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Isolation and characterization of lytic bacteriophages against bacteria of veterinary importance

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Phage therapy involves the targeted application of bacteriophages that, upon encounter with specific pathogenic bacteria, can infect and kill them. With the long term goal of therapeutic usage for treatment of animal diseases, isolation of bacteriophages was initiated from soil and sewage samples collected from animal farms and ponds used by animals in Haryana region. Bacteriophages were isolated against pathogenic *Escherichia coli* (O12 serogroup), *Aeromonas* spp., *Bacillus* spp. and *Staphylococcus sciuri*. The bacteriophage culture enrichment from sewage/soil samples was achieved by incubating the sample aliquot with the host bacteria followed by centrifugation and filtration finally plating in molten agar with host bacterial culture. The incubated plates were examined for the presence of plaques. The purified phage preparations were used for large scale preparation of phage stocks. Pancreatic DNaseI and RNase were used to degrade any host DNA and bacteriophage particles were precipitated using PEG8000. Phages were classified to myoviridae, podoviridae, siphoviridae and inoviridae families on the basis of transmission electron microscopy. Protein profile of phage isolates was generated in 18%-20% SDS- PAGE gels, which was found to be specific for each phage isolate. Further phages of myoviridae group were characterized by PCR amplification of gp23 gene; its sequencing and phylogenetic analysis. These phage isolates were found to belong to genus –T4 like virus. The present study illustrated isolation of phages in different bacterial phylogenetic divisions from soil, sewage and water samples of animal interventions which can find therapeutic use in animal diseases.

Biography

Taruna Anand has completed her PhD at the age of 28 years from National Dairy Research Institute, Karnal, Haryana, in the area of Biotechnology (Animal Sciences). She is appointed as scientist at Veterinary Type Culture Collection, Hisar, Haryana. He is working in the area of microbiology and molecular biology related to bacteria and animal viruses and has published research articles in reputed journals.

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