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3 **Microbiological Quality of Raw Milk Attributable to Prolonged Refrigeration**

4 **Conditions**

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SUPPLEMENTARY FILE

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11 **Caption of Supplementary Tables**

12

13 **Table S1**

14 Relationship between the psychrotrophic proteolytic count (PPrBC) with protease activity (PA),
15 proteolysis (PL) and storage life in the aspect of quality (S_{LQ}) of raw milk stored under different
16 conditions at the end of the storage life.

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18 **Table S2**

19 Relationship between the thermotrophic psychrotrophic count (TDPC) with protease activity (PA),
20 proteolysis (PL) and storage life in the aspect of safety (S_{LS}) of raw milk stored under different
21 conditions at the end of the storage life.

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23 **Table S3**

24 The effect of refrigerated storage and combined high temperature short time (HTST) pasteurisation
25 and refrigerated storage on storage life/shelf life of raw milk stored under different conditions.

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

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29 **Caption of Supplementary Figures**

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31 **Fig. S1**

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33 Effect of different storage conditions on the total plate counts (TPC) and psychrotrophic bacterial
34 counts (PBC) of A, B and C raw milk samples; at  2 °C,  4 °C,  6 °C,  8 °C,  10 °C and  12 °C storage. The results were presented as mean \pm SE, (n = 9).

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36 **Table S1**

Storage Temperature (°C)	Sample A			Sample B			Sample C		
	CC (r) (PPrBC x PA [¶])	CC (r) (PPrBC x PL [¥])	CC (r) (initial PPrBC x S _{LQ} [£])	CC (r) (PPrBC x PA [¶])	CC (r) (PPrBC x PL [¥])	CC (r) (initial PPrBC x S _{LQ} [£])	CC (r) (PPrBC x PA [¶])	CC (r) (PPrBC x PL [¥])	CC (r) (initial PPrBC x S _{LQ} [£])
2	0.65 [‡]	0.67 [‡]	0.72 [‡]	0.65 [‡]	0.58 [‡]	0.67 [‡]	0.72 [‡]	0.78 [‡]	0.76 [‡]
4 [Ⓔ]	0.98 [*]	0.97 [*]	0.90 [*]	0.83 [‡]	0.81 [‡]	0.87 [§]	0.96 [*]	0.94 [*]	0.91 [*]
6	0.99 [*]	0.98 [*]	0.95 [*]	0.89 [§]	0.86 [§]	0.89 [§]	0.99 [*]	0.98 [*]	0.92 [*]
8	0.97 [*]	0.98 [*]	0.95 [*]	0.91 [*]	0.94 [*]	0.93 [*]	0.92 [*]	0.96 [*]	0.98 [*]
10	0.95 [*]	0.93 [*]	0.90 [*]	0.93 [*]	0.92 [*]	0.91 [*]	0.98 [*]	0.98 [*]	0.96 [*]
12	0.96 [*]	0.95 [*]	0.94 [*]	0.96 [*]	0.92 [*]	0.93 [*]	0.98 [*]	0.98 [*]	0.97 [*]

37 ^{†,‡,§}Means significance levels by MANOVA (SPSS Windows Ver 21) [†] $P < 0.001$; [§] $P < 0.05$; [‡] $P > 0.05$.
 38 CC: Correlation coefficient; PPrBC: Psychrotrophic proteolytic count; PA: protease activity; PL: proteolysis.
 39 [£]S_{LQ}; Storage life in quality aspect: time to reach PPrBC of 5×10^4 cfu/mL.
 40 [Ⓔ] After 6,8 and 5 days of storage of A, B and C samples.
 41 [¶]Protease activity determined by relative fluorescence units/mL.
 42 [¥]Degree of hydrolysis, which denotes the extent of proteolysis that was determined using OPA-method.
 43 Multiple samples were analysed with SD ± 1.5 (n = 9).
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45 **Table S2**

Storage Temperature (°C)	Sample A			Sample B			Sample C		
	CC (r) (TDPC x PA [¶])	CC (r) (TDPC x PL [¥])	CC (r) (initial TDPC x S _{LS} [†])	CC (r) (TDPC x PA [¶])	CC (r) (TDPC x PL [¥])	CC (r) (initial TDPC x S _{LS} [†])	CC (r) (TDPC x PA [¶])	CC (r) (TDPC x PL [¥])	CC (r) (initial TDPC x S _{LS} [†])
2	0.35 [‡]	0.42 [‡]	0.43 [‡]	0.32 [‡]	0.38 [‡]	0.47 [‡]	0.52 [‡]	0.51 [‡]	0.50 [‡]
4	0.53 [‡]	0.52 [‡]	0.46 [‡]	0.54 [‡]	0.56 [‡]	0.52 [‡]	0.56 [‡]	0.54 [‡]	0.53 [‡]
6	0.68 [‡]	0.62 [‡]	0.60 [‡]	0.65 [‡]	0.66 [‡]	0.63 [‡]	0.75 [‡]	0.72 [‡]	0.70 [‡]
8	0.81 [§]	0.82 [§]	0.80 [§]	0.84 [§]	0.83 [§]	0.81 [§]	0.88 [*]	0.91 [*]	0.93 [*]
10	0.87 [*]	0.86 [*]	0.85 [*]	0.90 [*]	0.89 [*]	0.88 [*]	0.93 [*]	0.92 [*]	0.90 [*]
12	0.90 [*]	0.91 [*]	0.90 [*]	0.94 [*]	0.93 [*]	0.92 [*]	0.95 [*]	0.94 [*]	0.93 [*]

46 ^{†,‡,§}Means significance levels by MANOVA (SPSS Windows Ver 21) [†] $P < 0.001$; [§] $P < 0.05$; [‡] $P > 0.05$.
 47 CC: Correlation coefficient; TDPC: Thermotrophic psychrotrophic count; PA: protease activity; PL: proteolysis.
 48 [†]S_{LS}; Storage life in safety aspect: time to reach TDPC of 1×10^4 cfu/mL.
 49 [¶]Protease activity determined by relative fluorescence units/mL.
 50 [¥]Degree of hydrolysis, which denotes the extent of proteolysis that was determined using OPA-method.
 51 Multiple samples were analysed with SD ± 1.5 (n = 9).
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62 **Table S3**

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Sample	Storage Temperature (°C)	Observed S _{LQ} [£]		Observed S _{LS} [†]	
		Before HTST (days)	After HTST [‡] (days)	Before HTST (days)	After HTST [‡] (days)
A	2	9*	>10*	>10*	>10*
	4	6 [§]	>10*	>10*	10*
	6	5 [§]	9*	8*	8*
	8	4 [‡]	5 [§]	5 [§]	6 [§]
	10	2 [‡]	4 [‡]	2 [‡]	5 [‡]
	12	1 [‡]	2 [‡]	1 [‡]	3 [‡]
B	2	10*	>10*	>10*	>10*
	4	8*	>10*	>10*	>10*
	6	6 [§]	>10*	7*	>10*
	8	4 [§]	8*	4*	8*
	10	2 [‡]	5 [§]	2 [§]	6 [§]
	12	1 [‡]	4 [‡]	1 [‡]	3 [‡]
C	2	8 [§]	10*	10*	>10*
	4	5 [§]	7 [§]	9 [§]	9 [§]
	6	4 [‡]	6 [§]	7 [§]	6 [§]
	8	3 [‡]	4 [‡]	5 [‡]	5 [‡]
	10	2 [‡]	3 [‡]	3 [‡]	3 [‡]
	12	1 [‡]	2 [‡]	2 [‡]	3 [‡]

64 ^{*,§,‡}Means significance levels by MANOVA (SPSS Windows Ver 21) * $P < 0.001$; [§] $P < 0.05$; [‡] $P > 0.05$.65 [£]S_{LQ}; Storage life in quality aspect: time to reach psychrotrophic proteolytic count (PPrBC) of 5×10^4

66 cfu/mL.

67 [†]S_{LS}; Storage life in safety aspect: time to reach thermoduric psychrotrophic count (TDPC) of 1×10^4

68 cfu/mL.

69 [‡] HTST: High temperature short time pasteurisation: 75 ± 0.5 °C for 15 s heat-treatment.70 Multiples samples were analysed with SD ± 2.1 (n = 9).

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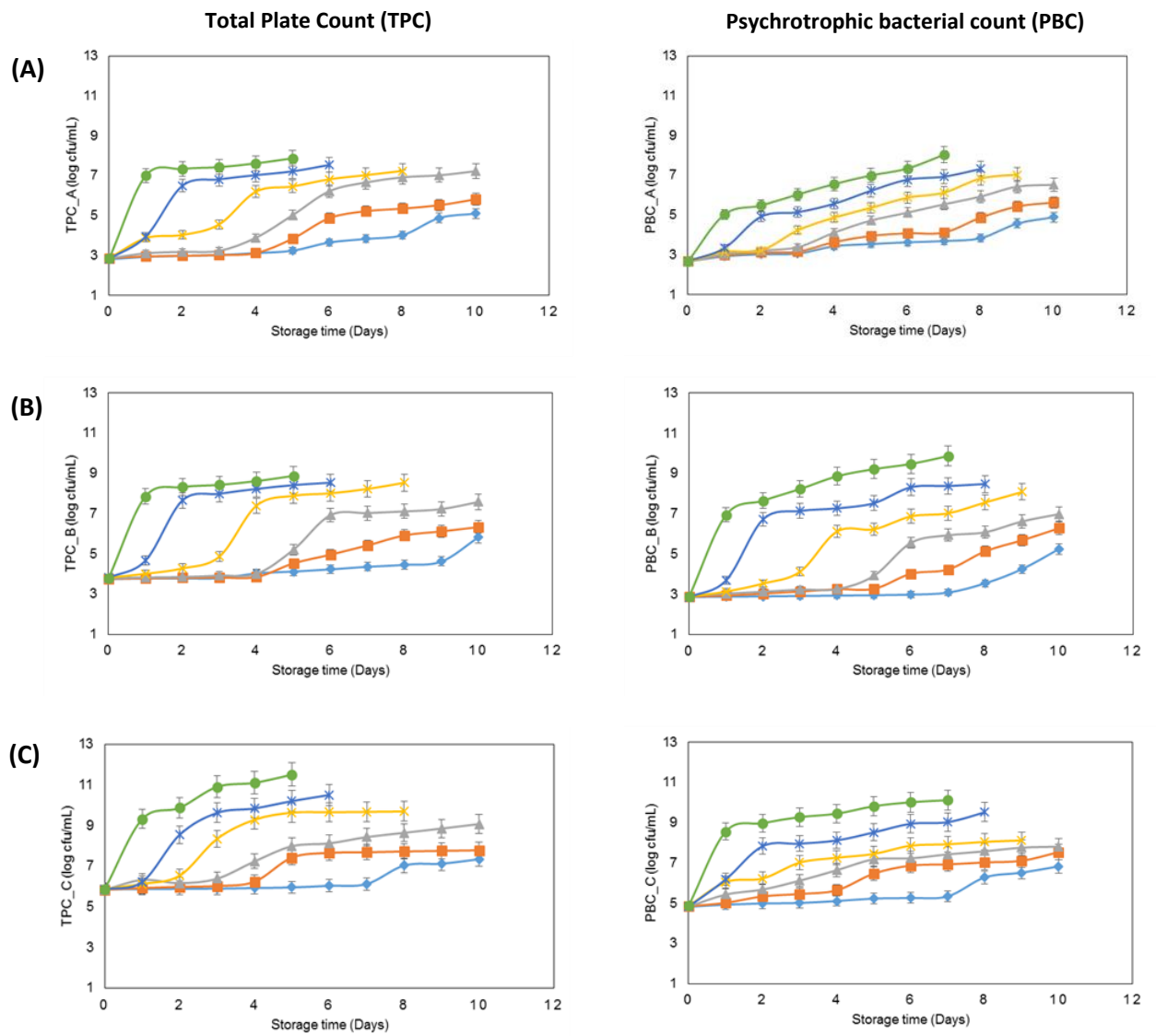
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Fig. S1



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