

Master Project 1

Valorization of lignocellulosic biomass: Study of enzymatic hydrolysis of rockrose (*Cistus ladanifer*) after hydrothermal treatment

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Number of students: 1

Duration: 2015-2016

Context & Objectives

The rockrose (*Cistus ladanifer*) is a shrub that occupies a large area of Alentejo, and other Mediterranean regions, which are not cultivated or exploited as pastures. The average above-ground production of the shrub layer varies from 10 tha^{-1} in pine forests, 7.5 tha^{-1} in forests of cork oak and less than 5.3 tha^{-1} in holm. In Portugal rockrose is currently used for the production of essential oils. Rockrose is rich in polysaccharides and lignin and a residual fraction of extractives, materials for which there are no known uses other than energy (combustion) and composting. Rockrose either directly or as a waste from the production of essential oils, can be used as raw material for the production of sugars that can be used for production of bioethanol and others products with higher values, such as lactic acid. To make the enzymatic hydrolysis more effective the feedstock will be subjected to a hydrothermal treatment.

The main goal of this work is to study the enzymatic hydrolysis of rockrose after hydrothermal treatment with commercial enzymes, related at least to the following variables: biomass loading and enzymes loading.