Multilocus Sequence Typing of Vancomycin-Resistant *Enterococcus faecium* isolated from pigs in Portugal

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Vancomycin-resistant enterococci (VRE) first appeared in the late 1980s in a few European countries. In the last two decades, however, vancomycin-resistant *Enterococcus faecium* (VREfm) as became an emergent and challenging nosocomial problem. Specific clonal groups of *E. faecium* show an enhanced capacity to disseminate in the nosocomial setting. These strains can be assigned to distinct clonal groups or complexes based on DNA sequence-based typing (multi-locus sequence typing - MLST).

In this context, we used the MLST technic to study the clonal relatedness of 18 VREfm strains previously isolated from pigs at slaughter level, in Portugal. These strains have been phenotypic and genotypic characterized in a previous study (1). For this purpose, internal 400–600-bp fragments of housekeeping genes were amplified and sequenced: *adk*, *atpA*, *ddl*, *gdh*, *gyd*, *purK* and *pst* (2). The sequences obtained were analysed and compared against the [http://mlst.ucc.ie/](http://mlst.ucc.ie/) database. The combination of the seven obtained alleles, for each isolate, allows us to determine the corresponding sequence type (ST) and clonal complex (CC).

MLST analyses revealed sequence type 5 (ST5) (*n* =5) and ST139 (*n*=12). These *E. faecium* sequence types belong to clonal complex 5 (CC5). Although ST139 is farthest from ST5, from which differs in three alleles, it also belongs to CC5. Strains belonging to CC5 are recognized to be circulating among European pigs. Although *E. faecium* CC5 are commonly found among animals they have also been isolated from humans. Furthermore, four of the isolates assigned to ST5 showed high-level resistance (HLR) to kanamycin and streptomycin, what can be of concern. In case of severe enterococcal infections the synergistic and bactericidal therapy can be reliably achieved with the addition of an aminoglycoside to β-lactam antibiotics (or other cell wall agent such as vancomycin), as long as the organism does not exhibit HLR to the aminoglycoside.

The recovery of *E. faecium* CC5 clone from slaughtered animals is of concern, since these strains may have the ability to either colonize humans or cause human infections.

**Keywords:** MLST, VREfm, Pigs
