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Characterization of bacteriophages infecting *Pectobacterium* spp. for phage-based bio control formulation against soft rot in field conditions

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Soft rot *Enterobacteriaceae*, including *Pectobacterium* and *Dickeya*, affect a number of plants including vegetables and fruits, causing high economic loses for producers. There is currently no treatment for soft rot *Enterobacteriaceae* in field conditions, and control is largely based on the use of sanitary growing practices. The increasing number of epidemics in recent years caused by *Pectobacterium* and *Dickeya* in Europe indicate a need for the formulation of commercially available and effective biocontrol measures to counteract soft rot pathogens. Highly specific bacterial viruses – bacteriophages – have been investigated by a number of researchers as a biocontrol tool to treat bacterial diseases. In this study, bacteriophages isolated from vegetable processing water have been characterized using transmission electron microscopy (TEM), molecular biology methods, and tested for antimicrobial and lytic activity. Bacteriophages efficacious against soft rot *Enterobacteriaceae* in potato have been formulated into a phage-based 'cocktail', which has been assessed through bioassays and field trials. It has been shown that the phage 'cocktail' decreased soft rot symptoms and increased yields *in vivo*.

Biography

Maja Zaczek-Moczydlowska is pursuing her PhD at Queens University, Belfast and the Agri-Food and Bioscience Institute, Belfast. Her PhD research project, funded by the Department of Agriculture, Environment and Rural Affairs, focuses on the 'Development and assessment of potential diagnostic and biocontrol measures against soft rot in vegetables'. Before undertaking Doctoral studies in 2015, she worked in the pharmaceutical and food industry soon after graduating MSc Eng in Bioorganic Chemistry and Biotechnology from the Silesian University of Science and Technology in Gliwice, Poland.

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