

## List of tables

1. Genetic diversity of the *Bacillus cereus* group
2. Foodborne outbreaks/incidence caused by *Bacillus cereus*
3. Characteristics of food poisoning caused and toxins produced by *Bacillus cereus*
4. Incidence of *Bacillus cereus* in dairy products
5. Effects of enzymes produced by *Bacillus cereus* on the organoleptic quality of milk and dairy products
6. Different clean-in-place regimes in dairy environment for *Bacillus cereus* biofilm cell removal
7. Sampling of the marketed milk and dairy products
8. Levels of variables in experimental design for *Bacillus cereus* biofilm cell removal from stainless steel coupon using alkali
9. Design of RSM for *Bacillus cereus* biofilm cell removal from stainless steel coupon using alkali
10. Levels of variables in experimental design for *Bacillus cereus* biofilm removal from microtiter plate using protease
11. Design of RSM for *Bacillus cereus* biofilm removal from microtiter plate using protease
12. Levels of variables in the experimental design for exposure assessment with *Bacillus cereus*
13. RSM design and experimental values of exposure assessment with *Bacillus cereus*
14. Confirmation of the presumptive *Bacillus cereus* isolates, grown on *Bacillus cereus* selective agar plate
15. Prevalence and population of *Bacillus cereus* in market samples of various dairy products
16. Range of growth temperatures of *Bacillus cereus* isolates from dairy products
17. Antibiogram of 144 isolates of *Bacillus cereus* from dairy products
18. Production of extracellular enzymes and enterotoxins by the strains of *Bacillus cereus*, isolated from different dairy products
19. Relative activities and thermostability of the crude enzymes from selected isolates of *Bacillus cereus* from dairy products
20. Clustering of 144 isolates of *Bacillus cereus* from dairy products on the basis of biofilm-forming ability at 4 °C
21. Distribution of 144 isolates of *Bacillus cereus* from different dairy products among the clusters generated
22. Results of *in vitro* model study
23. Design of RSM, and its actual and predicted values for *Bacillus cereus* biofilm cell removal
24. ANOVA results for response surface quadratic model
25. ANOVA results for the equations of the Design Expert for studied responses
26. Effect of different cleaning regimes on *Bacillus cereus* biofilm cell removal
27. Design of RSM for *Bacillus cereus* biofilm removal from microtiter plate by protease
28. ANOVA results of quadratic model for *Bacillus cereus* biofilm removal from microtiter plate by protease
29. Effect of different cleaning-in-place regimes on *Bacillus cereus* biofilm cell and matrix removal from stainless steel coupons
30. Distribution of risk factors in pasteurised milk stored in domestic refrigerators against exposure to high levels of *Bacillus cereus*, determined using Monte Carlo simulation with 10,000 iterations
31. RSM design and experimental values of exposure assessment with *Bacillus cereus*
32. ANOVA results for quadratic model of exposure assessment with *Bacillus cereus*
33. Final population of *Bacillus cereus* at different time-temperature exposures

# List of figures

1. Annual consumption of different dairy products in India
2. The phylogenetic position of *Bacillus cereus* group species
3. Industrial dairy processing line
4. Dairy supply chain in Indian scenario
5. Contamination routes of *Bacillus cereus* in dairy production chain
6. Processes governing biofilm formation
7. Flow diagram and critical control points for pasteurised milk
8. Milk and dairy products, as marketed
9. *Bacillus cereus* isolation and characterisation
10. Score biplot for principal component analysis showing observations and variables together for 144 isolates of *Bacillus cereus*
11. Simplified dendrogram based on wards clustering of dissimilarity coefficient generated by agglomerative hierarchical clustering
12. 3-D and contour response surface plots on removal of *Bacillus cereus* biofilm
13. Crystal violet-stained biofilms present on stainless steel coupons and OD<sub>595</sub> of stained biofilms from coupons before and after treatment with optimised cleaning
14. 3-D and contour response surface plots on removal of *Bacillus cereus* M28 biofilm from the wells of microtiter plates
15. 3-D and contour response surface plots on final population of *Bacillus cereus*

# Abbreviations

AHC	Agglomerative hierarchical clustering
ANOVA	Analysis of variance
CIP	Cleaning-in-place
CCP	Critical control point
cfu	Colony forming unit
CytK	Cytotoxin K
D-value	Decimal reduction time
DNA	Deoxyribonucleic acid
EPS	Extracellular polymeric substances
HACCP	Hazard analysis and critical control point
Hbl	Haemolysin BL
HIMUL	Himalayan Milk Producers' Union Limited
ISO	International Organization for Standardization
Nhe	Nonhaemolytic enterotoxin
OD	Optical density
<i>P</i> -value	Calculated probability
PC	Principal component
PCA	Principal component analysis
PCR	Polymerase chain reaction
RAPD	Random amplified polymorphic DNA
RNA	Ribonucleic acid
RSM	Response surface methodology
<i>SE</i>	Standard error
<i>s.l.</i>	<i>sensu lato</i>
<i>s.s.</i>	<i>sensu stricto</i>
UHT	Ultra high temperature