



Producing bioethanol and/or glucose syrups from raw starch

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TRL scale



What's needed for?

The invention relates to combinations of novel and efficient glucoamylase and alpha-amylase expressed in industrial *Saccharomyces cerevisiae* yeast strains for the processing of raw starch into bioethanol. The efficient amylases combinations, tested on a cluster of starchy substrates (raw corn starch, wheat bran, rice by-products) at high substrate loading (up to 20% w/v), gave high saccharification yields. The fermenting abilities of the recombinant yeast were also high.

Expression of thermostable enzymes as well as the ability to produce more than one desirable enzyme in one host enables the generation of more competitive organisms for the industry. The present invention aim is also to provide a beneficial enzyme combination for the hydrolysis of starch for use in alcohol production processes.

Advantages

- Low or no need of enzyme supplementations to ensure commercial saccharification yields
- One step conversion of starchy materials into bioethanol
- Greater ethanol yield
- Cost reduction (requires less enzymes)
- Ideal for agricultural waste reuse (circular economy)

Applications

- Production of bioethanol or glucose syrups from starchy materials
- Glucose syrups production from corn, triticale, sorghum and other agricultural waste (rice, potato)