E331 Corelation between Cytotoxicity and Production of Stress-shock Proteins by 2,4-D and Its Metabolite 2,4-DCP in *Burkholderia cepacia* YK-2

Yun-Seok Cho, Hyung-Gi, Kim and Kye-Heon Oh*
Department of Life Science, Soonchunhyang University

In *Burkholderia cepacia* YK-2, 2,4-D (2,4-dichlorophenoxyacetic acid) and its metabolite 2,4-DCP (2,4-dichlorophenol) were analyzed with respect to their capacities to induce stress shock proteins (SSPs). Both the 2,4-D and 2,4-DCP showed that SSPs induced from 0.5mM to 7mM concentrations for various exposure time. This response is characterized by the induction of proteins which are approximately 43 kDa DnaK and 41 kDa GroEL by SDS-PAGE and Western blot using the anti-DnaK and anti-GroEL monoclonal antibodies. The toxic effects of 2,4-D and 2,4-DCP to *B. cepacia* YK-2 were observed by survival test and induced SSPs. As a result of this response, 2,4-DCP showed higher toxicity and induced more SSPs compared to 2,4-D. *B. cepacia* YK-2 treated with 7 mM 2,4-D and 5 mM 2,4-DCP for 1 hour showed some puncture on the cell and contortion of the short rod shape through scanning electron microscope. Relationship between the extent of cell damage and the onset of the stress shock response in *B. cepacia* YK-2 was evaluated in this work.

E332 Two methods of gene transfer in *Acetobacter xylinum* KCCM 10100 : electroporation and conjugal transfer

Sang Tae Park and Young Min Kim
Molecular Microbiology Laboratory, Department of Biology and Bioproducts Research Center, Yonsei University

Two methods for genetic transformation, electroporation and conjugal transfer, were developed for *Acetobacter xylinum* KCCM 10100, a cellulose-producing bacterium isolated from vinegar factory in Korea. High-voltage electroporation was successful with a plasmid pST101, a newly developed *Escherichia coli-A. xylinum* shuttle vector, under pulse lengths of 7-9 ms at 25 μF, 2.5 kV, and 400 Ω in a 0.2 cm cuvette. The frequency of transformation was 0.6×10^{-6} (transformants/survivor) with 1 μg of DNA under the conditions. Conjugal transfer was carried out by triparental mating using *E. coli* donor cells harboring a plasposon pTn*Mod*-OTc or pRK415.