

Accepted Manuscript

Novel approach to enumerate clostridial endospores in milk

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PII: S0956-7135(17)30502-9

DOI: [10.1016/j.foodcont.2017.10.017](https://doi.org/10.1016/j.foodcont.2017.10.017)

Reference: JFCO 5826

To appear in: *Food Control*

Received Date: 11 July 2017

Revised Date: 11 October 2017

Accepted Date: 13 October 2017

Please cite this article as: Brändle J., Heinzle L., Fraberger V., Berta J., Zitz U., Schinkinger M., Stocker W., Kneifel W. & Domig K.J., Novel approach to enumerate clostridial endospores in milk, *Food Control* (2017), doi: 10.1016/j.foodcont.2017.10.017.

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1 **Novel approach to enumerate clostridial endospores in milk**

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8 Clostridial contamination of raw milk causes late-blowing, a severe quality defect in cheese.

9 Consequently, milk containing high numbers of cheese-damaging clostridial spores should not

10 be used for the production of certain types of hard and semi-hard cheese. Currently, there is

11 no officially standardised method available to monitor clostridial spore levels in milk, and

12 major drawbacks like long analysis time, labour intensity, uncertainty of results and

13 insufficient selectivity for clostridia exist for usually used conventional MPN (most probable

14 number) techniques. Therefore, an optimised medium in combination with a semi-automated

15 application for the enumeration of clostridia in milk was developed. The aim of this study was

16 to evaluate this new methodology in comparison with a conventional method (using Bryant

17 and Burkey broth) based on the analysis of 84 milk samples. Method inclusivity was further

18 tested using pure clostridial cultures, and selectivity was assessed by molecular identification

19 of isolates obtained from the new assay. The novel approach proved to be suitable for the

20 detection of clostridia in both suppliers' and processed milk, also indicating that it is superior

21 in selectivity, sensitivity and analysis time compared to conventional techniques.

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