

Microbial synthesis of natural products by employing methyltransferases

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Abstract

Methyltransferases (MTs) constitute a large group of enzymes that catalyze the transfer of a methyl moiety most frequently from S-adenosyl-L-methionine to their substrates. It plays an essential role in regulation of genes expression and synthesis of many natural compounds. Owing to its broad substrate spectrum, MTs make important contributions to diversify the spectrum of products through methylation modifications. Recently, employment of MTs for biosynthesis of natural products has made great progress but have not been detailed and informative viewed so far. In this article, we summary the recent advances in application of MTs for microbial synthesis of various natural products including phenylpropane compounds, fragrances, hormones and antibiotics. We put emphasis on the applied metabolic engineering strategies for efficient production of those chemicals and for expanding the diversity of the products. Then, we present the current challenges and future perspectives in utilization of MTs for efficient production of more diverse natural products in microorganisms.

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