

## Staphylococcal Enterotoxins Play an Important Role in Clinical Signs in Bovine Mastitis

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**Abstract :** Staphylococcus aureus is one of the main pathogens causing contagious bovine mastitis, being more frequently isolated from subclinical form, although the clinical form also occurs. Clinical mastitis cause visual signs, such as swelling, fever, hardening of the mammary gland, or any change in the characteristics of the milk. Considering the subclinical type, there are no visible signs in the animal nor changes in the milk. S. aureus has many important virulence factors for the establishment of its pathogenicity in animals, such as enterotoxins, which are also responsible for foodborne poisoning. Our objective is to perform a comparative analysis between 103 isolates of S. aureus, obtained from the milk of cows with clinical mastitis and 103 more, from subclinical type, in relation to the presence of these enterotoxins and verify if their presence plays an important role in the signs of illness. We will investigate all enterotoxins described till now, such as sea-see, seg-sez, sel26, sel 27, se01, and se02 (This study was approved by the Sao Paulo State University Animal Use Ethics Committee, No. 0136/2017). For the PCR assay, we used Illustra Bacteria Mini Spin Kit for bacterial DNA. At this moment, we have already tested sea-see, seg-ser, sew, and sex, and the results have already been submitted to Fisher Exact Probability Test or Chi-square Test. Considering the isolates obtained from clinical mastitis, the most frequent enterotoxins were selw (99%), selx (78%) and selh (50.5%), and sec, see, sej, sell, selp, and ser were absent. Among the subclinics, selw (82.5%) selm (15.5%) and selx (14.6%) were the most frequent, and sea-see, seg, sei-sel, sem-ser were absent. We have already observed statistically significant differences for seb, seg, seh, sei, selo, selu, selw and selx. Other interesting results were the low number of genes in each isolate from subclinical mastitis [0 genes: 14 (13.6%); 1 gene: 55 (53.4%); 2 genes: 33 (32%) or 3: 1 (0.97%)] compared to clinical isolates [1 gene: 5 (4.9%); 2 genes: 29 (28.1%); 3 genes: 38 (36.9%); 4 genes: 14 (13.6%); 5 genes: 5 (4.9%); 6 genes: 4 (3.9%); 7 genes: 5 (4.9%); 8 genes: 2 (1.9%) and 9 genes: 1 (1%)]. Based on these results, we can conclude that enterotoxins indeed play an important role in clinical signs in cattle with mastitis.

**Keywords :** mastitis, S. aureus, PCR, staphylococcal enterotoxin

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