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Antibiotic resistance and molecular characterization of *Lactobacillus* and *Streptococcus* thermophilus strains isolated from retail yoghourt in China

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*L*actobacilli and Streptococcus thermophilus are applied in a wide range of food and feed production. Evaluation of the safety of both bacteria as well as the correct identification in the strain selection should take the variety of applications into account. In the present study, *Lactobacillus* and *Streptococcus thermophilus* strains were recovered from yoghourt by plate count method after the optimization of experimental conditions and the recovered strains were characterized by Gram's stain, biochemical test, antimicrobial susceptibility test, 16S rRNA sequence analysis, Pulsed Field Gel Electrophoresis (PFGE) and Matrix-Assisted Laser Desorption/Ionization Time-Of-Flight Mass Spectrometry (MALDI-TOF-MS) methods. Totally, 52 probiotic strains were recovered from 31 yoghourt products, 12(38.7%) products showed a lower probiotic quantity than 1×10⁶ cfu/ml of the national standard. Gram's stain showed that all 52 strains were gram positive, 37 strains were bacilli and 15 strains were coccus. These 52 strains were grouped into six species by biochemical method, including *Lactobacillus bulgaricus*, *Streptococcus thermophilus*, *L. acidophilus*, *L. casei*, *L. delbrueckii* and *L. fermentum*. All strains were susceptible to penicillin and ampicillin, one strain was resistant to clindamycin and four strains were resistant to vancomycin. All 52 strains were further characterized by 16S rRNA sequence analysis and 7 groups were identified as *L. bulgaricus*, *S. thermophilus*, *L. acidophilus*, *L. casei*, *L. delbrueckii*, *L. fermentum* and *S. lutetiensis*. PFGE method was developed and applied for probiotics analysis and 22 PFGE patterns were identified. These 52 strains were grouped into 9 categories by MALDI-TOF-MS method.

Biography

Li has completed her Ph.D from Ehime University, Japan in 2001. She is the director of microbiology laboratory of China national centre for food safety risk assessment. She has published more than 80 papers in reputed journals as either the first or corresponding authors. She gets 2 of the second grade and 5 of the third grade prize of the Science and Technology Progress Award at the provincial and ministerial levels. Meanwhile, she jointly finished more than 20 technical reports on food safety risk assessment that have been adopted by China Ministry of Health.

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