

EXPLOITABLE FOREGROUND

Optimized temperature profile in simultaneous saccharification and fermentation

Explanation and Purpose

The process option simultaneous saccharification and fermentation (SSF) is an interesting process option since end-product inhibition on hydrolysis can be minimized by the removal of sugars by fermentation. Also the capital costs may be decreased due to the integration of enzymatic hydrolysis and fermentation.

However, the process temperature needs to be a compromise between the optimum temperature for enzymatic hydrolysis and that for fermentation. A procedure has therefore been designed to find the optimum temperature for a non-isothermal SSF process. Depending on the feedstock used, process advantages in terms of in particular a shorter process time can be accomplished.

Exploitation Strategy

Lab-scale proof-of-concept experiments have been performed. The principles of non-isothermal SSF is under discussion with in particular the industrial partner SEKAB.

IPR Measures

No patent application is planned.

Further Research

The concept needs to be further evaluated and tested with engineered yeast strains as well with other feedstock and enzyme blends.

Impact of Exploitation

The idea of non-isothermal operation opens up new possibilities for optimization of SSF processes. Higher productivities, in some cases with also increased yields, are clearly within reach.

Novel Microbes and Enzymes for 2nd Generation Bioethanol Production



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NEMO is co-funded by the European Commission in the 7th Framework Programme (Project No. FP7-222699)