NEW APPROACH ON THE BIOCONVERSION OF VINEYARD PRUNING WASTE INTO SURFACE-ACTIVE COMPOUNDS BY *Lactobacillus paracasei*

Vecino, X.[1,2], Rodríguez-López, L.[2], Cruz, J.M.[2], Moldes, A.B.[2], Rodrigues, L.R.[1]

(1) Centre of Biological Engineering, University of Minho, Portugal.

(2) Chemical Engineering Department, School of Industrial Engineering (EEI), University of Vigo, Spain.

Wine production is widespread all over the world, being responsible for an important amount of the agroindustrial wastes. The residues produced by viticulture include grape stalk waste (470 cm^3), grape marc residue (465 cm^3), wine lees (15 cm^3) and vinasses (over 10 dm^3 per liter of wine manufactured) [1]. Furthermore, winemaking not only produces liquid streams but also a solid residue from the vineyard pruning waste (VPW).

The European Directive 2008/98/EC on waste focuses on the whole waste recycling, from generation to disposal, emphasizing the recovery and recycling of materials. Nevertheless, small winery producers tend to burn the lignocellulosic material, including VPW, thus contributing to global warming by the emission of greenhouse gasses like CO_2, CH_4 and N_2O during their combustion. Consequently, it would be interesting to improve the management of lignocellulosic wastes to avoid harmful effects on the environment.

Vineyard pruning waste is an especially attractive carbon source given its content in cellulose and hemicelluloses, and therefore can be potentially useful when converted in added-value products. During recent years, several efforts have been conducted to explore new ways for using low-cost feedstock, such as the agricultural residues. Hence, many fermentative processes like the production of surface-active compounds can be more cost-competitive by fermenting this type of substrates [2]. However, no studies have been so far reported on the production of biosurfactants by *L. paracasei* using as carbon source lignocellulosic residues.Indeed, most of the studies using by-products or residues from other industries to produce these compounds are related with the use of cheese whey [3].

Prior to the use of the VPW cellulosic fraction to produce biosurfactants, chemical and enzymatic treatments are required to allow the isolation and solubilization of cellulose into glucose. In this study, VPW was subjected to a sequential processing with acid, basic and enzymatic hydrolysis, leading to a glucose-based fermentation media (30 g/L).

After neutralization and nutrient supplementation (with corn steep liquor and yeast extract), the glucose solution was used as a cheaper medium. This medium was used to conduct a fedbatch fermentation in a bioreactor with pH (5.85) and temperature control (37 ºC), for the production of lactic acid and biosurfactant by *L. paracasei*.

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