

Exploiting the proteins encoded in the genome of the broad host range Salmonella phage PVP-SE1

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Foodborne diseases are of major concern due to its worldwide impact. Salmonella has been constantly pointed as the second leading cause constituting thus a major public health burden with significant impact in the society costs. The increased resistance of bacteria toward antimicrobials and the recent legislation restricting the use of antibiotics as growth promoters in animal production requires alternatives to the use of antibiotics in the control of this zoonotic pathogen.

Consequently, there is an urgent need to control this bacterial genus. To accomplish this, fast and accurate techniques for early detection are also required. Bacteriophages (phages) as natural predators of bacteria offer a great potential for pathogens detection and control due to their high specificity and killing ability.

We have isolated and characterize a broad host range phage with great potential for Salmonella control. This phage encodes several proteins with great biotechnological potential which include the phage tail fibers with application in Salmonella detection, peptidoglycan hydrolases and holins that produce lysis of the bacterial cells and depolymerases which can decrease the ability of the cells to form biofilms and consequently decrease resistance of the cells to treatment. In this work we will identify these proteins and envisage their biotechnological.