I prefer:

□ ORAL presentation

☑ POSTER presentation

**Formation and Transmission of the Bacterial Aerosols of *Staphylococcus aureus* (including MRSA) Carrying Antibiotic-resistant Genes in a Chicken Farming Environment**

Tongjie Chai1, Dunjiang Liu2

1.2 Email: [chaitj117@163.com](mailto:chaitj117@163.com,); College of Veterinary Medicine of Shandong Agricultural University, China

**Abstract:**

**Background/Objective:** The formation and transmission of the bacterial aerosols of *Staphylococcus aureus (S. aureus)* in the environment of chicken farm have gained relatively comprehensive understanding, but there is still rather limited understanding concerning the antibiotic-tolerance of the air-borne *S. aureus* and the transmission of the antibiotic-tolerant genes it carries.

**Methods:** Therefore, we isolated 149 *S. aureus* strains from the samples collected from the feces, the indoor air and the outdoor air of 6 chicken farms, and performed the research on them with 15 types of antibiotics and the REP-PCR trace identification. The 100% homologous strains were selected to conduct the research on the carrying and transmission status of the antibiotic-resistant genes.

**Results:** The antibiotic-resistance research with 15 types of antibiotics. The results revealed that for the *S. aureus* isolated from the samples collected from the 6 chicken farms, 5.37% strains (8/149)were resistant to methicillins, 94% strains (140/149) were resistant to compound sulfamethoxazole, 78.5% strains(117/149)were resistant to penicillin, 66.4% (99/149)strains were resistant to erythrocin, 75.2% strains (112/149) were resistant to tetracycline, and they were also resistant to other antibiotics more or less; Most of them were resistant to 4, 5 or 6 types of antibiotics respectively. In addition, these *S. aureus* strainsindicated a resistance to multiple antibiotics.

**Conclusion:** Therefore, the conclusion can be drawn that the *S. aureus* that is antibiotic-tolerant or carries antibiotic-tolerant genes, generated by the chickens can form aerosols, and spread to the environment outside the hen house by air exchanges between the indoor and outdoor air of the hen house. The results showed the airborne transmission not only causes the spread of epidemic diseases but also exerts threats to the public health of a community.

**Keywords:** chicken farming environment; aerosols of *Staphylococcus aureus* including MRSA;antibiotic-resistance and antibiotic-resistant genes; significance to epidemiology and public health.