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Data Article

Data on the phylogenetic typing, integron gene cassette array analysis, multi-drug resistance analysis and correlation between antimicrobial resistance determinants in *Klebsiella* strains

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ABSTRACT

The antimicrobial resistance of *Klebsiella* species in the poultry industry is becoming a public concern. In support our recent publication "Characterization of antimicrobial resistance in *Klebsiella* species isolated from chicken broilers" (Wu et al., 2016) [1], multilocus sequence typing (MLST) and *gyrA* PCR-RFLP assays were conducted to identify the genetic relationships between and phylogenetic groups of the 90 antimicrobial resistant *Klebsiella* species isolated from a commercial broiler slaughter plant in Shandong, China. In addition, PCR-RFLP was performed to identify different gene cassette arrays in class 1 and 2 integrons, and the correlations between different antimicrobial resistance determinants were analyzed.

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Specifications Table

Subject area	Microbiology
More specific subject area	Food safety, antibiotic resistance
Type of data	Table, figure
How data was acquired	PCR, sequencing and statistical analysis
Data format	Analyzed
Experimental factors	Polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP), chi-square tests using SPSS
Experimental features	Identification of phylogenetic groups and different gene cassette arrays in class 1 and 2 integrons of *Klebsiella* species, analysis of the correlations between different antimicrobial resistance determinants
Data source location	Jinan, Shandong province of China.
Data accessibility	The data is available with this article

Value of the data

- The *gyrA* PCR-RFLP assay and MLST analysis in the *Klebsiella* isolates indicate the relationship of epidemiology of drug resistant bacteria in between clinical and poultry industry.
- The PCR-PFLP by *Eco*RII can be applied as a tool for detection of gene cassette arrays of integron 1 or 2.
- The statistical data and finding of a significant association of antimicrobial resistance determinants can be used as references for the investigation of other drug resistant bacteria.

1. Data

MLST was performed using seven housekeeping genes (*rpoB, gapA, mdh, pgi, phoE, infB, and tonB*), and primers of those genes for PCR amplification and sequencing were designed (Table 1) [2]. *gyrA* PCR-RFLP profiles showed nearly all (89/90) of the isolates were identified as KpI-type and only one isolate was KpIII (Fig. 1). Antimicrobial susceptibility to nine antimicrobial agents was tested for the 90 *Klebsiella* isolates [1]. Among the isolates, 96.7% of them were resistant to more than three tested antimicrobial agents as well as 91.1% were resistant to more than three beta-lactam antibiotics (Fig. 2). A significant association between different antimicrobial resistance determinants was analyzed (Table 2). PCR-PFLP patterns of gene cassette arrays for integron 1 or 2 were performed (Fig. 3), and the detailed description was in the original article [1].

2. Experimental design, materials and methods

2.1. PCR Program

PCRs were prepared as follows: a final volume of 25 μl containing 1 μM of each primer, 0.2 mM dNTPs, 1.5 mM $MgCl_2$, and 1 unit of *Taq* polymerase (TransGen Biotech, Beijing, China). The conditions used for amplification were as described by the original article [1].

2.2. Primers designed for the MLST analysis of Klebsiella isolates

The primer pairs for seven housekeeping genes (*rpoB, gapA, mdh, pgi, phoE, infB, and tonB*) were designed for PCR amplification and sequencing (Table 1), as described previously [2].