

Growth characteristics and fatty acids composition of *Shewanella oneidensis* MR-1 at various temperatures

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Abstract

The facultatively anaerobic γ -proteobacterium *shewanella oneidensis* MR-1 is one of the ideal microorganisms for waste and contaminated region bioremediation because it has the ability to inhale certain metals and chemical compounds and exhale these materials in an altered state. This bacterium is a metabolically versatile organism that can use a diversity of organic compounds and metals to obtain energy needed for growth and survival. And it can grow naturally almost anywhere, and does not harm to human or other organisms. *Shewanella* is considered an significant factor in confining and cleaning up contaminated area because of its diverse abilities. Moreover, it is similar to "lab-rat" , *E. coli*, so the genetic tools or biological tools utilized for *E. coli* are commonly used. However, characteristics researches about growth pattern, fatty acid composition and polyunsaturated fatty acids synthesized by this strain have not been performed well enough until now. Therefore, we attempted to determine the growth curve and the change of fatty acids composition of *s. oneidensis* MR-1 according to various temperatures.

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References

1. John F. Heidelberg et al, Genome sequence of the dissimilatory metal ion-reducing bacterium *Shewanella oneidensis* (2002), *Nature biotechnology*, **20**, 1118-1123.
2. Chongxuan Liu, Yuri A. Gorby, John M. Zachara, Jim K. Fredrickson, and Christopher F. Brown, Reduction kinetics of Fe(III), Co(III), U(VI), Cr(VI), and Tc(VII) in cultures of dissimilatory metal-reducing bacteria. (2002). *Biotechnol Bioeng.* **20**, 637-649.
3. Agnieszka Klonowska, Thierry Heulin, and André Vermeglio, Selenite and Tellurite, Reduction by *Shewanella oneidensis*. (2005). *Appl. Environ. Microbiol.* **71**, 5607-5609.