Abstract

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Isolation and characterization of Staphylococcus aureus bacteriophage (Rih21) from hospital wastewater

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Abstract

Antibiotic resistance is rising rapidly due to overuse and misuse of antibiotics which lead to a serious threat to the world. Therefore, developing new treatments are urgently required for instance, phage therapy which is good, effective alternative and the bacteriophages demonstrate a high ability to kill bacteria.

Staphylococcus aureus was the first bacteria that showed resistance to antibiotics in the mid-1940s against penicillin. Later on, S. aureus developed resistance to many different antibiotics, such as methicillin-resistant S. aureus (MRSA). In this study, a novel bacteriophage has been isolated from hospital wastewater in Baghdad city. The ability of the phage to infect S. aureus has been determined by spot assay.

The phage genome has been sequenced with a molecular size of 44,789 bp. The phage morphology was determined by transmission electron microscope. The phage showed Siphoviridae morphology that has a rectangular head (100 x 50 nm) and a long flexible tail (300 nm). The stability of phage at different PH and temperature was tested in addition, the phage host range was determined.

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