## B057

### Detection and Distribution of Bacterial Pathogens in Nak-dong river by PCR

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While we have recently reported on the development using Polymerase Chain Reaction(PCR) method instead of culturing for detection of pathogenic bacteria in environmental water We detected waterborne pathogenic bacteria from raw water in Busan metropolitan city by PCR method According to the result of survey from August 2004 to January 2005, 38 out of 46 the raw water samples, were positive(82 6%) for *Shigella* sp 47 8% for *Yersinia enterocolitic*, 19 6% for *Salmonella* sp. The pathogenic bacteria in raw water were mainly distributed through the lately Autumn to the winter and more highly detected Maeri than Mulgum that was sampling point in downstream of Nak-dong River

## B058

### Solubilization of Waste Sludge by an Alkalophilic Isolate, *Bacillus cereus* E18

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The activated sludge treatment of wastewater generates a large amount of excess sludge which needs further treatment prior to disposal In this study, an alkalophilic bacterial strain capable of producing alkali-tolerant protease was isolated from a soil sample. On the basis of 16SrDNA sequence analysis and fatty acid profiles, this isolate was identified as *Bacillus cereus* E18 Combining the application of *B cereus* E18 with alkaline treatment was adopted in the present work to enhance the efficiency of decomposition and solubilization of waste sludge At pH=10, TS=1 0% and after 10 h of reaction time, the concentration of soluble chemical oxygen de-mand (SCOD) was about 6200 mg/L Compared to the conventional alkaline treatment method it provided an increase of the final SCOD by about 30% The RFLP analysis of genomic DNA from waste sludge both before and after the operation also revealed the efficiency of inoculant for the decomposition and solubiliza-tion of waste sludge From these experimental results it was demonstrated that the application of *B cereus* E18 with alkaline treatment has potential as an effective procedure for processing of waste sludge

## B059

### *Pseudomonas putida* JYR-1 Able to Resist High Concentrations of Trichloroethene

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*Pseudomonas putida* JYR-1, and *Burkholderia cepacia* G4, which can metabolize *trans*-anethole via anethole epoxides and toluene via *o*-cresol respectively, were tested their tolerance to halogenated C2 and C3 compounds The halogenated compounds such as trichloroethene, tetrachloroethene, 1,2-dichloroethane, and etc, have been wide discharged into, and stably stayed in the environments Nine representative chlorinated compounds, 1,2-dichlo-roethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1-dichloroethene (DCE), 1,2-*trans*-dichloroethene (*trans*-DCE), 1,2-*cis*-dichloroethene (*cis*-DCE), trichloroethene (TCE), tetrachloro-ethene (PCE) and 1,2,3-trichlo-ropropane (TCP) were used Three different levels of concentrations (0, 5, 10 mM) were added to the mineral salt basal medium containing 5 mM glucose The optical density of the bacterial cultures at 600 nm was measured during incubation *P putida* JYR-1 grew on the medium with concentra-tions of 5 mM of the chlorinated compounds with no growth inhibition as compared to the growth of the strain in the medium without adding the chlorinated compounds Surprisingly, strain JYR-1 grew in the medium with concentrations of up to 10 mM TCE and PCE with doubling times 5.4 h, and 5 4 h and lag phage times 60 h, and 80 h, respectively, which were increased compared to the control experiments Although *B cepacia* G4 strain did grow in the medium with concentrations of 5 mM of 1,2-dichloroethane, 1,1,1-trichloroethane, DCE, *trans*-DCE, and *cis*-DCE without inhibition, it did not show growth in the medium with concentrations of 5 mM of 1,1,2-trichloroethane, TCE, PCE, and TCP *P putida* JYR-1 was more resistant to the chlorinated aliphatic C2 and C3 compounds tested than *B cepacia* G4 Therefore, this bacterium as a host strain will be more likely applicable for the genetic manipulation to biodegrade highly concentrated chlorinated aliphatic solvents
[This work was supported by a grant from the MOST/KOSEF to the Environmental Biotechnology National Core Research Center (grant # R15-2003-012-02002-0), Korea ]

## B060

### Substrate-Specific Classification of Lichens Distributed on the Tree Barks of Coniferales in Jeju

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Our previous study reported that lichens can live in diverse environments including coastal rocks owing to the remarkable marriage between fungus and algae Many different lichens are often found at the bark of a specific tree However, to the best of our knowledge tree-specific lichens have not been reported This study focuses on investigating lichens tree-specifically distributed in Coniferales of Jeju, which is located in 33° ~ 34 ° N, 126° ~ 127 ° E Trees of Coniferales investigated for lichen study contains families Pinaceae, Taxodiaceae and Cupressaceae. Molecular analysis of the PCR product using amplification of rRNA ITS regions with morphological analysis revealed that lichens Dirinaria sp, Heterodermia sp, Parmotrema sp, Parmelia sp, Parmelopsis sp, Punctelia sp were often distributed in the barks of Pinaceae containing Pinus densiflora, Pinus koraiensis, Pinus thumbergii, suggesting Pinaceae was a good place for the lichens mentioned above, while in family Cupressaceae very few lichens were found It is notable that *Dirinaria applanta* previously found on coastal rocks was distributed in all the trees investigated in this study Besides, the data study for lichens specific for the tree Taxodiaceae will be mentioned
[This work was supported by Ministry of Science and Technology]