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A new bacteriophage based luminescence assay for diagnosis of brucellosis

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Brucellosis is a highly contagious zoonotic disease for which accurate and cost effective penside diagnostics are not available. The present study was aimed at exploring the potential of application of bacteriophage in development of a penside diagnostic assay for Brucellosis. We have isolated a lytic *brucella* phage and exploited the phenomena of ATP release on phage mediated lysis of bacteria and ATP catalyzed luciferase-luciferin reaction to develop a novel assay for diagnosis of Brucellosis from clinical samples. Mean luminescence was 1616.333 ± 662.608 for *Brucella* positive uterine secretions alone and 18507 ± 3327.018 for phage treated positive samples. There was a very significant difference ($P < 0.01$) between the two values. The average increase in luminescence was 10.03 folds. The mean luminescence of negative samples treated with phage was 700.333 ± 364.664 . The difference between the luminescence of phage treated positive and negative samples was very significant ($P < 0.01$). The positive/negative status of animals from which the samples were derived was confirmed by Rose Bengal Plate Test and ELISA. The novel assay is simple, easy, accurate and field applicable assay for Brucellosis.

Biography

Hari Mohan Saxena is the Head of Microbiology at GADVASU. He was a Counselor (S&T) in Indian Embassy, Moscow. He is also the Member of Expert Panel on Vaccines of European Society for Translational Medicine and Immunology Advisory Board and Editorial Board of WebMedCentral, UK. He is an Editor of *Frontiers in Immunology* and *Journal of Clinical Immunology and Immunopathology Research*. He was on Steering Committee of Science Advisory Board, USA and President and Fellow of Indian Society for Veterinary Immunology & Biotechnology. He has US, Chinese and South African patents. He is a Fellow of World Innovation Foundation and National Academy of Veterinary Sciences.

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