

RANGE OF THE LYTIC ACTIVITY OF BACTERIOPHAGES ISOLATED FROM ANTARCTIC REGION

Holovan V, Andriichuk O, Budzanivska I.

Taras Shevchenko National University of Kyiv

ESC Institute of Biology and Medicine

e-mail: holovanviktoria@gmail.com

To study the 'virus-host' cooperation character in the system, it was necessary to identify the profile of the lytic activity of the isolated phages and determine their biological properties. For this purpose, an effective method of storage of unstable bacteriophages lysates should be developed, as it is important for their practical use, in particular for the creation of direct-acting drugs. The advantage of the use of isolated bacteriophages is their high specificity to phytopathogenic bacteria. There is an increasing demand for the drugs of direct action and the absence of internal competitors on the international pharm market.

The lytic activity of phages isolated from moss and soil was tested on strains of bacterial cultures isolated in the temperate region (Ukraine): *Erwinia carotovora*; *Pantoea agglomerans*; *Xanthomonas campestris*; *Enterobacter cloacae*; *Escherichia coli*; *Pseudomonas fluorescens* 8573; *P. syringae* pv. *lachrymans* 7591; *P. savastanoi* pv. *phaseolicola* 4013; *Clavibacter michignensis* sp.; *Serratia marcescens* sp. and in the polar (Antarctic) region: *Bacillus* sp.; *Pseudomonas veronii*; *P. putida*; *Sphingobacterium thalophilum* sp.; *Paenibacillus* sp.; *Micrococcus* sp. Three of ten isolates were monovalent, that is, specific to bacterial cultures of *E. cloacae*; *Bacillus* sp.; *P. veronii*, three samples were shown to be a mixture of viruses and were active against several bacterial cultures: *P. fluorescens* 8573; *Bacillus* sp.; *P. putida*, that is they were polyvalent.

Therefore, some isolates of bacteriophages from the Antarctica region showed a fairly wide range of lytic activity. Phages interact not only with bacterial cultures isolated in Antarctica, but also with bacterial cultures from the temperate climate regions. The activity of bacteriophages against phytopathogenic bacteria of temperate regions may indicate the existence of the closely related microorganisms in the Antarctic continent. The resulting collection of bacteriophages is suitable for the use in scientific researches aimed at the comprehensive study of the structure and function of Antarctic organisms, development of the generalized models of ecosystems as well.

