



ISWAVLD 2023

International Symposium of the World
Association of Veterinary Laboratory
Diagnosticians

29 JUNE-1 JULY
2023
Congress Centre
Lyon

Towards
the veterinary
diagnostics
of the
future

Main topic : Antimicrobial resistance: A worldwide concern

Detection by multiplex PCR of resistance to methicillin and production of biofilm in strains of *Staphylococcus aureus* and Coagulase negative *Staphylococcus*

PEREZ-GERARDO M. ¹, HERNÁNDEZ ANDRADE L. ², MENDOZA S. ³, CIPRIAN-CARRASCO A. ³, SANTILLAN-FLORES M. ², PARRA-L

¹ Private Professional, Mexico, Mexico; ² INIFAP, Ciudad de México, Mexico; ³ FES Cuautitlan UNAM, Edo. de Mexico, Mexico; ⁴ Simon Bolivar University, C

Introduction Biofilm production may be mediated by the *ica* operon which includes the *icaA*, *icaB*, *icaC* and *icaD* genes. The *icaA* and *icaD* genes together regulate the p
mastitis by *Staphylococcus aureus* is complicated due to resistance to β -lactams, persistence of infection in the mammary gland due to the production of biof
Methods

The objective of the work was to design a multiplex PCR by means of which the biofilm production capacity, intrinsic resistance to methicillin and the expres
cases could be detected from milk samples of cows with mastitis from Coahuila, Hidalgo and Queretaro, Mexico. *Staphylococcus* were isolated, identified b
D genes (1). DNA extraction was performed from colonies using CTAB, standardized to 20 ng/ μ l. The strains of *Staphylococcus aureus* ATCC 976, 977, 1
products were evaluated by electrophoresis in a 1.5% agarose gel using ethidium bromide, the electrophoresis was run for 90 min at 80 V. Finally the gel was
Results

54 *Staphylococcus* were isolated, of which 22. *Staphylococcus aureus* were identified, of these only 9% presented the *mecA* gene, however 81% presented
were positive for the gene *icaD* showing the ability to produce biofilm through the mechanism regulated by the *ica* operon. In the case of coagulase negativ
and 6% presented the *icaD* gene (two strains one of *Staphylococcus intermedius*, and one of *Staphylococcus sciuri*).

Conclusion

The *femA* gene was not found exclusively in *Staphylococcus aureus* strains, it was also found in coagulase negative *Staphylococcus*. The percentage of stra
origin, however they are similar to that reported in strains from milk. In a study carried out by Lopez (2) were isolated from bovine milk 4 strains (9%) present
the *femA* gene. Multiplex PCR can be used for a diagnosis of biofilm production and resistance to oxacillin and methicillin for both *Staphylococcus aureus* and