



acib Project Offer

Production of high-value chemicals by simultaneous semi-solid substrate saccharification and fermentation (s5f)

We developed a one-pot one-step bioprocess for lactic acid production from starch and raw starch. Efficient conversion of viscous semi-solid media to lactic acid solution involves just a single biocatalyst and moderately high temperature.

BACKGROUND

Industrial biotechnological processes for the production of platform and high-value chemicals from raw materials need to reduce complexity and improve the time-space yield. Wider metabolic potential and robustness of biocatalysts have not been in practice yet. In addition, utilization of structural polysaccharides from the raw materials makes such bioprocesses cost-inefficient.

TECHNOLOGY

We use media consisting of a semi-solid part and a colloidal solution in combination with a biocatalyst that simultaneously hydrolyses substrates from the semi-solid part as well as from the solution and ferments simple sugars thereof to a defined ratio of D- and L-lactic acid. Almost stoichiometric conversion of the starches from complete media to lactic acid ($Y_{p/s} = 0.91 \text{ g g}^{-1}$) was achieved. For production of other high-value chemicals a variety of specific techniques and methods for sample collection, handling and analysis can be accommodated within different types of s5f.

BENEFITS

- Efficient one-pot one-step process for lactic acid
- Utilization of high initial concentration of starch or raw starch
- Employment of a single biocatalyst
- Advanced monitoring of the bioprocess
- Possibility for fine-tuning of D- and L-lactic acid ratio

OFFER

Based upon very promising results from previous projects we are now looking for partners financing the development of this technology to full market readiness in exchange of privileged access to this technology in form of a non-exclusive license for any foreground IP and background-IP provided for free.

KEYWORDS:

- s5f
- lactic acid
- high-value chemicals
- pretreatment of raw materials

acib-Experts:

Prof. Dr. Anita Slavica

AVAILABLE FOR:

- Joint Research Project
- Contract Research

Development Status:

Technology Readiness Level 2-4

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