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## Salmonella Serotype Discrimination of Beef carcasses, lymph nodes and fecal isolates through Pulsed-Field Electrophoresis

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Salmonella is one of the leading causes of foodborne illnesses worldwide; however, in Latin America, few surveillance programs exist leading to limited information about the prevalence and discrimination of this pathogen in all production steps including pre-harvest, and on final products. Traditional serotyping has been widely used for Salmonella identification; however, its limited discriminatory ability has led to the development of different genotypic-based techniques. Pulsed-field gel electrophoresis (PFGE) is the “gold standard” Salmonella subtyping method and plays a key role in the determination of clonal relatedness among isolates. The aims of this study were to (i) analyze the relationship among serotypes and PFGE banding patterns from beef carcasses, lymph nodes and feedlot fecal isolates collected from abattoirs in Mexico to assess genetic diversity and (ii) determine the transmission dynamics of Salmonella subtypes among carcasses, in an attempt to improve interventions at different points in the food chain. A total of 94 Salmonella isolates from samples collected in one slaughter facility in Mexico were analyzed. In addition, 33 confirmed Salmonella isolates from mandibular, mediastinal, and mesenteric lymph nodes and fecal samples from cattle were molecularly characterized by PFGE. Samples were collected in one slaughter facility in Merida (Yucatan), Mexico at three times (November 2010, March 2012, and June 2012) over a two year period. High concordance (88.4%) was found between PFGE banding subtype and conventional serotype; Salmonella Kentucky was found to be the most clonal subtype, while Salmonella Muenster was the most diverse with 11 banding patterns identified. For the second part of the study, six serotypes were identified, Salmonella Poona was found to be the most common and high diversity was observed among serotypes from lymph nodes and fecal isolates from the same animal. The findings of this study suggest PFGE is a suitable method for serotyping discrimination among Salmonella isolates and reflect the need of improving interventions at different points in the food chain to avoid further Salmonella spread among carcasses.