B325 Phylogenetic bacterial diversity of the Han river as determined by 16S rRNA gene analysis

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Currently, waste water generation by homes in Seoul is 4.75 million tons a day, while the combined capacity of the 4 filtration plants is only 61% of sewage from homes is treated hygenically. Water and sediment samples were collected from Han river, crossed the central Seoul, at 4 stations which in Tancheon, Jungrangcheon, Anyangcheon and Hengju, respectively. DNA extraction was performed to identify members of the domain Bacteria which inhabit such an aquatic environment, we used PCR to construct a library of 16S rRNA genes (16S rDNAs) cloned from DNA extracted from the water and sediments of Han river. Oligonucleotides complementary to conserved regions of 16S rDNA were used as primers(27F-1492R) for PCR, and gel-purified PCR products were cloned into vector pGEM-T. Partial sequencing of the cloned 16S rDNAs revealed an extensive amount of phylogenetic diversity within this system. We confirmed and categorized the sequence of the clone using by Ribosomal Database Project's taxonomic program on internet.

B326 Isolation of hexadecane degrading denitrifier, *Shwanella putrefaciens*, DK-1

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DK-1 strain, *Shwanella putrefaciens*, was isolated and identificated from oil spill area. As a result of the identification, Gram's test is a positive and the strain has a oxidase and was characterized fatty acid of 15:0 iso-form as a main component of cell wall. It appeared the feature of denitrifying bacteria that could not only use the oxygen, but also consume the nitrate as a final electron acceptor. In medium which contained with nitrate as 0, 1, 5 and 10mM, growth rates were measured 0.05, 0.14, 0.23 and 0.44 at OD_{660nm} using by spectrophotometer after 3 days incubation, respectively. Optimal temperature was determined between 15 and 37℃. Strain was able to be survived up to 95‰ contained with sodium salt. When hexadecane was added as a carbon source, it was degradable 12.7% and 16.3% after 14 days on denitrifying and aerobic condition, respectively. After 35 days incubation, it was converted nitrate into 11.97 ㎎ L^{-1} of nitrite and able to degrade the hexadecane as 15.4%.