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红串红球菌NCC-1对二苯并噻吩和柴油中硫的脱除研究

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摘要 从被油污染的土壤中筛选到一株能脱除二苯并噻吩 (DBT) 硫的脱硫菌, 经鉴定被命名为红串红球菌NCC-1。红串红球菌NCC-1经“4S”途径, 能代谢DBT为2-HBP; 也能代谢其它含硫化物, 并能使加氢脱硫中难脱除的4,6-二甲基二苯并噻吩(4,6-DMDBT) 降解。NCC-1能使正十六烷模拟体系中的DBT硫由150mg/L降到 20 mg/L; 使加氢柴油中的总硫由554 mg/L降到 274 mg/L。NCC-1 具有很好的柴油生物脱硫前景。

关键词 [生物脱硫](#), [红串红球菌](#), [二苯并噻吩](#), [柴油](#)

分类号

Sulfur-Selective Desulfurization of Dibenzothiophene and Diesel Oil by Newly Isolated *Rhodococcus erythropolis* NCC-1

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Abstract A dibenzothiophene (DBT)-desulfurizing bacteria strain was isolated from oil-contaminated soils and identified as *Rhodococcus erythropolis* NCC-1. Strain NCC-1 was found to convert DBT to hydroxybiphenyl (2-HBP) via the 4S pathway and also be able to use organic sulfur compounds other than DBT as a sole sulfur source. The strain could desulfurize 4,6-dimethyldibenzothiophene (4,6-DMDBT), which is one of the most recalcitrant dibenzothiophene derivatives to hydrodesulfurization. When two type of oils, a model oil [*n*-hexadecane (*n*-C16) containing DBT] and a hydrodesulfurized diesel oil with various organic sulfur compounds, were treated with *Rhodococcus erythropolis* NCC-1 cells, the total sulfur content significantly decreased, from 150 to 20 mg/L for *n*-C16 and from 554 to 274 mg/L for diesel oil. The newly isolated strain NCC-1 is considered to have good potential for application in the biodesulfurization of fossil fuels.

Key words [biodesulfurization](#) [Rhodococcus erythropolis](#) [dibenzothiophene](#) [diesel oil](#)

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