

Lactic acid bacteria have been considered as the most beneficial probiotic organisms contributing to inhibition of harmful and putrefactive intestinal bacteria. Among them, Bifidobacterium spp. has been considered as one of the most beneficial probiotic organism that can improve the health of humans, since it is one of the major bacteria flora in human intestine. However, the harmful enzyme-inhibitory activity of lactic acid bacteria of Kimchi, which is a representative Korean fermented food has not been evaluated. We isolated one hundred lactic acid bacteria from Baechu- and Mu-Kimchi and the inhibitory effects of these isolated bacteria on harmful enzymes of human intestinal microflora were examined by cocultivation of the isolated bacteria with E. coli or total human intestinal microflora. In comparison with the results of E. coli or intestinal microflora cultivation, Kimchi lactic acid bacteria effectively inhibited harmful enzymes (b-glucuronidase and tryptophanase) of E. coli and lowered the pH of the culture media. Among tested lactic acid bacteria, Lactobacillus B-1 and Leuconostoc M-5 showed the highest inhibitory effect of fecal harmful enzymes.

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### The effects of chitosan complex on the various bacteria

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To assess the effect of chitosan complex with metal ion on various pathogenic bacteria, the antibacterial activities were investigated. Arsenic, bismuth, calcium, iodine, iron, mercury, platinum, and silver were used as a metal ion. Staphylococcus aureus, Streptococcus mutans, Helicobacter pylori, Propionibacterium acnes and human saliva were examined. It was demonstrated that metal ions associated chitosan showed aggregation activities on various pathogens.

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### Monitoring on the Bacterial Resistance to Antibiotics

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In the situation of high bacterial resistance to antibiotics in Korea, to assess diffusion of methicillin-resistant Staphylococcus aureus (MRSA) and levels of bacterial resistance to antibiotics in community, we monitored antibiotic resistance of S. aureus isolates from healthy volunteers of community. From disc diffusion test on 940 nasal S. aureus isolates from 2958 healthy volunteers of the community of six cities (Seoul, Keonggi, Jeonju, Busan, Chuncheon and Chongju) in Korea in 2002, the resistance rates were as follows: penicillin resistant, 84.7%; oxacillin resistant (MRSA), 2.5% ; erythromycin resistant, 23.6%; tetracycline resistant, 12.2%; gentamicin resistant, 11.7%; clindamycin resistant, 1.1%; chloramphenicol resistant, 2.0%; ofloxacin resistant, 0.3%; sulfamethoxazole-trimethoprim (cotrimoxazole) resistant, 1.4%; vancomycin resistant (VRSA), 0%. From mecA-specific polymerase chain reaction, the 29 MRSA isolates were identified to contain the mecA gene. Summarily, in the community 2.5% of nasal S. aureus isolates were MRSA, and the resistance rates of nasal S. aureus isolates were high in the order of penicillin (84.7%), erythromycin(23.6%), tetracycline (12.2%) and gentamicin (11.7%).