



INTRODUCTION

- OzBIONY®, a new pretreatment process for lignocellulosic biomass, could separate biomass into cellulose-rich and lignin-rich components.
- The dry ozone comes into contact with moisturized biomass surface in the reactor unit at ambient conditions and washed with caustic soda for complete separation.
- Both cellulose and lignin products could be processed further for downstream applications.
- Cellulose could be converted to carboxymethyl cellulose (CMC) as food thickener, food grade bio-ethanol and levulinic acid.
- Lignin can be utilized for bio-fuel production.

NEEDS

- The pretreatment process usually involves hazardous chemicals, is time consuming and produce harmful wastes.
- A simple and cost effective technology is needed.
- Ozonolysis has been used as oxidizing agent and is a good sterilizer.
- Ozonated biomass could be separated from cellulose, hemi-cellulose and lignin easily making it convenient to process these components downstream.

BENEFITS PER COST

- The cost for producing treated biomass is RM15/100g.
- Revenue from the sale of cellulose is RM106/100g.
- The profit margin is 64% excluding equipment and labor cost.

APPROACH

- The biomass component is completely separated into lignin-rich (ODR) and cellulose-rich (ODT) treated biomass without destroying the natural structure, respectively.
- OzBIONY® is advantageous for bio-refinery since moderate operation condition is required.
- OzBIONY® could maximize the TRS recovery up to 99.9%.
- The results testified implementation of OzBIONY® in bio-refinery could enhance TRS recovery in hydrolysis reaction extending the benefits for downstream bio-fuel and bio-based chemical production.

COMPETITORS

- Pulp and paper industry.
- Synthetic chemicals industry.

PROJECT LEADER : Prof. Ir. Dr. Nor Aishah binti Saidina Amin
PHONE NO : +607-5535579
EMAIL : noraishah@cheme.utm.my

