

# 대한 독성 유전 · 단백질체 학회

## 2006년도 국제 학술대회 및 정기총회

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in Drug, Food and Environmental Safety for Human Health

(환경보건 및 의약품, 식품의 안전성을 위한 차세대 Omics 기술의  
위해성평가 활용에 관한 국제 학술대회)

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**[Poster Contents]**

**P- 091** PANAX GINSENG EXTRACTS PROMOTE EXCRETION OF TCDD EXPOSED IN RATS

Chul-Won Lee<sup>1</sup>, Sung-Ryong Ko<sup>2</sup>, Byung-Goo Cho<sup>2</sup>, Jong-Soo Kyung<sup>2</sup>, Do-Hyeon Paik<sup>1,3</sup>, Dae-Ook Kang<sup>1,3</sup>, Kwon-Chul Ha<sup>1,3</sup>, Yong-Kweon Cho<sup>1,3</sup>, Ja-Young Moon<sup>1,3</sup>

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**P- 092** USE OF STABLE ISOTOPE PROBING TO EXPLORE TIME - DEPENDENT DYNAMICS OF PCB - DEGRADATIVE POPULATIONS IN BIPHENYL FED SOIL MICROBIAL COMMUNITIES

Joonhong Park<sup>1</sup>, Dongwon Ki<sup>1</sup>, Woo Jun Sul<sup>2</sup>, Shankar Congeevaram<sup>1</sup> and James M. Tiedje<sup>2</sup>

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*<sup>2</sup>Center for microbial ecology, Michigan State University, East Lansing, MI, USA*

**P- 093** A New Culture Method for Detecting Antibiotic Resistant Oligotrophic Microorganisms in the Environment

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**P- 094** Risk Assessment of OECD HPV Chemicals in Korea

Hyun-Mi Kim, Eun-Jung Lee, Sang-Hee Lee, Eun-Hye Jo, Hyun-Joo Koo, Hyojung Yoon, Ji Hye Baek, Sang-Hwan Song and Kyunghee Choi

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**P- 095** Effects of Red Ginseng Extract on Interukin (IL)-2, IL-8 and IL-10 in Patients with Advanced Colorectal Cancer

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[Poster Abstract]

P-092

USE OF STABLE ISOTOPE PROBING TO EXPLORE  
TIME - DEPENDENT DYNAMICS OF PCB -  
DEGRADATIVE POPULATIONS IN BIPHENYL FED  
SOIL MICROBIAL COMMUNITIES

Joonhong Park<sup>1</sup>, Dongwon Ki<sup>1</sup>, Woo Jun Sul<sup>2</sup>, Shankar Congeevaram<sup>1</sup> and James M. Tiedje<sup>2</sup>

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Very little is known about influence of pollutant exposure history on community structure and population dynamics among biodegraders in soil. In this study, we attempted to identify fast growth specialists, slow growth specialists, and steady responders among biphenyl utilizing population in soil. In microcosms, soil was fed with <sup>13</sup>C - labeled biphenyl, and stable isotope probing (SIP) was conducted. Early time experiment on day 28. A standard CsCl gradient method was used to isolate heavy DNA portions from soil DNA. For bacterial community structure and population dynamics, 16S rDNA were amplified, cloned and sequenced. The length of biphenyl incubation period did not affect the degree of diversity of biphenyl-utilizing populations but changed their community structures and population dynamics. In the early time SIP experiment,  $\beta$  - *Proteobacteria* was the predominant biphenyl - utilizing group (44%) while *Actinobacteria* was the predominant phylogenic group in the soil microbial community. In the late time experiment, meanwhile,  $\alpha$  and  $\beta$  - *Proteobacteria* groups were equally dominant among the biphenyl utilizing populations (31% and 33% respectively). The further analysis revealed that  $\alpha$  and  $\beta$  - *Proteobacteria* groups included a wide range of biphenyl-growth responders (fast responders, slow responders and steady responders). However, *Actinobacteria* group included only steady responders. These community structure and population dynamics are among polychlorinated biphenyl degraders in soil.