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Shiga-Toxin Producing Escherichia Coli and Salmonella Spp. Prevalence on Sheep Hides Collected Throughout the Harvesting Chain in Various Honduran Slaughter Facilities

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Objectives

This objective of this study was to create a baseline of STEC O157:H7, non-O157:H7, and *Salmonella* spp. prevalence observed on Honduran sheep hides.

Materials and Methods

Sample collection from 68 sheep in Honduran slaughter facilities was performed aseptically, with pre-hydrated, sterile sponge swabs from 100 cm^2 section of the brisket-foreshank region on the hide immediately following exsanguination. Microbial detection of presumptive STEC serogroups and *Salmonella* spp. was performed using the BAX Real-Time PCR system. Presumptive positive STEC serogroups were confirmed through latex agglutination. Additionally, presumptive positive *Salmonella* spp. was confirmed using both, latex agglutination and Real-Time PCR.

Results

Shiga-Toxin producing *Escherichia coli* was observed on 24 out of 68 hides. Serogroups detected on hides included; O26, O45, O145, and O157. Moreover, serogroups O26 and O45 were the most prevalent with 54.17 and 41.67%, respectively. However, only one isolate was detected for serogroups O157 and O145. Furthermore, zero presumptive positive STEC isolates contained O103, O111, or O121 serogroups. Additionally, *Salmonella* spp. was 20.58% less prevalent on hides than STEC. From the observed baseline contamination prevalence of STEC and *Salmonella* spp. on sheep hides in Honduras, additional critical control points, standard operating procedures, and antimicrobial interventions should be implemented to regulate initial pathogen prevalence. Therefore, proper sanitation and hygiene throughout the harvesting chain should be implemented to reduce and mitigate STEC and *Salmonella* spp. contamination on hides.

Conclusion

Implementation of sanitary measures while dehiding the animal will reduce pathogen contamination from hides to sheep carcasses. Overall, STEC and *Salmonella* spp. prevalence on hides need to have microbial interventions implemented, therefore, creating a safer and more wholesome product for consumers.

