

Bioethanol from lignocellulose

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Agrotechnology & Food Innovations

Introduction

The European market in biofuels is expected to increase considerably in the near future. Current EU policies stipulate a wider use of renewable transportation fuels within the next decade. As a result, there is a rapidly growing interest of the industry in the use of alternative feedstocks for ethanol production, including lignocellulose.

At Wageningen UR, we have extensive experience in researching production pathways for producing ethanol from cellulosic feedstocks, including herbaceous and woody biomass. Current R&D projects focus on alkaline and mechanical pretreatment techniques, enzymatic hydrolysis, and concentrated acid hydrolysis conversion pathways. Fermentation R&D focuses on studying the effect of pretreatment and hydrolysis on fermentation yield and kinetics, and screening and isolation of naturally occurring microorganisms for pentose fermentation.

Feedstocks

- Woody biomass including willow
- Cereal Straw
- Grain processing byproducts
- Energy crops including Miscanthus, Switchgrass, and Reed Canary grass
- Feedstock quality analysis

Conversion Pathways

- Mechanical, extrusion
- Alkaline pretreatment at mild temperatures
- High-solids processing
- Enzymatic hydrolysis at lab- and pilot-scale
- Concentrated Acid hydrolysis

Fermentation research

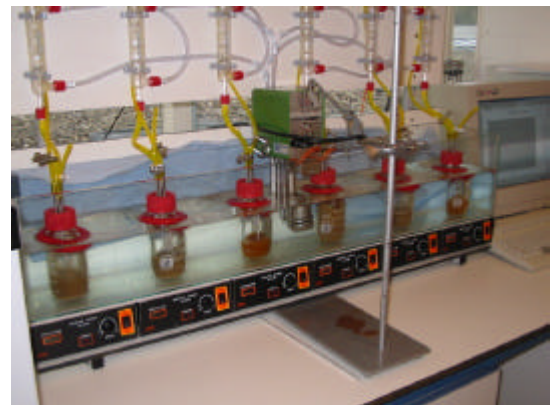
- Effect of pretreatment on sugar composition, yield, and fermentation inhibitor concentrations
- Fermentation achievement: yield, productivity, maximal concentration of ethanol produced by *S. cerevisiae*
- Screening of C5 fermenting organisms

Related links

- www.biomassandbioenergy.nl



Wheat straw, a potential feedstock for bioethanol



Bench-scale ethanol fermentation test unit



Pilot-scale fermentation at Wageningen UR- A&F