# **EFFECT OF ORGANOSOLV PRETREATMENT ON DELIGNIFICATION** AND ENZYMATIC HYDROLYSIS OF EXHAUSTED OLIVE POMACE



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# INTRODUCTION

In the olive pomace industry, the exhausted olive pomace (EOP) is the main residual solid biomass generated after the extraction of the olive pomace oil with hexane. According to its composition, EOP could be used as feedstock for a lignocellulosic biorefinery [1], which represents an interesting alternative to its current application as biofuel since the former allows the production of bioenergy and value-added products such as bioactive compounds [2].

## Objective

- To valorize EOP through obtaining phenolic compounds applying two sequential extraction steps.
- To evaluate the effect of organosolv pretreatment on the delignification and the subsequent enzymatic hydrolysis of the extracted EOP for recovering glucose from cellulose.

#### Keywords:

Exhausted olive organosolv pomace, antioxidant pretreatment, lignin, compounds





antioxidant capacities (DPPH, ABTS and FRAP).

70% acetone (30°C, 10% solids, 30 min)	P2	60	110
70% acetone (30°C, 10% solids, 30 min)	P3	50	130
Water (85°C, 10% solids, 90 min)	P4	50	130
Water (85°C, 10% solids, 90 min	P5	50	140

<sup>a</sup>Second extraction conditions. <sup>b</sup>All organosolv pretreatment experiments were catalysed with H<sub>2</sub>SO<sub>4</sub> 1% using a solid loading of 15% for 60 min.

### **RESULTS**



**PHENOLIC PROFILE OF THE** 

Considering the two sequential extraction steps, a total removal of 76.2% of extractives was reached with respect to the raw material.

P5 pretreatment produced the highest delignification (about 52.8%) and achieved the highest enzymatic digestibility (about 80%).

The phenolics identified in the P5 pretreatment liquor through capillary electrophoresis were hydroxytyrosol, syringaldehyde, epicatechin, acetovanillone, furfural and 3hydroxybenzaldehyde

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