B045 Acquisition of Organic Acids by Degradation of Rice Straw with Anaerobic Sludge and Effect of Inoculation of the Polysaccharide Degrading Bacteria

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Rice straw is an agricultural waste that is hardly degraded naturally on a farmhouse. And burning up rice straw can cause the air pollution. So we need to treat rice straw by biological methods. In anaerobic condition, rice straw and anaerobic sludge were mixed in various ratios. Treated supernatant were picked in treatment culture bottles day by day and were analyzed into sorts and contents of organic acids by using HPLC (high performance liquid chromatography). The mixture in the ratio of 20g/L rice straw and 20% (v/v) anaerobic sludge showed the best effect of acquisition of organic acids.
And the inoculation of the polysaccharide (xylan and/or amylase and/or cellulose) degrading bacteria into anaerobic treatment of the rice straw showed more effective acquisition of organic acids than without inoculation.

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B046 Molecular Analysis of Microbial Community Structure and Diversity in Microorganisms Associated with Sand Dune Plants by Using 16S rDNA Sequence Analysis and ARDRA

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Microorganisms play an important role in the soil ecosystem. Conventional microbiological techniques yield only limited information on the composition and dynamics of microbial communities in soil. Techniques based on amplification of 16S rRNA genes for comparing bacterial communities are now widely used in microbial ecology. In this study, we investigated microbial community diversity associated with sand dune plants. Total DNA were extracted directly from plant roots and rhizosphere soil samples. Clone libraries were constructed for each site. Bacterial community structure and diversity were investigated by amplified 16S ribosomal DNA restriction analysis (ARDRA) and two diversity indices(Richness, %coverage) were calculated. The sequence data of the representative clones of each site indicated that most of the bacterial clones in the rhizosphere soil belonged to the *gamma* and *alpha* subdivisions of the *Proteobacteria*, with lesser proportions in the division Cytophaga/Flavobacterium/ Bacteroides (CFB) and enteric bacteria. Genus *Pseudomonas* was observed in all sites. In addition, 16S rDNA sequence of root-derived clones revealed *Lysobacter* sp.

B047 Isolation of Marine and Antarctic Actinomycetes

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We isolated symbiotic marine actinomycetes from sponges, and soil actinomycetes from Antarctic region. Actinomycetes strains were succeeding cultured on ISP4 agar plates at 25℃, and 74 strains were finally isolated. The isolated actinomycetes were inoculated into Bennett liquid media, genomic DNA was extracted, and phylogenetic analysis was performed on the basis of 16S rDNA sequences. *Streptomyces diastaticus* and *S. intermedius* were isolated from a sponge. *S. diastaticus* isolated in this study showed circle form and white color colonies, and they produced substrate mycelium. *S. intermedius* is known as a plant pathogenic bacteria. *S. intermedius* isolated in this study showed concentric circle form and white color colonies, and they produced substrate mycelium. *Streptomyces caviscabies* was isolated from Antarctic soil. Type species of *S. caviscabies* was isolated from potatoes, and this is first report on appearance of *S. caviscabies* in Antarctic region. *S. caviscabies* isolated in this study showed circle form and white-green color colonies with clear zone, and they produced substrate mycelium.

B048 Isolation of Marine Bacteria from a Biofilm formed on Arctic Seashore

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The Arctic is a representative cold habitat that offers good sources of useful enzymes with activity at low temperature. We isolated biofilm from a floating pier around Korean Arctic Research Station Dasan located at Ny-Alsund, Svalbard, Norway (79°N, 12°E). The collected samples were diluted in distilled seawater, and spread on marine agar plates. The plates were transferred to the laboratory at KORDI under cold condition. They cultured at 10℃, and colonies were succeeding cultured on zobell agar plates at 10℃. The pure colonies were inoculated into zobell liquid media, and genomic DNA was extracted from the liquid-cultured strains. Phylogenetic analysis using 16S rDNA indicated that the biofilm bacteria belong to *Glaciecola mesophila, marinobacter hydrocarbonoclasticus, Marinomonas protea, Planococcus southpolar, Polaribacter irgensii*, *Pseudoaltermonas agarovorans*, *Pseudoaltermonas citrea, Pseudomonas anguilliseptica*, *Psychrobacter fozii*, and *Shewanella frigidimarina*. We expect that these Arctic bacteria can be used for screening to develop new industrial enzymes.