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High-cell-density PHB production in a membrane bioreactor

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We developed a cell-recycle membrane bioreactor for the high-cell-density production of poly (3-hydroxybutyrate) (PHB). This fermentation strategy is feasible for low carbon concentrations in the feed stream, as often found in agricultural residues. Cupriavidus necator DSM 545 was continuously supplied with medium containing 50 g/L of glucose. A constant working volume inside the bioreactor was maintained by an external polysulfone microfiltration membrane module. The PHB-production phase was started after 8 hours by supplying nitrogen-free medium. After another 32 hours, 52 g/L dry biomass were accumulated containing 92% PHB, resulting in a high productivity of 1.2 g PHB/Lh.

Biography

Cornelia Haas studied molecular biology and biological chemistry at the University of Vienna, Columbia University in the City of New York and the Dublin Institute of Technology. Currently she is doing her PhD project on the production of PHB from alternative feedstocks at the University of Natural Resources and Life Sciences Vienna. She has (co-)authored several papers and presented her work at the Renewable Resources and Biorefinery Conference in Spain (2014).

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