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Gut pathogens and fresh produce safety**Giannis Koukkidis**

University of Leicester, UK

Introduction & Aim: Fresh salad leaves are an important part of a healthy diet, but are increasingly becoming associated with infection from foodborne pathogens such as *Escherichia coli* and *Salmonella enterica*. This study examines the origins of fresh salad produce colonization by enteric pathogens and shows that once within the salad bag many aspects of the virulence of these gut pathogens becomes significantly enhanced. We investigated if juices released from the lettuce leaves during cutting were affecting the ability of the two pathogens to adhere to and persist within the bagged salads even after washing.

Method: Enteropathogen responsiveness to salad juices was analyzed in water at refrigerated temperatures to best reproduce the salad bag storage environment. We measured the effect of salad leaf juice on biofilm formation on lettuce leaves and the plastic salad bag container. Light and scanning electron microscopy and crystal violet staining were used to visualize juice effects on salad leaf and bag attachment.

Result: In water, even traces (0.5% v/v) of the fluids from cut ends of the leaves released into the salad container significantly increased enteropathogen attachment to plastic surfaces, including the interior of the salad container (which we found had already natural and rich microflora). Formation of a biofilm on salad leaves that was resistant to washing was also observed when the leaf juices were present.

Conclusion: Fluids released from cut ends of salad leaves enhanced an *Escherichia coli* and *Salmonella enterica* wash resistant biofilm formation on both lettuce leaf and the salad bag container, indicating the importance of preventing initial contamination.

Biography

Giannis Koukkidis is a PhD Researcher in Food Safety at the Department of Infection, Immunity and Inflammation at University of Leicester. His PhD research was focused in the microbial contamination of fresh produce.

gk145@le.ac.uk

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