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Multi-Drug Resistance of Listeria spp. Isolated From Livestock Products and Their Related Environmental Areas

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Introduction

Listeria spp. are ubiquitously distributed in the environment. Of the listerial species, *Listeria monocytogene* is responsible for severe food-borne infections with a high case fatality rate in susceptible animal and human hosts. In ruminants, it is responsible for different clinical manifestation, such as septicemia, meningitis, abortion, or mastitis. It can cause serious infections such as meningitis or septicemia in newborns, immunocompromised patients, and the elderly. Although human listeriosis occurs only sporadically severe outbreaks with increased antibiotic resistance have been observed during the last two decades.

This study was carried out to investigate the antibiotic susceptibilities of *Listeria* spp. isolated from livestock products and their related environmental areas.

Materials and Methods

Total 89 strains were isolated from poultry meats, pork, patties, animal feces, dry cattle food, and knife of pig slaughter-house in Kyonggi province during 1998 to 2002. Antibiotic susceptibility test of all *Listeria* strains isolated were performed by disk agar diffusion method using 14 antibiotics as follows; Amikacin (Ak), Ampicillin (Am), Cephalothin (Ct), Chloramphenicol (Ca), Erythromycin (Em), Gentamicin (Gm), Imipenem (Ip), Kanamycin (Km), Ofloxacin (Ox), Penicillin (Pc), Streptomycin (Sm), Tetracycline (Te), Trimethoprim (Tm), and Vancomycin (Vm).

Results and Discussion

Of the 66 L. *monocytogenes* isolates, 62.1% were resistant to Te, 4.5% to Ca, and 1.5% to Em, and intermediate 65.2% to Pc, 37.9% to Ca, 19.7% to Ox, 10.6% to Te, and 1.5% to Sm and Ct, respectively. Of 17 L. *innocua*, 94.1% were resistant

to Te, 41.2% to Sm, and 5.9% to Ca. Of 6 L. *welshimeri*, 16.7% were resistant to Te and Ca, respectively. However, all isolates were 100% sensitive to antibiotics such as Am, Gm, Ip, Km, and Tm. The multiple resistance patterns of L. *monocytogenes* isolates were observed in Te · Ca (4.5%) and Te · Em (1.5%). Of L. *innocua* isolates, the resistance patterns were Te · Sm (41.2%) followed by Te · Ca (11.8%). The study indicated that food-borne pathogen, *Listeria* spp, was frequently isolated from animal products and further, they could increasingly acquire multiple antimicrobial resistant properties.

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