

## Efficacy of an inactivated recombinant vaccine encoding a fimbrial protein of *Pasteurella multocida* B:2 against hemorrhagic septicemia in goats

### ABSTRACT

This study was carried out to determine the antibody responses and protective capacity of an inactivated recombinant vaccine expressing the fimbrial protein of *Pasteurella multocida* B:2 following intranasal vaccination against hemorrhagic septicemia in goats. Goats were vaccinated intranasal with 10<sup>6</sup> CFU/mL of the recombinant vaccine (vaccinated group) and 10<sup>6</sup> CFU/mL of pET32/LIC vector without fimbrial protein (control group). All three groups were kept separated before all goats in the three groups were challenged with 10<sup>9</sup> CFU/mL of live pathogenic *P. multocida* B:2. During the course of study, both serum and lung lavage fluid were collected to evaluate the antibody levels via enzyme-linked immunosorbent assay. It was found that goats immunized with the inactivated recombinant vaccine developed a strong and significantly ( $p < 0.05$ ) higher specific IgA and IgG responses in both serum and lung lavage fluid samples compared to the control and unvaccinated groups. Following intratracheal challenge, the rate of isolation was 17% for the vaccinated group, 67% for the control group and 100% for the unvaccinated group. However, none of the goat from the vaccinated group had *P. multocida* B:2 in the liver, tonsil and heart. Therefore, the study revealed that an inactivated recombinant vaccine significantly provides significant protection against high dose challenge and enhances the stimulation of the local and systemic immunities.

**Keyword:** *Pasteurella multocida* B:2, Inactivated recombinant vaccine, Intranasal, Goats