM are performing a technoeconomic viability study for the most promising biorefinery processes from Project Biovino. This study focuses on the chemical compounds produced (polyols, polyphenols, anthocyanins, organic acids, bioplastics, biogas, etc.), as well as on the technologies applied for their generation from winery byproducts (vine shoots, grape marc, exhausted grape marc, wine lees or wastewater), taking into account market general demands.

Organic acids: lactic acid



Lactic acid is a chemical compound mainly obtained by bacterial fermentations, which has numerous applications in the food, cosmetic and chemical industries. The Technological Agrarian Institute of Castile and León (ITACyL) has produced lactic acid from vine shoots and wine lees, by using a thermotolerant bacterial strain.

Vine shoots are the most important winery by-product in terms of volume, since they represent 93% of the solid wastes originated by viticulture and their production is in the range of 1.4-2.0 t/ha. Wine lees are a liquid and viscous waste from winemaking and they are an interesting source of organic nitrogen for various microbial processes.

More information: [link](#).

Polyols: xylitol



Xylitol is a natural sweetener commonly used as a sugar substitute in foods. The Centre of Biological Engineering (Universidade do Minho) has developed a yeast strain capable of producing xylitol from xylose with a high yield. This technology is now being adapted to the use of winery byproducts: vine shoots constitute a promising source of xylose, whereas grape must, grape marc or wine lees could play a crucial role as co-substrates for this yeast.

More information: [link](#).

Bioplastics: polyhydroxyalkanoates



Polyhydroxyalkanoates are biodegradable and biocompatible polyesters that are produced by fermentation and whose properties make them good candidates for the replacement of many plastic types.

CETIM is working on the production of polyhydroxyalkanoates from grape marc, exhausted grape marc and vine shoots by using a microbial consortium. The analysis of the chemical and physical properties of the obtained polymers indicates that they have a high purity and that they are composed of butyrate and valerate.

Antioxidant compounds: anthocyanins



The research group from Universidade de Aveiro is focused on the fractionation of lignocellulosic winery biomass, such as vine shoots from pruning activities. The objective is to separate and recover cellulose and lignin in order to use them as feedstocks in several chemical and biological processes. In addition, the utilization of alternative solvents has allowed the extraction of anthocyanins from vine shoots. Currently, they are working on their chemical characterization and on the analysis of their antimicrobial activity, together with CETIM.

More information: [link](#).

Hydrogen: microbial electrolysis cells



The University of León keeps on exploring the treatment of organic liquid wastes. The fermentations of grape marc to produce polyhydroxyalkanoates (bioplastics) generate an effluent which is being used to synthesise gaseous hydrogen in a MEC (microbial electrolysis cell) bioreactor.

The microbial consortium in the bioreactor and the substrate load are being optimised to obtain the maximum amount of H₂.



INSTITUTO
TECNOLÓGICO
AGRARIO



Junta de
Castilla y León



universidad
de León



BLC3
CAMPUS
DE TECNOLOGIA
E INOVAÇÃO



universidade
de aveiro



Universidade do Minho

Project Biovino

E-mail: info@biovino.es

Website: <https://biovino.es/>

Interreg V-A España-Portugal (POCTEP) 2014-2020, project BIOVINO [0688_BIOVINO_6_E].

To unsubscribe: info@biovino.es