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145: INVESTIGATION OF LAMB AS A SOURCE OF SHIGATOXIN-PRODUCING *ESCHERICHIA COLI* IN PORTUGAL

Ana Pereira-Lima, Altino Choupina, Vasco Cadavez, Ursula Gonzales-Barron

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Introduction: The gastrointestinal tract of ruminants constitutes the main natural reservoir of shigatoxin-producing *Escherichia coli* (STEC), which is a serious pathogen that can be transmitted to humans through contaminated raw/undercooked meat products, raw milk and raw vegetables. However, the number of epidemiological studies investigating Portuguese sheep as a source of STEC strains is quite limited. Thus, the objective of this work was to assess the occurrence of STEC in apparently-healthy lambs from Portuguese breeds – Churra-Galega-Bragançana (CGB) and Bordaleira-Entre-Douro-e-Minho (BEDM), and determine the presence of major virulence genes in the isolates.

Methodology: Six sheep farms located in Northeastern Portugal were visited, and recto-anal samples from a total of 50 CGB and 7 BEDM 4-month old lambs were taken, and enriched in 9-mL TSB with 20 mg/L novobiocin. After incubation at 37ºC for 24 h, samples were streaked onto SMAC agar with 0.05 mg/L cefixime and 2.5 mg/L potassium tellurite, and incubated at 37ºC for 24 h. Typical colonies were confirmed biochemically by indole, methyl-red and Voges-Proskauer tests, and serologically by O157 latex agglutination. Purified isolates were subjected to multiplex PCR to determine the genes encoding for shigatoxin (*stx1*, *stx2*), enterohemolysin (*hlyA*), and intimin (*eae*).

Results: From the BEDM breed samples, no *E. coli* O157 was recovered (0/7), while only two shedders of sorbitol-negative *E. coli* were found in the CGB group (incidence 4.0%; 95% CI: 1.1 – 13.5%). PCR analysis of 10 isolates of sorbitol-negative *E. coli* coming from one positive lamb revealed the presence of two different strains, one coding for *stx1* gene (8/10=80%) and the other coding for both *stx1* and *hlyA* genes (3/10=30%). Sorbitol-negative colonies (3) isolated from one animal did not present any of the genes.

Conclusion and Relevance: Although the overall prevalence of shigatoxin-producing *E. coli* in recto-anal contents from apparently-healthy lamb was low (1.75%; 95% CI: 0.09 – 10.63%), these findings are important for public health. Preventive measures are necessary to control the incidence of STEC infections in sheep and people. Good hygiene practices are necessary particularly in the slaughterhouse where contamination of lamb meat and environment with intestinal contents can be prevented.

Keywords: Sheep; recto-anal swab; PCR; virulence