

## **Evaluation of three swab-types for recovery of *Listeria monocytogenes* on different food contact surfaces**

Evy Lahou<sup>\*</sup>, Liesbeth Jacxsens and Mieke Uyttendaele.

Laboratory of Food Microbiology and Food Preservation (LFMFP), Ghent University, Coupure Links 653, 9000 Ghent, Belgium.

Phone: (+32) 9 264 93 90, Fax: (+32) 9 225 55 10, e-mail: [evy.lahou@ugent.be](mailto:evy.lahou@ugent.be)

### **Introduction**

The ability of *Listeria monocytogenes* to attach to various food contact surfaces, such as stainless steel, high density polyethylene and rubber compounds is well documented. Sampling food processing areas and equipment for *Listeria monocytogenes* is necessary and mandatory in many food production systems to avoid product contamination. However, swabbing efficiency is often poor and range from 25% to just 0.1% of the original inoculums.

### **Objective**

The objective of this study was to compare several swabs in their ability to detect low concentrations of *Listeria monocytogenes* on different food contact surfaces.

### **Method**

A cocktail of 5 serotypes of *Listeria monocytogenes*, mixed in equivalent concentrations, was inoculated with a concentration of 100 CFU/250cm<sup>2</sup> onto stainless steel, high density polyethylene and rubber compounds in a 250cm<sup>2</sup> area. Immediately after inoculation and after 1h exposure, the surfaces were swabbed with a premoistened 3M<sup>®</sup> Sponge-stick, 3M<sup>®</sup> Enviroswab and a Copan Foam spatula. The used swab was incubated for 24h at 30°C in 225ml of demi-fraser broth. Samples were then plated on ALOA agar, which were incubated for 24h at 37°C.

### **Results**

The recovery of *L. monocytogenes* with the Copan Foam spatula from stainless steel, high density polyethylene and rubber compounds was possible in respectively 94%, 94% and 100% of the samples (n=18). Recovery of *L. monocytogenes* was possible on all tested high density polyethylene and rubber surfaces with the 3M<sup>®</sup> Enviroswab, while on stainless steel surfaces recovery was possible in 94% of the samples (n=18). The recovery of *L. monocytogenes* with the 3M<sup>®</sup> Sponge-stick from stainless steel, high density polyethylene and rubber compounds was possible in respectively 83%, 100% and 100% of the samples (n=18).

### **Conclusion**

Only small differences were detected in the performance of the investigated swabs for the different food contact surfaces. Moreover, swabbing efficiency is high and the swabs are suitable to be used for environmental sampling on the different types of materials.