

Isolation of lytic bacteriophages against *Brucella* organisms and their applications in the development of diagnostics

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Brucella organisms are known to have serological cross - reactivity with other microorganisms. Bacteriophage based diagnostics are more specific than the serodiagnostic assays for bacterial diseases because phages are highly specific in causing bacterial lysis. We have isolated two broad acting bacteriophages lytic to organisms of genus *Brucella* from sewage samples of a dairy farm in Ludhiana. No lytic activity of the phage was evident against the heterologous hosts tested viz. *Staphylococcus*, *E. coli*, *Salmonella Dublin*, *Salmonella enteritidis*, *Salmonella typhimurium* and *Bordetella bronchiseptica*. We have developed the prototype of a phage based diagnostic assay for diagnosing infection with *Brucella abortus* by suitable adaptations of the MTT assay. On incubating the sample suspected of containing the bacteria with the specific phage, no change in the color of the MTT dye indicates a positive reaction (i.e., presence of phage - sensitive bacteria in the sample) on account of specific lysis of the bacteria by the phage. In case of a negative sample (i.e., absence of specific lysis of *Brucella* by the phage), the dye changes its color to blue - purple due to the live bacteria other than *Brucella* surviving the phage.

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