BUFFERGLUCOSE CLEAN LABEL®
Replacement for e-numbers

Belgosuc Nv and PH Liquid Belgium Nv

Bufferglucose Clean Label (BCL) for healthier and safer prepared meat production systems. Avoid outbreaks and/or growth of the following bacteria: E. coli, salmonella, listeria and campylobacter, while using healthy fresh muscle meat with the correct slaughter pH value of 5.6-5.8 after 24 hours slaughter time.

Analysis of results for Bufferglucose Clean Label:

Growth of salmonella and campylobacter			Growth of Listeria monocytogenes and E. coli		
Ref: 1901123	Start: 11/03/2019	End: 18/03/2019	Ref: 1901123	Start: 3/4/2019	End: 10/4/2019

Sample identification

Bufferglucose Clean Label

Sample description

Fructose-glucose syrup with natural aroma and natural plant extracts

Strains

Salmonella enterica ATCC 13314
Campylobacter jejuni spp. Jejuni ATCC 33291

Listeria monocytogenes NCTC 11994
E. coli NCTC 9001

Analytical method

Salmonella quantification according to ISO 6597 modified. Campylobacter quantification according to ISO 10272-2

Listeria spp. quantification according to ISO 11290-2 modified. E. coli quantification according to ISO 16649-2

Test setup

Micro-organisms were added to the pure Bufferglucose Clean Label product at a ratio of 1/10. The concentration of the micro-organisms was determined after contamination and after a four-day incubation at 42°C. Simultaneously, a negative control using buffered peptone water (BPW) was contaminated with the same concentration of micro-organisms and incubated under the same conditions to determine the difference in growth.

Results

Salmonella and campylobacter were not detected in the test product.

Listeria and E. coli were not detected in the test product.

Salmonella Day 0	Initial contamination in BPW	14,000,000 (log 7.15) cfu/ml	Listeria Day 0	Initial contamination in BPW	18,000,000 (log 7.26) cfu/ml
	Initial contamination in BCL	67,000 (log 4.83) cfu/ml		Initial contamination in BCL	7,100 (log 3.85) cfu/ml
Salmonella Day 4, 42°C	Initial contamination in BCL	1,800,000 (log 6.26) cfu/ml	Listeria Day 4 at 42°C	Initial contamination in BCL	<1 (log 0) cfu/ml
Campy-lobacter Day 0	Initial contamination in BPW	1,200,000 (log 6.08) ufc/ml	E. coli Day 0	Initial contamination in BPW	68,000,000 (log 7.83) cfu/ml
	Initial contamination in BCL	<1 (log 0) cfu/ml		Initial contamination in BCL	720,000 (log 5.86) cfu/ml
Campy-lobacter Day 4, 42°C	Initial contamination in BCL	<1 (log 0) cfu/ml	E. coli Day 4 at 42°C	Initial contamination in BCL	<1 (log 0) cfu/ml

Conclusion

Directly after contact with the test product there was a strong reduction of salmonella of 2.32 log. After four days of incubation at 42°C the growth of salmonella was determined but limited to 0.89 log under the initial contamination level. There was most probably a death of the campylobacter strain directly after contact with the test product. Also after microaerophilic incubation at 42°C there was no growth of campylobacter determined.

It needs to be taken into account that this test was performed under laboratory conditions.

Antwerpen, 20/03/19

Directly after contact with the test product there was a strong reduction of Listeria of 3.41 log. After four days of incubation at 42°C the growth of listeria was not detected. Directly after contact with the test product there was a strong reduction of E. coli of 1.97 log. After four days of incubation at 42°C the growth of E. coli was not detected.

It needs to be taken into account that this test was performed under laboratory conditions.

Antwerpen, 11/04/19

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First published in International Food & Meat Topics volume 30.3

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Bufferglucose Clean Label (BCL) for healthier and safer prepared meat production systems. Avoid outbreaks and/or growth of the following bacteria: Staphylococcus aureus, Bacillus cereus, Candida albicans and Enterococcus faecalis, while using healthy fresh muscle meat with the correct slaughter pH value of 5.6-5.8 after 24 hours slaughter time.

Analysis of results for Bufferglucose Clean Label:

Challenge test, growth of Staphylococcus aureus, Bacillus cereus, Candida albicans and Enterococcus faecalis in Bufferglucose Clean Label

Ref:	Start:	End:
1901123.004	23/07/2019	01/08/2019

Sample identification

Bufferglucose Clean Label

Sample description

Fructose-glucose syrup with natural aroma and natural plant extracts

Strains

Staphylococcus aureus: RM04
Bacillus cereus: RM05
Candida albicans: ATCC 10231
Enterococcus faecalis: RMI5

Analytical method

Staphylococcus aureus quantification according to ISO 6888-1
Bacillus cereus quantification according to ISO 7932
Candida albicans quantification according to ISO 21527-2
Enterococcus faecalis quantification according to Agrilab LI/ANL/FSU/054

Test setup

Micro-organisms were added to the pure Bufferglucose Clean Label (BCL) product at a ratio of 1/10. The concentration of the micro-organisms was determined after contamination and after a four-day incubation at 42°C. Simultaneously, a negative control using buffered peptone water (BPW) was contaminated with the same concentration of micro-organisms and incubated under the same conditions to determine the difference in growth.

Results

Staphylococcus aureus, Bacillus cereus, Candida albicans and Enterococcus faecalis were not detected in the test product.

Micro-organism	Initial contamination	Result (cfu/ml)
Staphylococcus Day 0	BPW (negative control)	60,000,000 (log 7.78)
	BCL	41,000,000 (log 7.61)
Staphylococcus Day 4 at 42°C	BCL	<1 (log 0)
Bacillus Day 0	BPW (negative control)	7,400,000 (log 6.87)
	BCL	900,000 (log 5.95)
Bacillus Day 4 at 42°C	BCL	680,000 (log 5.83)
Candida Day 0	BPW (negative control)	3,000,000 (log 6.47)
	BCL	2,900,000 (log 6.46)
Candida Day 4 at 42°C	BCL	<1 (log 0)
Enterococcus Day 0	BPW (negative control)	30,000,000 (log 7.47)
	BCL	53,000,000 (log 7.72)
Enterococcus Day 4 at 42°C	BCL	<1 (log 0)

Conclusion

- Directly after contact with the product there was no reduction detected for Staphylococcus. After four days of incubation at 42°C no growth was detected.
- Directly after contact with the product there was a small reduction detected of log 0.92 for Bacillus. After four days of incubation at 42°C there was still growth detected at a concentration of log 5.83.
- Directly after contact with the product there was no reduction detected for Candida. After four days of incubation at 42°C no growth was detected
- Directly after contact with the product there was no reduction detected for Enterococcus. After four days of incubation at 42°C no growth was detected.
- It needs to be taken into account that this test was performed under laboratory conditions.

Bufferglucose Clean Label is free from E-numbers, allergens, pesticides, GMOs, gluten and ingredients of animal source. The composition is based on 100% natural fruit, plant and herbal extracts on carriers of glucose and fructose syrup.

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First published in International Food & Meat Topics volume 30.5