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Cellulase production with Penicillium verruculosum strain in lab and pilot scale

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Bioethanol is produced in general by starch fermentation from corn or sugar beets. An alternative is the use of lignocellulose by digesting cellulose to glucose. This digestion is an enzymatic process in which endocellulases, cellobiohydrolses and β-glucosidase, named as cellulase complex, are interacting together. The most common used fungal strain for cellulase production, Trichoderma reseei, has been studied intensively and optimized in recent years. The metabolism of cellulase production has been described in different literatures for fungis but is not exactly understood so far. The problem of cellulase production by Trichoderma reseei is based on a not well balanced enzyme complex. There is a low production rate of beta-glucosidase in this fungi that leads to the addition of the minor enzyme in industrial scale fermentation. Our studies focuses on a cellulase production with Penicillium verruculosum mutants that has a more balanced cellulase complex. Beech wood is used as lignocellulose substrate in this study which is pretreated by organosolv process technology for separation of hemicellulose, lignin and cellulose. This poster will present first fermentation results by using different substrates and varying fermentation methods to optimize the enzyme production in both, lab and pilot scale.

Biography

Martin Schomber has completed his Master studies in pharmaceutical biotechnolgy at the age of 25 years from Technische Hochschule Mittelhessen. In his studies, he has been a part of different research work groups in molecular, enzymantical and industrial parts of biotechnology. During a research stay at the University of Auckland (New Zealand), he was involved in a methodical studie to identify beta-1,3 glucan in wood for specific identification of different kinds of wood for industrial application.

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