Review

Improvement of cellulolytic enzyme production and performance by rational designing expression regulatory network and enzyme system composition

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Improvement of cellulolytic enzyme production and performance by rational designing expression regulatory network and enzyme system composition

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HIGHLIGHTS

1. Industrial lignocellulolytic enzyme hyper-producing strains are urgently required.
2. *Penicillium oxalicum* is a promising strain expressing lignocellulolytic enzymes.
3. Synergistic and cascade regulation for lignocellulolytic genes is discussed.
4. Strategies for the metabolic engineering of *P. oxalicum* via the reconstruction of expression regulation network are reviewed.

Abstract

Filamentous fungi are considered as the most efficient producers expressing lignocellulose-degrading enzymes. *Penicillium oxalicum* strains possess extraordinary fungal lignocellulolytic enzyme systems and can efficiently utilize plant biomass. In recent years, the regulatory aspects of production of hydrolytic enzymes by *P. oxalicum*