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研究论文

Efficient Synthesis of (S)-1-(2-chlorophenyl)ethanol
in the Submerged Culture of *Alternaria alternata*
Isolate

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摘要 (S)-1-(2-chlorophenyl)ethanol is a key intermediate of L-cloprenaline used for relieving asthma symptoms. The asymmetric reduction of 2-chloroacetophenone 1 to (S)-1-(2-chlorophenyl)ethanol 2 in the submerged culture of *Alternaria alternata* isolates was studied. *A. alternata* EBK-8 isolate was the most effective biocatalyst. The bioactivity of the fungus could be significantly improved by the optimization of culture conditions. Parameters such as pH, temperature, agitation, and incubation time considerably influenced the substrate conversion and the optical purity of the product. The reaction was carried out in a culture medium at a substrate concentration of 30 mmol/L and produced the desired product with high conversion (100%) and isolated yield (80%) with an excellent enantiomeric excess (ee) of >99%. Under the optimum conditions, after 54 h reaction time, 24 mmol/L 2 from 30 mmol/L 1 could be produced. As a result, the submerged fermentation of *A. alternata* EBK-8 was found to be suitable for the asymmetric reduction of 1 to 2.

关键词 [Alternaria alternata](#); [bioconversion](#); [biocatalysis](#); [2-chloroacetophenone](#); [fermentation](#); [optimization](#)