



# Lignin Valorization

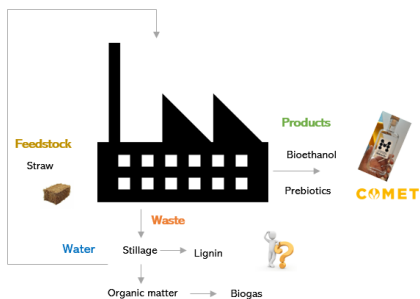
Ma. Fernanda Ramos, Katja S. Johansen, Solange I. Mussato, Bhukrit Ruengsrichaia



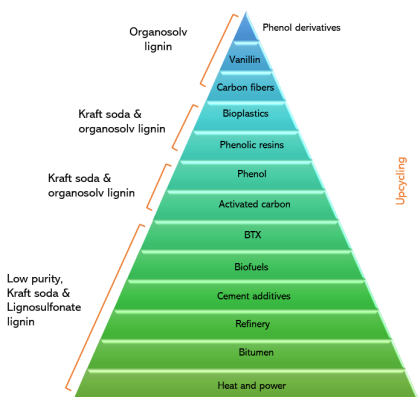
Helix Lab

## Introduction

Meliora Bio is a biorefinery that upcycles wheat straw into products such as bioethanol, prebiotics, and lignin.

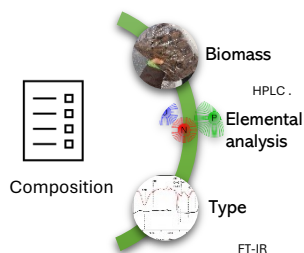


**Aim:** Enhance the comprehension of the lignin produced by MelioraBio and propose innovative ideas for its application.

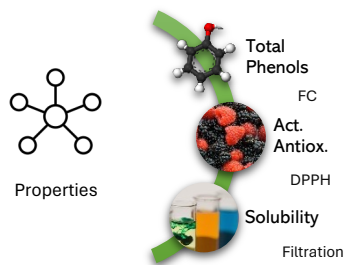


## Methods

In the initial phase of the project, a detailed characterization of the material's composition was conducted. Since the material is in a mixture, evaluating its purity is essential to defined applications.



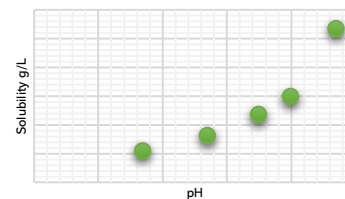
Since the material is obtained in a mixture with microbial cells, determining its purity is essential to define possible applications



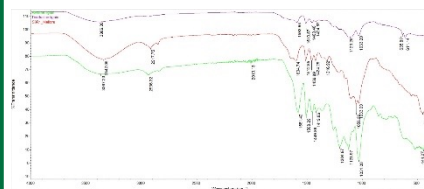
## Outcome

Evaluation of solubility in different pH levels in NaOH and solvents like DPPH.

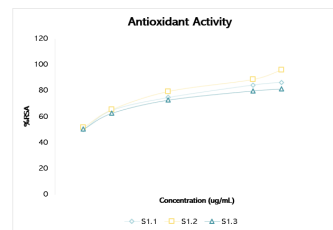
**Solubility chart**



Identification of the functional groups present by FTIR



Evaluation of the antioxidant activity (DPPH method).



## Perspectives

Although the results obtained allow us to propose strategies for lignin valorization, it is important to consider that the analyses carried out have some limitations. To address these points, additional tests could be performed varying:

- Evaluation methods.
- Solvents.
- Concentrations



Additionally, assays can be conducted to determine other properties such as:

- Adsorption
- Plasticity
- Thermomechanical properties



Putting to the test both the known and the yet-to-be-discovered in a particular treatment.