

三株降解芘的戈登氏菌鉴定及其降解能力

胡凤钗^{1,2}, 李新宇², 苏振成^{2*}, 王秀娟², 张惠文², 孙军德¹¹沈阳农业大学土地与环境学院, 沈阳 110161; ²森林与土壤生态国家重点实验室, 中国科学院沈阳应用生态研究所, 沈阳 110164Identification and degradation capability of three pyrene-degrading *Gordonia* sp. strains.HU Feng-chai^{1,2}, LI Xin-yu², SU Zhen-cheng², WANG Xiu-juan², ZHANG Hui-wen², SUN Jun-de¹¹College of Land and Environment, Shenyang Agricultural University, Shenyang 110161, China; ²State Key Laboratory of Forest and Soil Ecology, Institute of Applied Ecology, Chinese Academy of Sciences, Shenyang 110164, China

- 摘要
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摘要 从沈抚灌区多环芳烃污染土壤中筛选出的芘降解菌D44、D82S和D82Q, 经形态观察、生理生化试验和16S rDNA序列分析确定均为戈登氏菌属(*Gordonia* sp.)。3株菌的最适生长pH值均为7, 当pH值低于5或高于9时, 生长均受到明显抑制。降解试验表明, 3株菌能以芘、苯并芘、蒽、萘、菲和荧蒽为唯一碳源和能源生长。经过7 d的培养, 3株菌对初始浓度为100 mg · L⁻¹的芘的降解率均在65%以上, 对初始浓度为50 mg · L⁻¹的苯并芘的降解率分别为79.6%、91.3%和62.8%。通过PCR检测发现D82Q和D82S含有烷烃单加氧酶基因*alkB*。

关键词: 戈登氏菌 多环芳烃 芘 生物降解

Abstract: Three pyrene-degrading bacterial strains named D44, D82S and D82Q were isolated from PAHs-contaminated soil in Shenfu Irrigation Area of Shenyang, Northeast China. The strains were identified as *Gordonia* sp., based on the morphological observation, physiological and biochemical identification, and phylogenetical analysis of 16S rDNA sequences. For all the three stains, their optimal pH was 7, and their growth was obviously inhibited when the pH was lower than 5 or higher than 9. The three strains were capable of utilizing pyrene, benzo [a] pyrene, anthracene, naphthalene, phenanthrene, and fluoranthene as the sole source of carbon and energy. After seven days incubation, the three strains could degrade more than 65% of pyrene with an initial concentration 100 mg · L⁻¹, and the D44, D82S, and D82Q could degrade 79.6%, 91.3%, and 62.8% of benzo [a] pyrene with an initial concentration 50 mg · L⁻¹, respectively. PCR amplification indicated that the strains D82Q and D82S possessed alkane monooxygenase gene *alkB*.

Key words: *Gordonia* sp. polycyclic aromatic hydrocarbons (PAHs) pyrene biodegradation

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- [1] 胡凤钗, 苏振成, 孙健, 李旭, 张惠文, 孙军德. 高效芘降解菌N12的分离鉴定与降解特性[J]. 应用生态学报, 2011, 22(06): 1566-1572.