RESEARCH ABSTRACT

PORK SAFETY

Title: A Rapid, Specific Test for *Salmonella* Subtypes - **NPB #99-136**

Investigator: S. P. Oliver

Institution: The University of Tennessee

Co-Investigator: A. G. Mathew

Date Received: 8/8/2000

ABSTRACT

A polymerase chain reaction based enzyme linked immunosorbent assay (PCR-ELISA) was developed to identify Salmonella serovars A, B, C1, C2, and D. Primers were selected from the *rfb* gene cluster, which is responsible for biosynthesis of the O antigens of Salmonella lipopolysaccharide. Forty-eight isolates obtained from porcine feces or lymph nodes following challenge with *Salmonella enterica* serovar Typhimurium or *Salmonella choleraesuis* were tested using the PCR-ELISA procedure. DNA from all isolates were amplified using the PCR procedure for selected serovars and amplified products were visualized on agarose gel electrophoresis, as well as subjected to the ELISA procedure. Those isolates that were identified as positive with the PCR-ELISA with Salmonella primers for serogroup B had a mean absorbance reading of 2.14 +/- 0.57. Negative controls and non-Salmonella bacteria had a mean absorbance reading of 0.27 +/- 0.15. Those isolates that were identified as positive by the PCR-ELISA assay with Salmonella primers for serogroup C1 had a mean absorbance reading of 2.75 +/-0.59. Negative controls and non-Salmonella bacteria had a mean absorbance reading of 0.86 +/- 0.32. Results of the ELISA procedure were verified by agarose gel electrophoresis. All isolates were identified by biochemical and phenotypic characteristics. Of the 48 isolates evaluated, 36 isolates were serovar B, 2 isolates were serovar C1, and 10 were neither serovar A, B, C1, C2 or D. Results of this study indicate this PCR-ELISA procedure appears to be a rapid and accurate method for serogrouping Salmonella isolates.