Session IV (Phage Therapy) – Poster 2

Production of a *Salmonella* bacteriophage in a non-pathogenic *E. coli* strain.

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Salmonella is an important zoonotic pathogen and remains the primary cause of reported food poisoning worldwide with massive outbreaks, being *S. enteritidis* the most commonly reported serovar. The increased resistance of *Salmonella* to antibiotics and other biocides has encouraged the development of alternatives to chemotherapy.

Bacteriophages have been proved to have the ability to provide a natural, nontoxic, feasible and non-expensive control of *Salmonella*. In the scope of the European project Phagevet-P a *Salmonella* phage belonging to the *Myoviridae* family was isolated from a Germany (Regensburg) wastewater plant. This phage named PVP-SE-1 (previously named phage 2/2) is characterised by having a broad lytic spectrum being able to infect different *Salmonella* serotypes of different countries and different origins (food, environmental and clinical).

A major concern in the use of bacteriophages as biocontrol agents is their safety. As bacteriophages are amplified in their pathogenic hosts, the resultant phage product might be toxic unless efficient and adequate downstream techniques are applied. This requires a strict product control and usually high production costs. The use of a non-pathogenic host would eliminate the risk of introducing a pathogen (and possible endotoxins) in the product, increasing its safety and reducing costs once stringent effectiveness of separation and filtration processes is not required. The work summarised herein explores this possibility by characterising and comparing the lytic performance of PVP-SE-1 amplified in its respective host (a pathogenic *Salmonella* strain) and in a non pathogenic *E. coli* strain (*E. coli* BL21).

The lytic spectra of this phage replicated in BL21 and in its original *Salmonella* host showed to be the same. Additionally, latency period and burst size were determined allowing for the comparison of the phages replicated in the two different hosts.

The results support the possibility of employing *E. coli* BL21 to produce PVP-SE-1 to be used as a biocontrol agent against *Salmonella*.

Notes:

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