

ESTIMATE OF *STAPHYLOCOCCUS AUREUS* AND *STREPTOCOCCUS AGALACTIAE*
PREVALENCE AMONG DAIRY HERDS FROM MINAS GERAIS HOLSTEIN DAIRY
ASSOCIATION, BRAZIL, 2011/2012

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Introduction

Bovine mastitis is a disease that requires constant monitoring mainly due to the contagious pattern presented by *Staphylococcus aureus* and *Streptococcus agalactiae* (2). The identification of these agents in dairy herds in the Minas Gerais State, Brazil, as well as the variation of somatic cell count according to contagious mastitis pathogens have been reported (1). The knowledge about prevalence of contagious pathogens mastitis allows the disease quantification in herds and can be used for making decision at region and herd level. This study investigated the prevalence of *S. aureus* and *S. agalactiae* among herds of Minas Gerais Holstein Dairy Association (MGHDA).

Material and Methods

The studied population was composed by 112 dairy herds with almost 6.000 cows in lactation located at Southeast Region of Brazil. The herds were located at Region 1 (north) and Region 2 (south). The observed number of dairy herds in Region 1 and 2 was 42 and 70, respectively. The simple randomized sampling stratified by region for finite population was used to calculate the number of herds for prevalence study. One bulk milk sample was collected from 40 herds to identify *S. aureus* and *S. agalactiae* using selective media. From these herds 16 and 24 were located in Region 1 and 2, respectively. The bulk tank milk samples were collected from October 2011 to April 2012. The real prevalence of *S. aureus* and *S. agalactiae* was calculated based on apparent prevalence, sensitivity and specificity for one bulk milk sample culture from previous study performed in Brazil (1). The difference of prevalence according to regions was evaluated by chi-square test.

Result and Discussion

The real prevalence of *S. aureus* and *S. agalactiae* was 93.0% and 41.0%, respectively. The real prevalence of *S. aureus* among herds located in Region 1 and 2 was 100.0% and 89.0%, respectively. For *S. agalactiae*, the real prevalence was 57.0% and 31% in Region 1 and 2, respectively (Table 1). The prevalence of *S. aureus* and *S. agalactiae* was not different according to regions ($p > 0.05$). The results showed high prevalence of *S. aureus* and *S. agalactiae* in these herds and a homogeneous distribution among herds according to Region 1 and 2. The adoption of control measures considering epidemiological features of each pathogen and prevalence of

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infected cows within each herd should be considered with objective of reducing the new infection rate and duration of infections. The main approach in control and prevention of *S. agalactiae* should be directed to eradication of this pathogen through treatment of infected cows. In contrast, the approach in control measure of *S. aureus* should be based on culling of cows with chronic infection due to its difficult elimination.

Table 1. Apparent prevalence, real prevalence and confidence interval of *Staphylococcus aureus* and *Streptococcus agalactiae* among dairy herds from Minas Gerais Holstein Dairy Association, 2011-2012

Pathogen	Statistics	Region		Total
		1	2	
<i>S. aureus</i>	N	16	24	40
	AP	0,75 ^a (0,54-0,96)	0,67 ^a (0,48-0,86)	0,70 (0,56-0,84)
	RP	1,00 (0,72-1,00)	0,89 (0,64-1,00)	0,93 (0,74-1,00)
<i>S. agalactiae</i>	N	16	24	40
	AP	0,38 ^a (0,14-0,62)	0,21 ^a (0,05-0,37)	0,28 (0,14-0,41)
	RP	0,57 (0,21 - 0,93)	0,31 (0,07 - 0,56)	0,41 (0,20 - 0,62)

^aequals letters between columns means no statistical difference ($p>0,05$); N – number of herds; AP – apparent prevalence; RP – real prevalence; CI – confidence interval 95%

Conclusion

The high prevalence of *S. aureus* and *S. agalactiae* in these herds suggests that the control measures have not been adopted to effectively and the prevalence of these pathogens were homogenously distributed between regions.

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