

## Vaccination of Bovines with the Recombinant *Haemaphysalis longicornis* Glutathione S-transferase

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The ticks *Rhipicephalus (Boophilus) microplus* and *Haemaphysalis longicornis* are hematophagous ectoparasites that infest cattle. Vaccine has been considered one of the most promising methods for the control of these parasites. Glutathione S-transferases (GST) enzymes are present in animal and vegetal organisms and the functions are intracellular transport, participation in digestive process, synthesis of prostaglandins and detoxification of toxic substances and protection against oxidative stress. In previous study, we showed that *H. longicornis* GST (rGST-HI) is more immunogenic in mice than *R. microplus* GST (rGST-Bm). The objective of the present study was to investigate the ability of rGST-HI to induce in bovines a protection against *R. microplus*. To verify the rGST-HI immunogenicity, 7 bovines divided into 2 groups was used. The treatment group animals received 6 inocula of an emulsion of rGST-HI in oil adjuvant (Montanide 888 and Marcol 52) at 15-day intervals and the control group received emulsion of PBS plus oil adjuvant. Ten days after the last inoculation, the bovines were challenged with 20,000 10-day-old larvae of *R. microplus*. The sera were analyzed by ELISA and dot-blot to verify the kinetic of antibodies production. The bovines inoculated with rGST-HI showed an increase in the antibody production. Vaccination of cattle with rGST-HI conferred significant protective immunity against ticks, resulting in 53% reduction in the engorgement number of female ticks. The protection index and other biological analyses are in progress to evaluate the protective propriety of GST-HI.

Keywords: *Haemaphysalis longicornis*; *Rhipicephalus microplus*; Glutathione S-transferase; vaccine.

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