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2025 SEA Symposium Abstract

Universidad Nacional de Rosario

Rosario

Corresponding Faculty Member: Alejandra Mussi (mussi@cefobi-conicet.gov.ar)

Isolation and in vitro characterization of new Microbacterium foliorum´s phages from Argentina.

Rocío Giusti, Belkis Cassidy, Julia Razovich, Valentina Maccari, Lautaro Di Carli, Rocío Vena, Luca Raimondo, Gabriel Aguilera, Lautaro Paccuse, Milagros García, Alfonsina Kassabian, Francisco Lamagni, Martín Espariz, Alejandra Mussi, Lautaro Diacovich

This research course is designed to discover new bacteriophages able to infect Microbacterium foliorum. In order to do so, we have collected different earth samples from various locations of Rosario City, Santa Fe, Argentina.  
  
Out of 30 samples, which were enriched and tested by using spot tests, 8 of them presented phages different regarding plaque size and turbidity. After this discovery, each of the 11 students of the course selected one of the previously found phages and implemented the Direct Isolation process. Later on, the students characterized them.  
  
Unlike most lysis plaques, which were clear and with defined borders, two of the 11 were different. One presented shady and undefined edges on the plates, while the other showed haloes for the first two days after infection, defining themselves into clear borders over time. These murky and haloed plates suggest that these two phages had not only a lithic life cycle, but also a lysogenic one. The size of the plates were between 1 and 10mm.  
Using an electronic microscope, we were able to observe in detail the morphology of the phages, making their classification an easier process. This concluded with analysis of the images of the selected bacteriophages, which had a tail and an icosahedral head. On average, each head was 60 nm width and the tails were about 120 nm long.  
Phages Lilo27, Nodal, and Bondiola resulted in the most successful DNA extractions and were selected for further processing. However, only Lilo27 could be sequenced due to insufficient DNA concentrations in Nodal and Bondiola.  
Considering these results, we will be able to analyze and annotate the DNA genomic sequence during the second part of the Sea Phages course.