

Isolation and Characterization of *Pseudomonas aeruginosa* and Its Virulent Bacteriophages

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Abstract

Pseudomonas aeruginosa is a free-living bacterium in widely different areas such as plants, soil, water and other moist locations. It is pathogenic to plants and humans. *P. aeruginosa* causes several disease symptoms to plants such as wet rot and curved leaves. The virulent bacterial viruses of *P. aeruginosa* were found to be of widespread occurrence in nature and isolated from widely different sources. Bacterial viruses were applied to control pathogenic bacteria in different fields and successfully. Therefore, this work aimed to study the different characteristics of *P. aeruginosa* lytic phage isolates. Moreover, the biocontrol of *P. aeruginosa* by lytic phage isolates was also studied. Different physical and molecular characteristics were assayed and determined of *P. aeruginosa* lytic bacteriophages. Also, the effect of phage isolates on *P. aeruginosa* as a biocontrol under lab condition was studied.

Pseudomonas aeruginosa pathogenic bacterium was isolated from a sewage water sample. Two lytic bacteriophages specific to *P. aeruginosa* were isolated from same sewage water sample and designated Pa1 and Pa2. Both phage isolates (Pa1 and Pa2) found to be stable in 90°C and low and high pH levels. The total count of *P. aeruginosa* decreased after 48h. in broth treated with lytic phages. RAPD-PCR amplification was indicated that the two phage isolates (Pa1 and Pa2) are belonging to two different phage types.

The results of this study indicated that both lytic phage isolates could be used as biological control agents against the plant pathogen *P. aeruginosa*.



Biography:

Eman M. Marie has completed his PhD at the age of 28 years from Ain Shams University. She is obtain to the gold medal and honorary diploma from the French Federal Federation, another gold medal obtained from the Swiss Egyptian Friendship Association and Silver medal and honorary diploma obtained from The 46 th Geneva International Convention for The Young Inventors all these prizes for my international patent about of "Bacterial and Algal Integrated Effectiveness

Compounds" were used as a biological wastewater treatments and as a bio-desalination. She has published more than 24 papers in reputed journals.



Speaker Publications:

1. Eman, M. Marei and Reham, M. Elbaz., Marie, Eman. (2013). Isolation and Molecular Characterization of three virulent actinophages Specific for *Streptomyces flavobirens*. *Journal of Virology Research* 2 (1):12-17.
2. Marie, Eman. (2013). Isolation and Characterization of *Bacillus subtilis* Phage from Soil Cultivated with Liquorices Root. *International Journal of Microbiological Research*, 4 (1): 43-49.

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