

# Improving Plant Saccharification

Enabling the use of non-edible crop parts as an energy source

## Overview

Biorefineries use biomass as a feedstock for chemicals and as an energy source, helping to reduce greenhouse gas emissions. However, the structural resistance of cellulosic biomass to degradation makes saccharification—a prerequisite for chemical production and energy conversion—challenging.

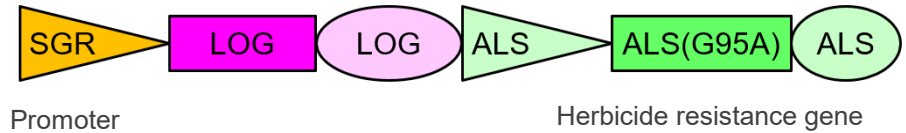
Associate Professor Ito and colleagues at Tohoku University's Graduate School of Agricultural Science have developed a method to improve saccharification by introducing a gene encoding a cytokinin biosynthesis enzyme into plants of the grass family. Cytokinins suppress plant senescence. The method uses intragenesis; no foreign DNA remains in the plant genome at the final breeding stage. The source therefore states that the method is not subject to restrictions under Japan's Cartagena Act.

## Possible Applications

- ❑ Renewable energy
- ❑ Treatment and utilization of non-edible crop residues
- ❑ Readily degradable feed

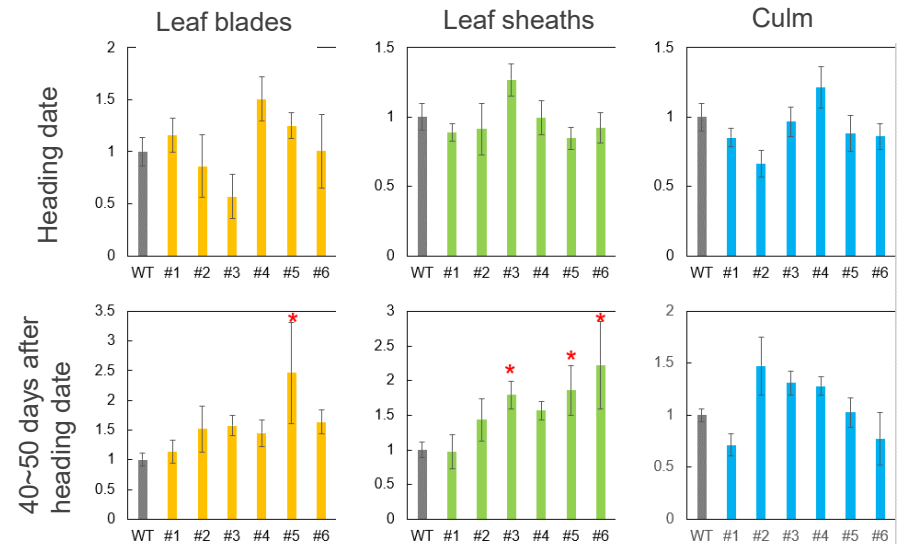
## IP Data

IP No. : JP 2024-139244  
 Inventor : ITO Yukihiro, MIURA Kano, NISHIMURA Hotaka  
 Admin No. : T24-049



All sequences are derived from rice  
 (Intragenic gene introduction)

## Features • Outstandings



\*: Statistically significant at the 5% level

Relative saccharification rates for samples #1–#6, with wild-type rice (WT) normalized to 1. Leaf blades and leaf sheaths tended to show higher rates 40–50 days after heading than on the heading date.

## Contact

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