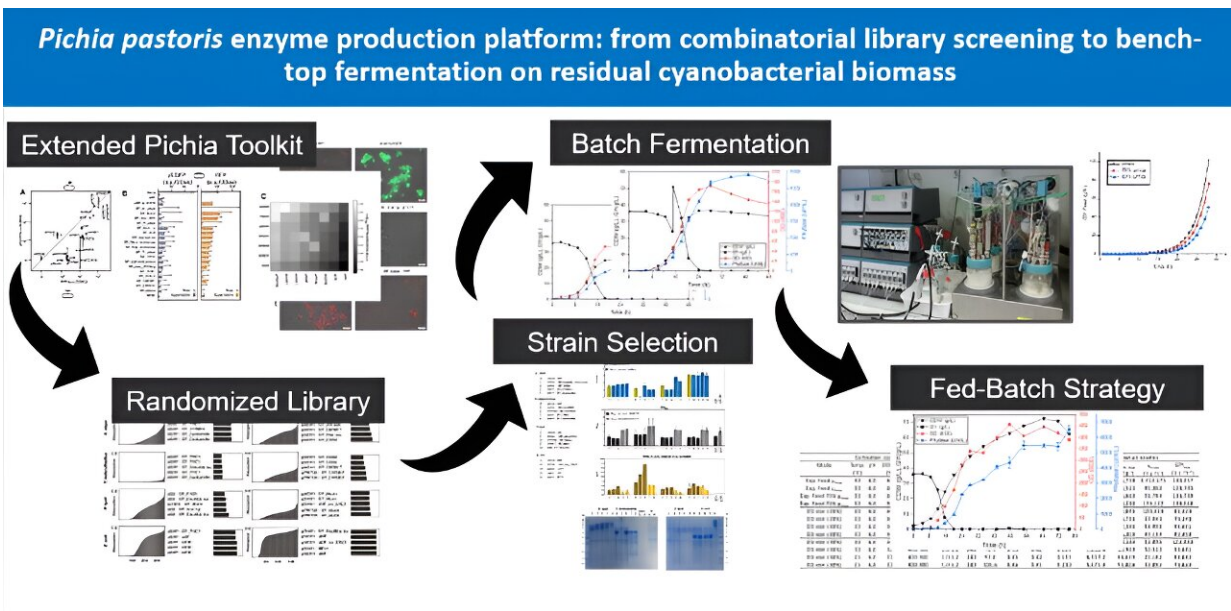


# Novel solution for *Pichia pastoris* enzyme production platform

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Researchers successfully utilize cyanobacterial biomass as a novel feedstock in a cutting-edge *P. pastoris* platform. The extended toolkit exhibits promising results for offering a sustainable alternative for enzyme expression. Credit: Dr. Doris Schieder, Chair of Chemistry of Biogenic Resources, Technical University of Munich, Campus Straubing for Biotechnology and Sustainability, Germany

The demand for industrial enzymes is continually rising, driven by the growing need to shift towards more sustainable industrial processes. Our research outlines a novel approach to enzyme production, harnessing the untapped potential of cyanobacterial biomass within the *P. pastoris*

platform.

Group Leader Dr. Schieder highlights the nature of the study, stating, "Our work reveals the potential of cyanobacterial biorefineries to support [enzyme production](#)."

This achievement stems from an extensive multi-field approach. We characterized and expanded a combinatorial library, streamlining *P. pastoris* engineering for enhanced efficiency. Rigorous screening of these libraries yielded potent enzyme-producing strains, enabling the development of a fed-batch strategy for efficient AppA *E. coli* phytase expression.

A key element is the successful utilization of *Nostoc* sp. De1 biomass hydrolysate as a [substrate](#) for fermentation, presenting a viable and sustainable alternative to conventional feedstock. Korbinian Sinzinger underscores the importance of this [research](#), stating, "Our findings demonstrate that the extended *P. pastoris* toolkit not only generates high-performing producer strains but also offers a greener pathway for [enzyme](#) expression, addressing the critical need for sustainable biobased production."

The paper is [published](#) in the *Journal of Bioresources and Bioproducts*.

**More information:** Korbinian Sinzinger et al, The *Pichia pastoris* Enzyme Production Platform: from Combinatorial Library Screening to Bench-Top Fermentation on Residual Cyanobacterial Biomass, *Journal of Bioresources and Bioproducts* (2023). [DOI: 10.1016/j.jobab.2023.12.005](#)

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