EFFICACY OF S. AUREUS INACTIVATED VACCINE AGAINST AN EXPERIMENTAL INTRAMAMMARY HETEROLOGOUS CHALLENGE IN DAIRY GOATS

OBJECTIVES

The aim of the present study was to evaluate the efficacy of S. aureus vaccine against caprine mastitis (VIMCO[®], HIPRA, Spain) after an experimental intramammary challenge with a heterologous S. aureus strain in US dairy goats.

MATERIALS AND METHODS

Thirty-two gestating goats were randomly distributed in two groups, 17 vaccinated and 15 control and were vaccinated intramuscularly and infected as described:



Clinical signs of mastitis (milk and udder abnormalities) were monitored from 5 days before challenge until the end of the study (14 days after challenge). Milk samples for the bacteriological analysis were collected 5, 2 and 1 day before challenge, and from challenge to 14 days after. Blood samples were collected as described above. Serum samples were analyzed using an indirect ELISA for anti-slime antibodies of S. aureus.

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Intramammary challenge (D56) 150 CFU heterologous S. aureus (Newbould 305)

RESULTS

animals.



Figure 1. Clinical signs of mastitis score from d1 to D14 post-challenge per group. ^{ab}Different superscript indicates significant differences (P<0.01).

Furthermore, the percentage of vaccinated animals with clinical signs of mastitis was significantly (P<0.01) than control goats. The PF analysis described a reduction of 58% of clinical signs of mastitis in the vaccinated group compared to control animals.

Control animals had significantly (P<0.05) greater bacterial count than vaccinated group in 2 time-points (Figure 2). In overall, vaccinated animals tended (P = 0.07) to reduce bacteriological count compared to control group during the 14 days after challenge.

The ELISA results were similar between the vaccinated and control group before first vaccination, no positive animals and no significant differences were observed. But after that, vaccinated group had significantly (P<0.05) greater values compared to control group (Figure 3).





Figure 3. Average of anti-slime antibodies of S. aureus (RIPC) of vaccinated and control group at sample points. ^{ab}Different superscripts mean significant differences (P < 0.05)

CONCLUSIONS

Results presented in this study demonstrate that the intramuscular immunization of goats with VIMCO[®] vaccine significantly reduces clinical signs of mastitis and tended to reduce bacteriological count after an intramammary infection with S. aureus heterologous strain.



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