

Trans-European study on the implementation of novel water testing methodologies to assess the safety of irrigation water

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Introduction

Microbial contamination of fresh produce is a major health concern, and the number of produce associated disease outbreaks has increased in recent years. User-friendly, validated, pathogen detection methods are of key importance for detecting and preventing microbial disease outbreaks and providing enhanced product assurance. As part of the EU funded *Aquavalens* project, a suite of methodologies have been developed for pathogen testing in water, ranging from the identification of suitable targets, optimal concentration and user friendly detection methods.

The aim of this study is to demonstrate the utility of these novel methods developed as part of *Aquavalens*, to determine the microbiological quality of water used in the food production, with a particular focus on irrigation water and processing water.

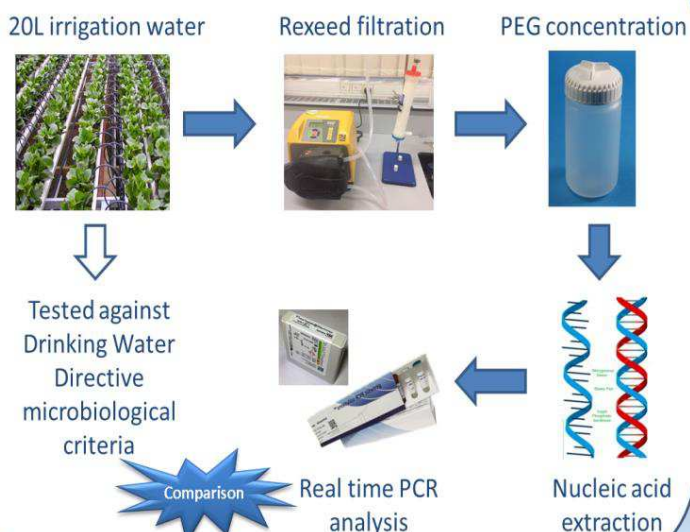
The study is being undertaken in four countries (Fig. 1), targeting three food product categories and five human pathogens.



Figure 1: Study partners and countries

Food categories	Target organisms
Sprouted seeds and beans	<i>Salmonella</i> & <i>E. coli</i> O157
Leafy green salads	Norovirus & Hepatitis A
Soft fruits	<i>Cryptosporidium</i>

Methodology



Conclusions

- The pathogen detection methods have been successfully implemented in all laboratories.
- Sampling of irrigation and processing water is currently on-going from over twenty food production sites from across Europe.
- A major advantage of the method is the single filtration step for bacteria, viruses and protozoa.
- To date one sample has tested positive for *E. coli* O157, indicating irrigation water contamination. This would not have been detected by standard testing methodologies.



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