

Optimization of hydrolysis conditions for protease activity from brewer's spent yeast extracted fractions

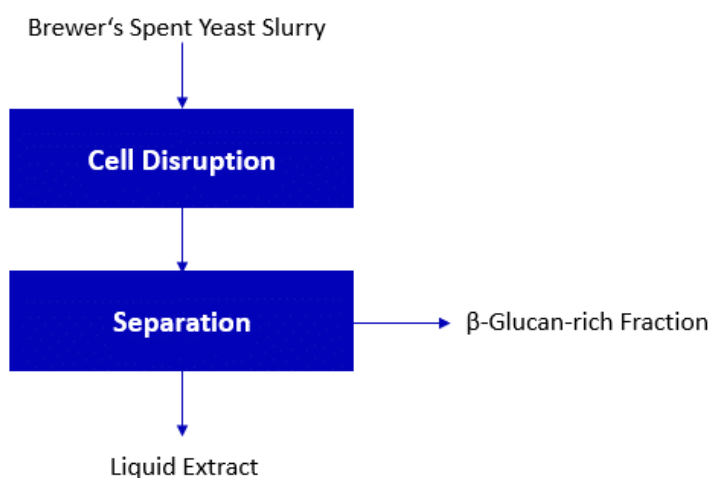
Master thesis at the
Institute of Technical Biocatalysis
In cooperation with GEA Group



Introduction

Brewer's Spent Yeast (BSY) is the second most abundant by-product of the brewing industry, making up about 1.5-2.5% of the total beer produced. The cells are still viable and considered food-grade when leaving the process. Yet, to date, it is mostly sold as low-cost animal feed or disposed of as landfill. New approaches are investigated to valorize BSY on a sustainable and large industrial scale.

One new approach is to extract a liquid fraction containing proteolytic activity for use as a brewery in-house hydrolysis feedstock. The main aim of this master thesis is to optimize hydrolysis conditions on a model substrate and to characterize the contained protease enzymes.



Content of the Thesis

During this master thesis

- Cell wall disruption of BSY and analysis of protease activity in resulting extracts.
- Identification of a suitable model substrate.
- Optimization of hydrolysis conditions using Design of Experiment (DoE) approach.
- Development of inhibition assays for class characterization of present proteases.
- Investigation of the influence of potential activators for main acting enzymes.
- Application of BSY extract with optimized process conditions on real brewery substrate.

Start: Flexible

Languages: German or English

Contact

Name: Marie Schottroff
Institute of Technical Biocatalysis
Denickestr. 15 (K), Room: 3558
Phone: +49 40-42878-4543
Email: marie.schottroff@tuhh.de