

Desulfurization and sulfur metabolism in Rhodococcus

Jie Hou¹, Hongkuan Deng¹, Zixin Liu¹, Ping Xu², and Lijuan Wang¹

¹Shandong University of Technology

²Shanghai Jiao Tong University

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Abstract

Biodesulfurization (BDS) enables the gentle removal of organosulfur compounds using environmentally friendly enzymes. Even though researchers are committed to engineering the biodesulfurization-specific 4S pathway for improving BDS efficiency, the industrial BDS application of BDS is still difficult. Recently, sulfur metabolism of Rhodococcus has begun to attract attention due to its BDS potential. In this review, we introduce the regulation of the 4S pathway and summarize different aspects of sulfur metabolism, including sulfur absorption, sulfur reduction, and sulfur assimilation. The stress response to sulfur starvation and the influence of sulfur metabolism on BDS efficiency are also discussed. The latest advancements in genetic engineering have enabled gene control in Rhodococcus. An improved understanding of the relationship between sulfur metabolism and desulfurization will enable the industrial application of BDS.

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