

Quantification of proteins in goat milk serum experimentally infected with *Staphylococcus warneri*

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Whey proteins hold significance due to their antimicrobial properties and their role in conferring passive immunity to consumers. It is well-documented that a high incidence of mastitis within herds can adversely affect milk quality and, consequently, the composition of whey proteins. To gain insights into the behavior of milk proteins during pathogenic infections leading to mastitis, this study aimed to examine milk samples from goats intentionally infected with *Staphylococcus warneri* and quantify the proteins released as a result. In this study, milk samples were collected from both the right and left teats of six primiparous Parça Alpina goats. The right udder halves were infected with 2 mL of *S. warneri* at a concentration of 1.2×10^8 colony-forming units per milliliter (CFU/mL) via intramammary inoculation, while the left udder halves were kept as individual controls. An additional goat received a 2 mL inoculation of sterile phosphate-buffered saline (PBS) and served as a negative control. Protein quantification was carried out using the Bradford method, which relies on spectrophotometric measurements at a wavelength of 595 nm. Briefly, known concentrations of bovine serum albumin (BSA) were diluted in a protein-containing buffer and applied to a 96-well plate. After incubation for 5 minutes, the samples were read at 595 nm. During the experiment, 5 µL of the test sample and 195 µL of Bradford's solution were used in duplicate and incubated for 5 minutes with gentle agitation. The results revealed an increase in the quantity of proteins released in milk on the second day after infection, reaching an average concentration of 0.46 µg/µL in infected animals, while the negative control animal maintained an average concentration of approximately 0.44 µg/µL. From the third day post-infection, there was a decline in the levels of released proteins (0.45 µg/µL), followed by an increase on days six and seven. In contrast, the control animal exhibited stable protein levels of 0.44 µg/µL throughout the study period. Notably, individual variations were observed in the release of proteins among the goats, underscoring the unique responses of each animal to the infection. When comparing the infected udder halves to the non-infected ones, the averages of released proteins were found to be similar. This observation suggests a systemic response by the animals, despite the independence of the mammary quarters.

Key words: Whey Protein; Mastitis; Goat; *Staphylococcus warneri*.

Quantificação de proteínas em soro de leite caprino infectados experimentalmente com *Staphylococcus warneri*

O estudo propôs quantificar proteínas liberadas em amostras de cabras infectadas por *Staphylococcus warneri*. Amostras de leite foram obtidas dos tetos direito e esquerdo de seis cabras (lado direito do úbere infectado com 2 ml *S. warneri* a $1,2 \times 10^8$ UFC/ml por via intramamária e o esquerdo foi o controle individual). A quantificação foi realizada pelo método de Bradford. No segundo dia de infecção, houve um aumento das proteínas liberadas no leite, média 0,46µg/µL, nos animais infectados e no controle foi de 0,44 µg/µL. A partir do terceiro dia, houve um declínio, 0,45 µg/µL, aumentando novamente nos últimos dias.

Palavras-Chave: Proteína do Soro do Leite; Mastite; Cabra; *Staphylococcus warneri*.

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