

Characterization of *Listeria monocytogenes* on retail food from Jiangsu province, China

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Abstract. *Listeria monocytogenes* isolates recovered from retail foods were characterized by serotyping, genotyping using pulsed-field gel electrophoresis (PFGE) and antimicrobial susceptibility testing. Six serotypes were identified among the isolates and the predominant serotype was 1/2a (42, 48.8%). PFGE differentiated the 86 isolates into 23 ApaI restriction patterns. Twenty-five (29.1%) of the *L.monocytogenes* strains exhibited resistance to at least one antimicrobial. Resistance to ciprofloxacin (17.4% of the isolates were resistant) and resistance to tetracycline (17.4%) were observed frequently.

Introduction

Listeriosis, a food-borne disease caused by the ubiquitous bacterium *Listeria monocytogenes*, represents an important public health problem [1]. Worldwide, *L.monocytogenes* has been isolated from a variety of food products and most foodborne listeriosis cases are found to be caused by meat, poultry, dairy, and vegetable products [2]. Since foodborne listeriosis was first reported in 1981, numerous foodborne outbreaks of *L.monocytogenes* have been documented all over the world [3].

L.monocytogenes is generally susceptible to a wide range of antibiotics [4]. However, since the isolation of the first multiresistant strain of *L.monocytogenes* in France in 1988 [5](Poyart-Salmeron et al., 1990), *L.monocytogenes* resistance to one or more antimicrobials have been recovered from food, the environment and sporadic cases of human listeriosis [4].

In this study, the three main objectives were: (i) to analyze retail food samples for the presence of *L.monocytogenes*; (ii) to determine serotypes, the pulsed-field gel electrophoresis (PFGE) patterns and antimicrobial susceptibility profile of the isolates.

Materials and methods

Sample collection. Between August 2007 and September 2009, 1459 samples of retail foods were purchased from 78 separate supermarkets and food markets in Jiangsu province in the People's Republic of China. All samples were taken in a sterile plastic bag, labeled with a unique identifying number, and placed into a cooler with ice packs.

***L. monocytogenes* isolates.** A total of 86 *L. monocytogenes* isolates were recovered from retail foods in our study. Their sources and areas of isolation are reported in Table 1. Isolation was conducted by using methods described in Food Hygienic Analytical Manual of the People's Republic of China and National Food Contamination Monitoring-Foodborne Pathogen. The isolates were further identified with by API system (Bio Merieux, France).

Serotyping. *L. monocytogenes* isolates were serotyped with *Listeria* O and H antisera (Denka Seiken, Tokyo, Japan), according to the manufacturer's instructions.

PFGE. PFGE of all isolates was performed using the standard CDC PulseNet protocol in general with minor modification [6].