

Metabolic network of surfactin in *Bacillus* spp. and its challenge

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Abstract

Surfactin, a kind of cyclic lipopeptide synthesized by non-ribosome peptide synthases (NRPS) in *Bacillus* spp. strain, has attracted a great deal of attention owing to its surface activity. It has broad prospect of application in petroleum extraction, daily chemical, and clinical treatment. To further improve the yield of surfactin, numerous studies have focused on clarifying its metabolic network. Herein, this review summarized essential modules in the metabolic network of surfactin, including surfactin synthase, precursor supply, efflux pump system, quorum sensing system, and biofilm formation. Furthermore, essential genes proved by omics analysis and gene editing were emphasized. This review aims to help understanding the intricate metabolic network of surfactin and lay a foundation for reconstructing surfactin-overproduced in whole system level.

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