

Deliverable 4.3

First year's results on primary conversion process

30 September 2017

Author: Monaghan

Contributors: MetGen, UNINA, CENER, CLEA (until M6)

PUBLISHABLE SUMMARY

The BIOrescue project aims to develop and demonstrate a new innovative biorefinery concept based on the cascading use of spent mushroom substrate (SMS) supplemented by wheat straw (and other seasonal underutilised feedstocks).

Work package 4 (Primary conversion) main goal is the optimisation of the enzymatic hydrolysis of the carbohydrates present in the spent mushroom compost.

This report describes the work carried out from M1 to M12 within WP4 which concentrated in following tasks:

1. Screening for optimal enzyme mix and formulation using smart combinations of MetGen, UNINA and Monaghan Mushroom's enzymes on pretreated wheat straw and on wheat straw-spent mushroom compost mix.
2. Enzyme immobilisation and magnetic separation to create crosslinked enzyme aggregates using the enzymes available within the project.
3. Creation and screening of a cellulase mutant library.
4. Standardisation of sugar analysis methods: comparison of DNS protocols.