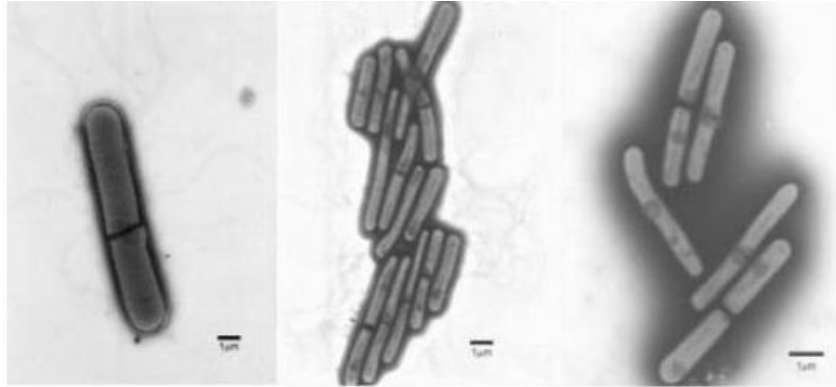


#11-18-MZA

Technology

Bio-input

### **Recombinant Laccase to Pre-Treat Lignocellulosic Biomass and Decolorization of Textile Effluents**



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#bio-input | #laccase | #biomass | #effluents | #bioenergy | #enzymes | #bioethanol | #second generation

<https://www.argentina.gob.ar/inta/tecnologias/enzimas-lacasas-recombinantes-para-pretratamiento-de-biomasa-lignocelulosica-y>

Second generation bioethanol is produced from lignocellulosic materials from agricultural, forestry and industrial activities, whose main components are cellulose, hemicellulose and lignin. The use of ligninolytic enzymes like laccase facilitate the action of enzymes used in the process for cellulose and hemicellulose hydrolysis. Likewise, laccase may be used to treat effluents from the textile industry due to their capacity to degrade dyes of different chemical nature.

The INTA Agricultural Microbiology and Zoology Institute isolated thermophilic bacteria and sequenced their genomes. Laccase-encoding genes were found, and subsequently cloned and expressed in a bacterial system.

The potential market is linked to the biofuel process to replace fossil fuels, obtained from residues to produce second generation bioethanol.

- Pretreatment of lignocellulosic biomass to obtain bioethanol
- Pulp bleaching as an alternative to chlorate compounds use
- Detoxifying textile industry effluents

Characterization of the biological activity of recombinant laccase. Proficiency testing is required in pilot scale processes.

Recombinant structure qualifies for invention patent application.

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BIO-INPUT