VIRULENCE GENES, ANTIBIOTIC RESISTANCE, AND INTEGRON IN *ESCHERICHIA COLI* OBTAINED FROM DOMESTICATED ANIMALS AND HUMANS IN KOREA

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**Background:** Korea has been known as one of the industrialized countries using excessive amount of antibiotics in the past. Antibiotic resistant pathogenic *Escherichia coli* cause severe disease.

**Objectives:**
1. Distribution of 4 virotypes of *E. coli* (EPEC, ETEC, EIEC, and EHEC) in humans and animals
2. Antibiotic resistance profile using *E. coli* isolates.

**Methods:**

*E. coli isolation* from humans, chickens, ducks, cows, and pigs was done using mTEC agar plates.

**Antibiotic resistance test** was performed according to CLSI standard1.

Virulence genes and integrase gene detection was performed using PCR targeting *eaeA*, *hlyA*, *stx1*, *stx2*, *est*, *elt* and *ipaH*, and *int*, respectively.

**Results:** The distribution of *Escherichia coli* virotypes of Enteropathogenic *E. coli* (EPEC), Enterohemorrhagic *E. coli* (EHEC), Enteroinvasive *E. coli* (EIEC) and Enterotoxin producing *E. coli* (ETEC), were determined using multiplex PCR. Total 89 unique strains were assigned to the 4 virotypes as follows: EHEC (18 strains), EIEC (41 strains), EPEC (9 strains) and ETEC (14 strains). Antibiotic resistance tests were conducted with 15 antibiotics coupled with PCR targeting integrase. Overall, high percentage of antibiotic resistant strains were observed in Tetracycline, Streptomycin, and Sulfamethoxazole (average 54.7%, 36.0%, and 34.4%, respectively), while pig isolates showed the highest percentage at average-resistance 38%, followed by chicken (26.2%) and beef cattle (15.2%). In addition, total 208 strains were found to have integrase genes. The highest percentage of integrase positive strains were observed in pig isolates at 46.1%, followed by chicken and duck isolates (26.0% and 25.3%, respectively).

**Conclusions:** These antibiotic resistant pathogenic strains should be monitored. Antibiotic use should be re-considered.