

Journal of Life Science 2008 Vol. 18, No. 3, 374~380

## 엔테로바이러스 검출을 위한 Real-time nucleic acid sequence-based amplification (NASBA), Reverse transcription-PCR (RT-PCR) 및 바이러스 배양법의 비교

나영란 · 조현철 · 이영숙 · 빈재훈 · 최홍식 · 민상기

부산광역시보건환경연구원

### Comparison of the Real-Time Nucleic Acid Sequence-Based Amplification (NASBA) Assay, Reverse Transcription-PCR (RT-PCR) and Virus Isolation for the Detection of Enterovirus RNA

Young-Ran Na, Hyeon-Cheol Joe, Young-Suk Lee, Jae-Hun Bin, Hong-Sik Cheigh and Sang-Kee Min

*Division of Epidemiology, Busan Institute of Health and Environment, Busan 613-104, Korea*

#### Abstract

Rapid detection of enterovirus (EVs) is important in the management of aseptic meningitis. We examined the relative efficiency and specificity of the real-time nucleic acid sequence-based amplification (NASBA) comparing with the established reverse transcription polymerase chain reaction (RT-PCR) and viral culture method which were used for the detection of enterovirus RNA in clinical specimens. Of the total 292 samples, 145 were found to be positive to enterovirus RNA by real-time NASBA, 101 were positive by viral culture, and 86 were positive by RT-PCR. 147 samples and 46 samples were determined to be negative and positive by all methods respectively, but 4 samples were positive only by real-time NASBA. To compare the specificity of each method, various clinical samples which were diagnosed for herpes simplex virus (HSV)-1, HSV-2, adenovirus, mumps, and rhinovirus were applied. Except one rhinovirus sample which was false positive to enterovirus RNA by RT-PCR, the other different samples were negative to all three methods. The real-time NASBA procedure can be completed within 5 hours in contrast with 9 hours for the RT-PCR and 3-14 days for the viral culture. From this study, it was suggested that the real-time NASBA assay could be a standardized, rapid, specific, and sensitive procedure for the detection of enterovirus RNA.

**Key words** : Enterovirus, real-time NASBA, RT-PCR, viral culture

Journal of Life Science 2008 Vol. 18, No. 8, 1083-1089

## 부산지역 설사환자에서 분리한 MRSA 균주의 다양성 분석

최성화\* · 박은희 · 박연경 · 김정아 · 김남호 · 이영숙 · 빈재훈 · 박호국

부산광역시보건환경연구원

(Received April 24, 2008/ Accepted August 18, 2008)

### Analysis of the Diversity of Methicillin Resistant *Staphylococcus aureus* (MRSA) Strains Isolated from Diarrhea Patients in Busan Area

Seong-Hwa Choi, Eun-Hee Park, Yon-Koung Park, Joung-A Kim, Nam-Ho Kim, Young-Suk Lee, Jae-Hun Bin and Ho-Kuk Park

*Busan Metropolitan City Institute of Health & Environment, Busan 613-806, Korea*

#### Abstract

We investigated the molecular epidemiological characteristic of methicillin resistant *Staphylococcus aureus* (MRSA) strains isolated from stool samples in Busan from 2004 to 2006. Among 142 isolates of *S. aureus*, 49 isolates (34.5%) were confirmed as MRSA. With the antimicrobial susceptibility tests, 37 isolates (75.5%) showed multiple resistance to more than 10 antibiotics, but all isolates were sensitive to vancomycin. All of MRSA had enterotoxin A in 30.6%, B 4.1%, C 8.3%, D, C/G, A 2.0% and None 51%. PFGE of Sma I-digested chromosomal DNA was performed on 49 sporadic MRSA isolates. Restriction fragment patterns consisted of 8 to 14 fragments ranged in size from 48.5 to 630.5 kbp. We could divided the isolates into 7 groups (I~VII) by analyzing PFGE patterns. Group I subdivided as 2 subgroups and 17 (34.7%) strains belong to the group I. Dendrogram of PFGE patterns showed that MRSA strains in Busan were heterogeneous but we could find out minor homogeneity in hospital.

**Key Words** : Methicillin resistant *Staphylococcus aureus* (MRSA), Antimicrobial susceptibility, MecA gene, Enterotoxin, PFGE

Journal of Life Science 2008 Vol. 18, No. 6, 845~851

## β-lactam계 항생물질 저항성을 지닌 *Bacillus* sp. J105 균주로부터 분비되는 베타 락탐분해효소의 정제 및 특성

조경순 · 강병원<sup>1</sup> · 서민정<sup>2</sup> · 이영춘<sup>2</sup> · 이재현<sup>3</sup> · 주우홍<sup>4</sup> · 최영현<sup>5</sup> · 임학섭<sup>6</sup> ·  
김정인<sup>7</sup> · 서권일<sup>8</sup> · 정영기<sup>2,6\*</sup>

부산광역시 보건환경연구원, <sup>1</sup>동아대학교 BK21 실버바이오 사업단, <sup>2</sup>동아대학교 생명공학과, <sup>3</sup>동아대학교 유전공학과,  
<sup>4</sup>창원대학교 생물학과, <sup>5</sup>동의대학교 한의과대학 생화학교실, <sup>6</sup>(주)천년약속 바이오연구소, <sup>7</sup>인제대학교 식품생명과학부,  
<sup>8</sup>순천대학교 식품영양학과

Received April 8, 2008 / Accepted May 2, 2008

### Purification and Characterization of β-lactamase Secreted from *Bacillus* sp. J105 Strain having β-lactam Antibiotics Resistance.

Kyung-Soon Cho, Byoung-Won Kang<sup>1</sup>, Min-Jeong Seo<sup>2</sup>, Young-Choon Lee<sup>2</sup>, Jai-Heon Lee<sup>3</sup>,  
Woo-Hong Joo<sup>4</sup>, Yung-Hyun Choi<sup>5</sup>, Hak-Seob Lim<sup>6</sup>, Jeong-In Kim<sup>7</sup>,  
Kwon-Il Seo<sup>8</sup> and Yong-Kee Jeong<sup>2,6\*</sup>

#### Abstract

β-lactamase, secreted from *Bacillus* sp. J105 strain was purified to a single band on SDS-PAGE by ammonium sulfate precipitation, ion exchange column chromatography and gel-filtration. The molecular weight of the purified enzyme was 31 kDa on SDS-PAGE and its isoelectric point was 7.35. Optimal pH and temperature for enzymatic reaction were 5 and 40°C, respectively. As a result of total amino acid composition analysis of the purified enzyme, Gly and Ala were occupied 14.1 and 13.3 mole %, respectively. Km and Vmax value of purified enzyme were 1.33 mW and 0.36 mW/ml using ampicillin as a substrate, respectively.

**Key words :** Antibiotics, *Bacillus* sp. J105, β-lactamase, β-lactam, Enzyme purification

Journal of Life Science 2009 Vol. 19, No. 2, 234~240

## 부산지역 유흥업소 종사 여성의 HPV 감염 및 유전자형 분포조사

민상기\* · 김성순<sup>1</sup> · 최병선<sup>1</sup> · 조경순 · 이주연 · 김성준 · 빈재훈 · 박호국

부산광역시보건환경연구원, <sup>1</sup>질병관리본부 국립보건연구원 면역병리센터 에이즈·종양바이러스팀

### Prevalence of HPV Infection and HPV Genotype Spectrum among Sexually High-Risk Women in Busan

Sang-Kee Min\*, Sung-Soon Kim<sup>1</sup>, Byeong-Sun Choi<sup>1</sup>, Kyung-Soon Cho

Joo-Yun Lee, Seong-Joon Kim, Jae-Hun Bin and Ho-Kuk Park

*Division of Epidemiology, Busan Institute of Health and Environment, Busan 613-104, Korea*

*1Division of AIDS, Center for Immunology and Pathology, National Institute of Health, Korea Center for Disease Control & Prevention, Seoul 122-701, Korea*

#### Abstract

We tried to analyze the HPV prevalence and HPV genotypes of sexually high-risk women living in Busan, the biggest seaport of South Korea. Six hundred sixty women engaging in high-risk occupations participated in this study. The prevalence of HPV infection and HPV genotyping were determined with MyGene® HPVDNA chip, which consisted of 16 high-risk HPV genotypes (oncogenic genotypes) and 8 low-risk HPV genotypes. The overall prevalence of HPV infection in this study population was 39.1% (258/660) and the 20's showed the highest prevalence of HPV infection (51.5%). The dominant HPV genotypes including single or multiple HPV-infected women were resulted in HPV-16 (15.9%), -53 (10.2%), -58 (7.7%), -18 (5.2%) in case of high-risk HPV genotype and HPV-70 (10.4%), -6 (4.1%), -11 (2.0%) in case of low-risk HPV genotypes. Remarkably, the proportion of women infected with high-risk HPV genotypes (62.0%) was almost four times higher than those of women infected with low-risk HPV genotypes (14.7%) and high/low-risk HPV genotypes (12.0%). Among the 258 HPV-infected women, single infection was 175, double infection 66, triple infection 12, quadruple infection 4, quintuple infection 1, respectively. Our finding suggests that the introduction and development of effective HPV vaccines should consider the current status of HPV genotypic infection in South Korean women.

**Key Words** : HPV genotype, HPVDNA chip, Sexually high-risk women

Korea Journal of Pediatrics 2008 Vol. 18, No. 6, 845-851

## Respiratory Syncytial Virus 감염진단을 위한 신속항원검사의 유용성

김형수 · 김희라 · 박기형<sup>1</sup> · 조경순<sup>2</sup>

부산의료원 소아청소년과, 진단검사의학과<sup>1</sup>, 부산광역시 보건환경연구원<sup>2</sup>

### Clinical Usefulness of Rapid Antigen Test on the Detection of Respiratory Syncytial Virus Infection.

Hyung-Su Kim, M.D., Hee-La Kim, M.D., Ki-Hyung Park, M.D.<sup>1</sup>  
and Kyung-Soon Cho, Ph.D.<sup>2</sup>

*Department of Pediatrics, Clinical Pathology<sup>1</sup>, Busan Medical Center, Busan, Korea, Bacteriology division<sup>2</sup>, Busan Metropolitan City Institute of Health & Environment, Busan, Korea*

#### Abstract

Respiratory syncytial virus (RSV) is the most important cause of lower respiratory infections in infants, young children and adults. Early detection allows cohorting of infected inpatients to prevent nosocomial transmission and consideration of treatment. To achieve rapid reporting, to facilitate prompt antiviral therapy and to avoid unnecessary use of antibiotics, an easy, rapid diagnostic method for RSV is needed. We evaluated a lateral flow immunochromatography (RSV Respi-Strip test) compared to RT-PCR.

From April 2007 to March 2008, 112 consecutive respiratory specimens from patients who were suffering from clinical signs and symptoms of respiratory tract infection were enrolled in our society. A total of 112 patients were tested with RSV Respi-Strip (Corio-BioConcept, Belgium), EIA and RT-PCR at the same time. Of the 112 specimens tested, children who showed positive results at RT-PCR numbered 45. Respi-Strip rapid antigen test had a sensitivity of 88 percent and a specificity of 94 percent. The positive and negative predictive values were 90 percent and 92 percent, respectively.

In our study, rapid antigen test has much sensitivity as any method for detection of RSV. Many advantage such as easy performance, simple interpretation and rapid results are existed. If rapid antigen test is widely applied in the clinic, rapid antigen test may be useful for diagnostic and epidemiological studies of RSV infection.

**Key Words** : Respiratory syncytial virus, Rapid antigen test

Kor J Vet Serv (2007) 31(1) : 17-29.

## 유통되는 쇠고기에서 분리한 대장균의 항생제 내성 조사연구

김홍태<sup>†</sup> · 이우원 · 정경태 · 이승미 · 손은정 · 이강록 · 김금향 · 이동수 · 이근우<sup>1</sup>

부산광역시 보건환경연구원 축산물위생검사소, 경북대학교 수의과대학<sup>1</sup>

(접수 2008. 3. 7, 게재승인 2008. 3.26)

### Study on Antimicrobial Resistance of *Escherichia coli* isolated from domestic beef on sale

Hong-Tae Kim<sup>†</sup>, Woo-Won Lee, Kyung-Tae Jung, Seung-Mee Lee, Eun-Jung Son, Gang-Rok Lee,  
Geum-Hyang Kim, Dong-Soo Lee and Keun-Woo Lee<sup>1</sup>

Veterinary Service Laboratory, Busan Metropolitan City Institute of Health and Environment, Busan, 616-810, Korea

<sup>1</sup>College of Veterinary Medicine, Kyungpook National University, Daegu, 702-701, Korea

(Received 7 March 2008, accepted in revised form 26 March 2008)

#### Abstract

In this study, antimicrobial resistance of *E coli* isolated from domestic beef on sale in Busan and Gyeongnam province was investigated from March to October 2007. A total of 600 beef samples were collected for the monitoring of antimicrobial resistance, and 92 (15.3%) strains of *E coli* were isolated. Antimicrobial resistance test was carried out by agar disc diffusion method with 17 antimicrobials. In general, *E coli* isolates showed the highest antimicrobial resistance to doxycycline (73.9%), followed by tetracycline (70.7%) and cefazolin (63.0%). Then they showed higher resistance to several antimicrobials like norfloxacin (48.9%). However, They had low antimicrobial resistance to amikacin (4.3%), colistin (1.1%). Of 92 isolates, 82 (89.1%) were resistant to more than 2 antimicrobials. Among 17 antimicrobials examined, tetracyclines were the most resistant, followed by cephalosporins, quinolone. The resistance was seemed to be correlated to amounts of antimicrobial use. In the result of this study, we suggest that

**Key words** : Antimicrobial resistance, Antimicrobials, *E coli*, Beef.

25<sup>th</sup> International HPV Conference,  
2008. 5. 10-15, 체코 프라하

## High-Risk HPV Genotypic Spectrum in Korean Commercial Sex Workers

Byeong-Sun Choi<sup>1</sup>, Sang-Kee Min<sup>2</sup>, Hyuk Chu<sup>1</sup>, Seong-Joon Kim<sup>2</sup>, and Sung Soon Kim

<sup>1</sup>*Division of AIDS, Center for Immunology and Pathology, National Institute of Health, Seoul, South Korea*

<sup>2</sup>*Division of Epidemiology, Busan Metropolitan City Institute of Health and Environment, Busan, South Korea*

### Abstract

**Objectives:** The endemic HPV-genotype spectrum was very different according to the geographical regions and the epidemiological groups. We investigated the distribution of high-risk HPV genotypes for commercial sex workers to make the road map for launching the developed HPV vaccines into our country. **Methods:** 1,077 women engaging in sexually high-risk occupations were enrolled in this study. The distribution of high-risk HPV genotypes was investigated with HPV-DNA chips developed by Biomedlab and MyGene Inc. **Results:** The prevalence of HPV infection and high-risk HPV genotype in Korean commercial sex workers was 40.0 % (431/1,077) and 28.4 % (306/1,077), respectively. The dominant HPV genotypes were HPV-16 (25.0 %), HPV-58 (11.3 %), HPV-53 (9.0 %), HPV-18 (8.2 %), and HPV-51 (8.0 %). Only one-third of 388 HPV-infected women were infected with HPV16 and/or 18, HPV genotypes used for developing the HPV vaccines. Also, the type of HPV infection in 388 HPV-infected women was 49.2 % in single infection and 78.9 % in high-risk HPV genotype infection, respectively. **Conclusions:** Our results suggest that the expanded HPV genotypic spectrum should be investigated for the development of effective HPV vaccines in our country as well as the launch of the developed HPV vaccines such as Cervarix and Gardasil.

**Key words :** HPV-DNA chip, High-risk HPV genotype, Commercial sex workers

2008년 한국가축위생학회 춘계학술대회  
2008. 10. 9 ~ 10. 0, 광주광역시.

## 축산물가공품 중 타르색소의 정제과정 확립 및 HPLC 분석조건 연구

이승마· 정경태· 김홍태· 이우원· 이강록· 김금향· 이동수

부산광역시 보건환경연구원 축산물위생검사소

### 서 론

합성색소인 타르색소는 미량이지만 장기간 노출 시 생체기능에 변화를 가져오고 발암성 및 유전적인 독성 등 안전성에 영향을 미친다고 보고되어있어 이들에 대한 안전성 및 유해성에 대한 논란이 계속 제기되고 있다. 현재 식품공전과 '축산물 가공기준 및 성분규격'에 따른 타르색소의 분석법은 모사염색 추출 후 종이크로마토그래피 (paper chromatography)나 박층크로마토그래피 (thin layer chromatography, TLC)에 의한 정성분석으로 이 방법은 여러 요인에 의해 정밀도와 정확도가 떨어지고 있다. 본연구에서는 고성능액체크로마토그래피 (HPLC)를 이용하여 허용 타르색소 9종을 포함한 12종의 타르색소에 대한 각각의 분석과 동시분석 및 정제 방법을 확립하여 축산식품 검사에 적용가능성을 알아보고자 하였다.

### 재료 및 방법

식육가공품 3품목 24종을 대상으로 허용 타르색소 9종, 비허용 색소 3종의 타르색소 개별 및 동시분석을 실시하였다. 개별 및 동시분석을 위한 HPLC 분석조건과 컬럼을 비교하였으며 회수율 측정을 통한 시료전처리 방법을 비교하였다.

### 결 과

색소의 개별 및 동시분석을 위한 HPLC분석조건 검토 결과 4 종류의 역상컬럼 중 XBridge C18에서 12종의 모든 색소가 25분 이내에 안정적으로 분리되었고 자외선 검출기에 따른 크로마토그램에서 동시분석의 경우 254 nm, 계통분석은 황색계통 420 nm, 적색계통 520 nm 그리고 청색 및 녹색계통은 620 nm에서 가장 높은 흡광도를 보였다. 계통별 색소표준액의 농도변화에 따른 크로마토그램의 상관관계는 양호한 직선성 ( $r^2$  0.999)을 나타내었으며 시료용액 조제방법으로 공전법인 모사염색법과 고체상 추출법을 이용하여 회수율을 비교한 결과 모사염색법은 69.5%, 고체상추출법을 이용한 경우는 86.6%로 나타났다. 또한 유통 중인 축산식품을 대상으로 분석한 결과 타르색소가 검출되지 않았다.

### 참고문헌

1. 박성관, 이달수, 박승국. 2004. 식품 중 식용타르색소의 시료별 전처리방법 확립 및 함량 분석. 한국식품과학회지 36(6) : 893-899
2. 박성관, 홍 연, 정용현 등. 2001. 식품 중 타르색소의 동시분석 및 계통분석을 위한 HPLC 분석조건 및 정제과정 확립. 한국식품과학회지 33(1) : 33-39
3. Berzas Nevado, J.J. et al. 1998. Resolution of ternary mixtures of tartrazine, sunset yellow and ponceau 4R by derivative spectrophotometric ratio spectrum-zero crossing method in commercial foods. Talanta 46: 933-942



2008년 한국환경분석학회 춘계학술대회  
2008. 5. 22 ~ 5. 23, 서울대학교

## 부산지역 대기 중 계절별 다환방향족탄화수소류 분포특성

조은정<sup>†</sup> · 정태욱 · 정재은 · 김성림 · 빈재훈  
부산광역시 보건환경연구원

### Seasonal Distribution Characterization of PAHs in Atmosphere of Different Sites in Busan City

Eun-Jeong Cho<sup>†</sup>, Tae-Uk Jeong, Jae-Eun Jeong, Seong-Lim Kim, Jae-Hoon Bin  
*Busan Institute of Health and Environment, 1276-1, Kwangan 4-dong,  
Suyoung-gu, Busan City, 613-806, Rep. of Korea*

#### Abstract

Polycyclic aromatic hydrocarbons(PAHs) are derived mainly from anthropogenic activities and ubiquitous environmental pollutants of public concern. PAHs are generated by incomplete fuel combustion, domestic and industrial wastewater and its refined products. So in this study, the ambient air divided by particulate/gas fraction was seasonally sampled from four different areas such as industrial area, commercial area, residential area and green area as background area in Busan city. The ambient air samples were collected between January 2007 and October 2007, using high volumn air sampler.

Total PAHs and carcinogen PAHs were highest in Gamjeon dong as industrial site. The average ratio of carcinogen PAHs/total PAHs in January was higher than any other sampling time with 0.58. And the source of PAHs was considered by pyrolysis orgin judging from the ratio of phenanthrene/anthracene and fluoranthene/pyrene.

**Key words** : PAHs, Ambient, Distribution characteristics

2008년 한국환경분석학회 춘계학술대회

2008. 5. 22 ~ 5. 23, 서울대학교

## 부산시내 오염원별 토양 중 PCDDs/PCDFs의 분포특성에 관한 연구

정태욱 · 정재은 · 조갑제 · 조은정 · 최진택 · 김광수 · 빈재훈 · 박호국

부산광역시 보건환경연구원

### The Study on Distribution of PCDD/PCDF in Soils from Various Sites in Busan City

Tae-Uk Jeong, Jae-Eun Jeong, Gab-Je Cho, Eun-Jeong Cho, Jin-Taek Choi, Kwang-Soo Kim, Jae-Hun Bin  
and Ho-Guk Park

*Busan Institute of Health and Environment, 1276-1, Kwangan 4-dong,*

*Suyeong-gu, Busan City, 613-806, Rep. of Korea*

### Abstract

In this study, the distribution characteristics of PCDDs/PCDFs congeners in soil samples according to the source of pollution in Busan city were determined. Soil samples were collected in May 2007 in period of about 4 weeks from 28 sampling sites distributed through the Busan city. Each concentration of 28 soil samples ranged from 0.5 to 322.7 pg I-TEQ/g, with a mean value of 33.6 pg I-TEQ/g. In the case of mean dioxin concentration according to the source of pollution, that in waste related areas was higher than any other area with 78.7 pg I-TEQ/g, followed by scrap iron loading areas with 50.7 pg I-TEQ/g. The mean concentration of PCDDs/PCDFs was in order of waste related areas > scrap iron loading areas > metal refinery areas > traffic related areas > industrial areas > other. In spite of the various monitoring sites, the majority of soil samples had the same dioxin congener profiling. The concentration of PCDFs were higher than that of PCDDs by approximately three times and 2,3,4,7,8-PeCDF among PCDFs is major contributor in soil samples.

**Key words** : PCDD, PCDF, Soil, Source of pollution

2008년 한국환경분석학회 추계학술대회

2008. 11. 6 ~ 11. 7, 제주 KAL호텔

## 신평장림지방산업단지 주변 학교운동장 토양의 PCDD/PCDFs, Co-PCBs, PAHs와 중금속류 분포특성 연구

조은정, 지화성, 정태욱, 조갑제, 김성림, 김광수, 빈재훈, 박호국  
부산광역시 보건환경연구원

The Study on Distribution Characteristics of PCDD/PCDFs, co-PCBs, PAHs and Heavy Metals in Soil Collected from School Playgrounds around the Local Industrial Complex, Sinpyeong-Jangnim Busan

Eun-Jeong Cho, Hwa-Seong Ji, Tae-Uk Jeong, Gab-Je Cho, Seong-Lim Kim, Kwang-Soo Kim,  
Jae-Hoon Bin and Ho-Guk Park

*Busan Institute of Health and Environment, 1276-1, Kwangan 4-dong,  
Suyoung-gu, Busan City, 613-806, Rep. of Korea*

### Abstract

This study was performed to examine the distribution characteristics and concentration of PCDD/PCDF, Co-PCB, PAH and metals in topsoil(0~15 cm) collected from school playgrounds around the Sinpyeong-Jangnim Local Industrial Complex, Busan city and to investigate their relationship with major pollution sources.

PCDD/PCDFs mean value of 0.41 pg I-TEQ/g and Co-PCBs mean value of 0.03 pg WHO-TEQ/g. Total PAHs contents ranged between 37.012 ng/g and 627.858 ng/g. Major heavy metals that detected the area were Zn, Cd, Cr, Pb, and Hg. The correlation analysis and principal component analysis revealed significant correlations between Cd, Zn and Hg, between Pb and As, and between Cr and Ni.

**Key Words** : PCDD, Co-PCBs, PAHs, Heavy metals, Topsoil

2008년 한국환경분석학회 춘계학술대회

2008. 5. 22 ~ 5. 23, 제주 KAL호텔

## 부산지역 하상퇴적물 중의 환경유해물질 분포특성 연구

정태욱·김봉기·정재은·정경원·조은정·정승열·최진택·김광수·김성림·빈재훈·박호국  
부산광역시 보건환경연구원

### The Study on Distribution Characteristics of Environmental Hazardous materials in Stream Sediments in Busan city

Tae-Uk Jeong, Bong-Ki Kim, Jae-Eun Jeong, Kyung-Won Jeong, Eun-Jeong Cho, Seung-Ryul Jeong, Jin-Taek Choi, Kwang-Soo Kim, Seong-Lim Kim, Jae-Hun Bin and Ho-Guk Park

*Busan Institute of Health and Environment,*

*1276-1, Kwangan 4-dong, Suyeong-gu, Busan City, 613-806, Rep. of Korea*

### 요 약 문

도심을 통과하는 하천에는 각종 생활하수나 산업폐수가 유입되고 있으며, 하천으로 유입되는 오염물질들은 궁극적으로 퇴적물의 형태로 저장되기 때문에 퇴적물의 오염현황 파악이 하천생태계의 오염현황을 파악하는데 중요한 의미를 갖는다. 따라서 본 연구에서는 부산지역 하천의 퇴적물 중의 다이옥신, PCBs, PAHs 및 중금속 등 환경유해물질들의 오염정도를 파악하였다. 조사대상 전지역의 다이옥신 및 Co-planar PCBs의 평균농도는 각각 약 336.3 pg-TEQ/g 및 7.52 pg-TEQ/g이었으며, 공업지역을 지나는 하천의 퇴적물에서 오염이 심하였다. PAHs 또한 이와 유사한 경향이었으며, 조사지역 전체 평균농도는 약 12.58 ug/g이었다. 중금속은 Cu, Cd, Pb, Zn, Mn, Hg 및 Cr<sup>6+</sup> 등을 조사하였으며, 그 결과 전체 평균은 Zn > Mn > Pb > Cu > Cd > Hg 순으로 높게 검출되었으며, Cr<sup>6+</sup>은 검출되지 않았다. 조사지역별 분포특성은 다른 환경유해물질들의 분포특성과 유사하게 나타났다.

**Key words** : Dioxin, Coplanar PCBs, PAHs, Heavy metals