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TITLE

STUDY OF ANTIBIOTIC RESISTANCE GENES AND VIRULENCE FACTORS IN PASTEURELLA MULTOCIDA STRAINS ISOLATED IN SPAIN

Maximo Petrocchi[1], César B. Gutiérrez Martín[1], Juan Ignacio Méndez Hernández[1], Elías F. Rodríguez Ferri[1], Sonia Martínez Martínez[1]

[1] *University of León*

CONTENT

Background and objectives: The study of the antibiotic resistance genes and the virulence factors on Pasteurella multocida isolates from porcine lungs recovered in Spain has been carried out.
Material and methods: The detection of the resistance genes to antibiotics was determined using PCR. A total of eight genes were tested. The resistance mechanisms induced by the expression of these genes were directed against three families of different antibiotics: tetracyclines, ?-lactams and macrolides. The detection of genes codifying virulence factors was also conducted by PCR, A total of nine genes were analyzed.
Results: tetA and tetB are genes codifying resistances to tetracyclines. tetB was found in 51.3% of isolates but tetA was not found in any isolate. blaROB1 and blaTEM resistance genes to ?-lactams were expressed in 35.9% and 10.3% of isolates, respectively. Finally, the expression of four resistance genes to macrolides was investigated. ermC, with 51.3%, and msrE, with 30.8% were the most broadly isolated genes. ermA was amplified in 20.5% of the isolates, while mphE was only found in 2.6% of them.
Two of the virulence genes, nanH and Oma87, were found in all isolates. omph, ptfA and sodA were amplified in 94.9% of isolates, while hgbA was found in 92.3% of them. However, pfhA and toxA were only found in 28.2% and 15.4%, respectively, but tbpA was not detected in any isolate.
Discussion and conclusion: Most of the P. multocida tested in this study were resistant to tetracyclines because of tetA gene, while more than a third were to ?-lactams because of blaROB1 gene. On the other hand, nanH, oma87, ompH, ptfA, sodA and hgbA virulence genes were amplied in all or most isolates.