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PII: S0168-1656(17)31644-9
DOI: http://dx.doi.org/10.1016/j.jbiotec.2017.09.004
Reference: BIOTEC 8009

To appear in: *Journal of Biotechnology*

Received date: 17-7-2017
Revised date: 8-9-2017
Accepted date: 9-9-2017

Please cite this article as: Martínez, I., El-Said Mohamed, M., Santos, V.E., García, J.L., García-Ochoa, F., Díaz, E., Metabolic and process engineering for biodesulfurization in Gram-negative bacteria.Journal of Biotechnology http://dx.doi.org/10.1016/j.jbiotec.2017.09.004

Metabolic and process engineering for biodesulfurization in Gram-negative bacteria

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Highlights

- Biodesulfurization is a real technology to reduce sulfur levels in fuel
- Metabolic and genetic engineering can overcome the major bottlenecks of the process
- Gram-negative bacteria are suitable hosts for engineering desulfurizing biocatalysts
- More efforts in process engineering are needed for the industrial application

Abstract

Microbial desulfurization or biodesulfurization (BDS) is an attractive low-cost and environmentally friendly complementary technology to the hydrotreating chemical process based on the potential of certain bacteria to specifically remove sulfur from *S*-heterocyclic compounds of crude fuels that are recalcitrant to the chemical treatments.