

# Production of Succinic Acid from Lignocellulosic Materials

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A fermentation process was developed for the production of succinic acid from corn-derived glucose using a new *Escherichia coli* strain (ATCC 202021), which overproduces succinic acid under anaerobic conditions. This strain was derived from the strain NZN111 by spontaneous mutation of the chromosomal *ptsG* gene. The physiological characteristics of the mutant were consistent with loss of function of the *ptsG* gene product; the mutant possessed greatly reduced glucose phosphotransferase activity and lacked normal glucose repression. The fermentation process consists of two stages. In the first stage, the cells are grown under aerobic conditions until a critical cell mass is achieved. In the second stage, anaerobic conditions are applied to begin succinic acid production. This fermentation process has been successfully scaled up in a 500-liter fermenter. To extend the range of fermentable substrates to include lignocellulosic materials, new mutants have been obtained. These mutants were capable of utilizing glucose as well as other sugars derived from lignocellulosic materials for succinic acid production. Fermentation results obtained with these new mutants will be discussed.