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Outer Membrane Proteins and DNA Profiles in Systemic and Respiratory Strains of *Haemophilus parasuis*

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Infections by *Haemophilus parasuis* in pigs have been increasingly diagnosed in the last few years. Recent work has attempted to establish and compare the prevalence of different serovars of *H. parasuis* in the United States and Canada. However, this correlation between serovar, site of isolation and disease has not been successfully established.

Recent studies have shown that virulence may be associated with the presence of certain outer membrane proteins. Differences in virulence among strains isolated from different origins has also been reported. The objective of this study was to compare the outer membrane protein and DNA profiles of *H. parasuis* strains isolated from both systemic cases and the respiratory tract of healthy pigs.

Strains used in this study were recovered from cases of polyserositis (28/53), pneumonia (7/53) and the respiratory tract of healthy pigs (18/53). Outer membrane proteins were extracted by sonication and dissolved from the lipid membrane with sodium lauryl sarcosinate. DNA was extracted by boiling and using the phenol chloroform method. After that, a rep-PCR was performed using ERIC 1R and ERIC 2 primers. The outer membrane proteins and DNA profiles were compared after running them in polyacrylamide and agarose gels respectively.

Results from this study showed that strains recovered from systemic cases had similar protein profiles. In contrast, strains isolated from the respiratory tract of healthy pigs showed variable protein profiles. The pneumonic strains were intermediate; they were more homogeneous than the respiratory strains but less so than the systemic strains.

The DNA profiles from strains recovered from systemic cases showed considerable homogeneity. Similarly, DNA profiles from the pneumonic strains were homogeneous, but not identical to those of the systemic strains. Strains from healthy pigs showed variable DNA profiles, which were not identical to the profiles observed in either the respiratory or systemic cases.

In conclusion, protein profiles of the systemic strain suggest that the disease may be produced by a few closely related strains. The DNA profiles from these strains also showed a higher homogeneity than those isolated from healthy pigs. Pneumonic strains were intermediate in homogeneity of both protein and DNA profiles. This suggests that these strains are also closely associated among themselves, but may be different from the systemic strains.