Biofilm-based immobilisation of strains for the production of succinic acid from lignocellulosic biomass sugars

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Summary

This project tested a novel biofilm-based immobilisation method to overcome performance limitations of both free-cell and conventional immobilised fermentation, particularly when utilising lignocellulosic biomass sugars

Aims

- We have developed and tested carrier media based biofilm formation for succinic acid fermentation
- We tested and compared succinic acid production by free cells and biofilms in the presence of inhibitory compounds commonly found in lignocellulosic biomass hydrolysates.

Outcomes

- Inhibitory compounds in biomass-derived sugars limited cell growth, succinic acid production and carbon fixation.
- The project provided early evidence that biofilms formed have potential to overcome the inhibition, improving fermentation performance.

"The PoC project enabled us to validate our biofilm-based fermentation concept and produce valuable data that will inform further research and development"
Yongqiang Liu, University of Southampton

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