

**ISOLATION AND CHARACTERIZATION OF BACTERIOPHAGES OF
Listeria monocytogenes WITH POTENCIAL TO BE USED AS BIOCONTROL
AGENTS FOR FOOD SAFETY**

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Bacteriophages are one of the most abundant replicating entities on Earth and can be found everywhere in which their hosts live and there are reports regarding isolation from different niches such as soil, sea and foods. Since studies are moving forward with regard to virology and biotechnology areas, different research projects are being performed focusing on the phage technology and its use by the food industry, leading to innovations in the use of them or its components as antibacterial agents. This study aimed to isolate and characterize bacteriophages present in soil samples and to evaluate new bacteriophages for their lytic potential against *Listeria monocytogenes*. Sixty soil samples of approximately 50g/each were collected from dairy cattle areas in the state of São Paulo from January to March of 2014. Fourteen (24%) samples were positive for *Listeria* spp. and seven samples (12%) for *L. monocytogenes*. Among the *L. monocytogenes* isolates the serotypes 1/2a (3), 4b (2), 1/2b (1) and 1/2c (1) are found. From 60 soil samples collected, 23 (39%) were positive for “listeriaphages” using four host strains of *Listeria* sp. and two isolation methods (direct and after enrichment). It was also determined the lytic potential of the listeriaphages when in contact with a panel of 10 different strains of *L. monocytogenes* from both different sources and serotypes. The lysis percentage of the *L. monocytogenes* strains ranged from 20 to 100% when in contact with the phages. Three bacteriophages (LP05, LP12 and LP20) showed 100% lysis of the 10 *L. monocytogenes* strains evaluated and these phages will be forwarded to the sequencing of their genomes, and then will be used in a cocktail to be tested in the biocontrol of *L. monocytogenes* in cheese samples artificially contaminated. This study will make available to both national and international communities behavioral and molecular data regarding the isolation and characterization of bacteriophages present in soil samples in Brazil. Furthermore, there is the real possibility to develop new patents of phage products that could be used by the food industry to combat *L. monocytogenes*.

Key-words: *L. monocytogenes*, phages, biocontrol and foods

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