Presence of antibiotic-resistant *Enterococcus faecalis* in colostrum supplied to calves?

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Introduction

Enterococcus faecalis is usually one of the main indicators of fecal contamination and could be associated with nosocomial infections. Antibiotic resistance is a problem in this bacterium because the genes that confer it are often housed in mobile genetic elements, involved in the horizontal gene transfer to other bacteria, namely pathogenic bacteria [1]. Colostrum can be responsible for colonizing calves' gastrointestinal tract by antibiotic-resistant *E. faecalis* [1,2]. In this work, the aim was to characterize antibiotic resistance in *E. faecalis* isolates from colostrum used in the feeding of calves.

Materials and Methods

Nineteen one isolates were recovered using agar selective plates and confirmed by standard biochemical tests.

The antimicrobial susceptibility was performed using 14 antimicrobial agents by the disk diffusion method, according to the Clinical and Laboratory Standards Institute standards.

Results

From 91 isolates, the majority showed antibiotic-resistance to tetracycline (79.1%), erythromycin (79.1%) and streptomycin (57.1%). This was followed by rifampicin (47.3%), chloramphenicol (25.3%) and ciprofloxacin (11.0%). Resistance to the remain antibiotics was below 10%. None isolate showed resistance to ampicillin or gentamicin. All *E. faecalis* isolates were intrinsically resistant to quinupristin-dalfopristin (Table 1).

Table 1. Antibiotic resistance detected in *Enterococcus faecalis* isolates analyzed in this study.

Antibiotic	Resistent isolates	
	Nr.	%
Quinupristin-dalfopristin	91	100*
Tetracycline	72	79.1
Erythromycin	72	79.1
Streptomycin	52	57.1
Rifampicin	43	47.3
Chloramphenicol	23	25.3
Ciprofloxacin	10	11.0
Vancomycin	5	5.5
Linezolid	4	4.4
Fosfomycin	3	3.3
Nitrofurantoin	2	2.2
Teicoplanin	1	1.1
Ampicillin	0	0
Gentamicin	0	0

*: intrinsic resistance.

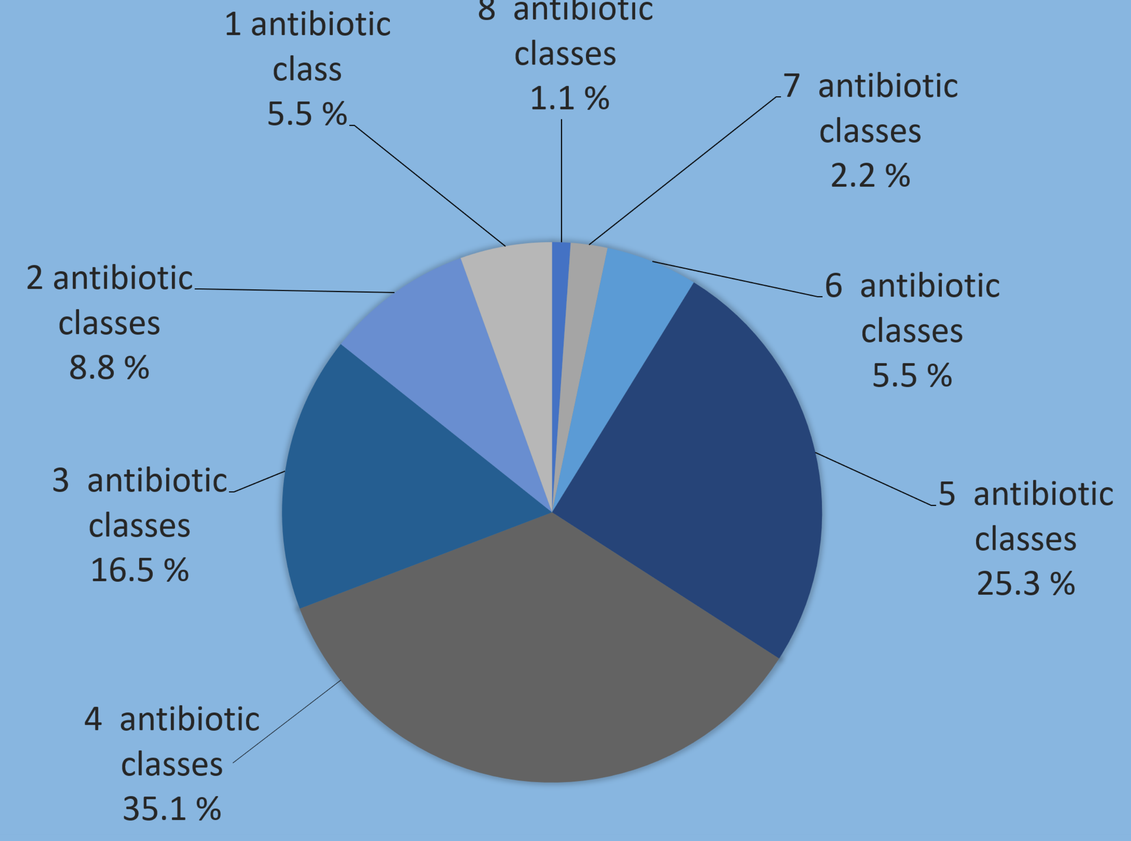

Figure 1. Percentage of *E. faecalis* isolates resistant to different number of analyzed antibiotic classes.

In the 91 isolates analyzed, 85.7% proved to be multidrug-resistant (≥3 antimicrobial classes). In contrast, 14.3% of the isolates did not present multidrug-resistance (Figure 1).

Conclusion

This study showed that colostrum contains multidrug-resistant *E. faecalis* and can constitute a reservoir and vehicle for the transmission of these bacteria. For this reason, more prudent use of antibiotics in the therapy and prophylaxis of cattle is recommended, as well as the correct management of the colostrum.

References

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