

**Title: MOLECULAR DETECTION OF *mecA* and *mecA* VARIANT IN BOVINE *Staphylococcus* ASSOCIATED BOVINE MASTITIS FROM DAIRY FARMS IN TURKEY**

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**Abstract:**

*Staphylococcus* spp. are among the main etiological agents of bovine mastitis and are often resistant to antimicrobials including the beta-lactams. The most studied resistance mechanisms of these bacteria to this class of antimicrobials are  $\beta$ -lactamases and low-affinity to penicillin-binding protein 2a (PBP2a) production determined by the presence of the chromosomal genes *blaZ* and *mecA*, respectively. Phenotypic expression of beta-lactam resistance in *Staphylococcus* isolates is usually heterogeneous. A study conducted earlier in Brazil detected the presence of a variant of the *mecA* gene in *Staphylococcus* spp. from bovine mastitis. This variant was not detected by PCR using primers based on sequence of *mecA* from human. Based on this, a new primer was designed in order to search for *mecA* gene variant in phenotypic methicillin-resistant *Staphylococcus* spp. bovine strains that tested negative for *mecA* gene amplification with primers previously reported in the literature. The present study evaluated *Staphylococcus* isolates from bovine mastitis in Turkey for *mecA* gene variant using the new primer designed in LABAC-VET/UFRRJ. For the present study, 134 strains of *Staphylococcus* spp. were selected from 17 different farms from the cities of Northwestern Turkey. PCR was performed to confirm the genus identity and detected the presence of the *mecA* gene or its bovine variant. All strains tested were confirmed by PCR as *Staphylococcus* spp. and 33 were identified as *S.aureus*. For detection of methicillin resistance a PCR was performed using primers based on sequence of *mecA* from human and primers based on sequence of *mecA* variant from bovine. Ten (n=10) strains were positive for the presence of the *mecA* variant and thirteen (n=13) were positive for the *mecA* gene. These results reveal that the spreading of *mecA* variant of bovine origin is a challenge and confirms the importance of PCR using primer based on sequence of *mecA* variant for a real detection of methicillin-resistant *Staphylococcus* in strains from bovine mastitis.

**Key words:** Bovine mastitis, MRSA, *Staphylococcus* spp.

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