Accepted Manuscript

Effective pre-treatment technique based on immune-magnetic separation for rapid detection of trace levels of *Salmonella* in milk

Meihong Du, Jingwen Li, Ruixue Zhao, Yin Yang, Yanfei Wang, Kai Ma, Xiaoyan Cheng, Yuping Wan, Xiaosheng Wu

PII: S0956-7135(18)30139-7

DOI: 10.1016/j.foodcont.2018.03.032

Reference: JFCO 6046

To appear in: *Food Control*

Received Date: 10 January 2018

Revised Date: 19 March 2018

Accepted Date: 21 March 2018

Please cite this article as: Du M., Li J., Zhao R., Yang Y., Wang Y., Ma K., Cheng X., Wan Y. & Wu X., Effective pre-treatment technique based on immune-magnetic separation for rapid detection of trace levels of *Salmonella* in milk, *Food Control* (2018), doi: 10.1016/j.foodcont.2018.03.032.

Effective pre-treatment technique based on immune-magnetic separation for rapid detection of trace levels of *Salmonella* in milk

Meihong Du[a]*, Jingwen Li[a], Ruixue Zhao[a], Yin Yang[a], Yanfei Wang[b], Kai Ma[a], Xiaoyan Cheng[a], Yuping Wan[c], Xiaosheng Wu[c]

([a]Beijing Engineering Research Center of Food Safety Analysis, Beijing Engineering Technology Research Centre of Gene Sequencing and Gene Function Analysis, Beijing Center for Physical and Chemical Analysis, Beijing 100089, PR China;

[b]Chinese Academy of Inspection and Quarantine, Beijing 100123, PR China;

[c]Beijing Engineering Research Center of Food Safety Immune Rapid Detection, Beijing Kwinbon Biotechnology CO., LTD. Beijing 102206, PR China)

* Corresponding author at: Beijing Center for Physical and Chemical Analysis, Beijing 100089, PR China. Tel: +86 010-58717271.

E-mail address: dumeihong@beijinglab.com.cn

Abstract

A rapid and effective pre-treatment method based on immune-magnetic separation (IMS) with enrichment culture was developed to rapidly detect trace levels of *Salmonella*. Immune-magnetic beads were prepared and their capture efficiency exceeded 90% with less than 10^6 CFU/mL of *Salmonella*. IMS was performed on 25-mL samples without pre-enrichment; instead, the trapped target pathogens were cultured in buffered peptone water for a short time. This pre-treatment was significantly shorter and simpler: the 5 h processing time included IMS for 1 h and