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Development of Persistent Chemicals-Degrading Strain by Spheroplast Fusion between *Flavimonas oryzihabitans* KC23 and *Streptococcus* sp. KU5

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This study was performed on the purpose of development of fusants having the degradative ability for the persistent aromatic chemicals. The optimal condition for the formation and regeneration of each strains were investigated and then the fusants were studied. DNA content of fusants was 1.8~2-fold compared with parent strain and the frequencies of fusants were $1.28 \times 10^{-3} \sim 9.94 \times 10^{-5}$. Fusant F22 obtained from *Pseudomonas* sp. DJ-12 (Ap^r) and *Flavimonas oryzihabitans* KC23-1 (Cm^r) was 1.5-fold its parent for cell growth and degradative ability at 10 mM aniline minimal medium. Fusants F33 and F36 were obtained from *F. oryzihabitans* KC23-1 and *Streptococcus* sp. KU5 (Sm^r). Aniline-degrading ability of two fusants were similiar to parent strain and phenanthrene-degrading ability of F36 was 4-fold superior to parent strain. Anthracene-degrading ability of fusants F33 and F36 were 2-fold and 4.6-fold, respectively.

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Isolation, Identification, and Characterization of Anthracene-Degrading Bacteria

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Among the 50 microorganisms isolated, the powerful anthracene-degrading strains were selected and identified. *Flavobacterium gleum* KU17 and *Acinetobacter calcoaceticus* KU48 had more powerful degradative ability for anthracene and had broader substrate range for various aromatic compounds than *Pseudomonas fluorescens* KCTC 1767 identified already. By curing test, it was confirmed that anthracene degradative ability of *Serratia macescens* KU9 was caused by plasmid DNA. *A. calcoaceticus* KU48 was selected because the peak pattern of anthracene metabolite produced by this strain was different from that of *P. fluorescens* KCTC 1767. On the basis of the above results, the pathway on anthracene catabolism of the strain was studied.