**Table 1.**

Rheological properties of rennet-induced coagulum made from control, skim milk with cream (SC), reconstituted micellar casein concentrate with cream (MC) and reconstituted low heat skim milk powder with cream (PC)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Gelation time (min)1 | G’ at 90 min (Pa) | Loss Tangent (LT) at 90 min |
| Control | 7.81a (0.58) | 143.3bc (31.66) | 0.26a (0.003) |
| SC | 7.78a (0.71) | 169.5c (17.68) | 0.27b (0.028) |
| MC | 9.29a (0.73) | 74.23a (6.71) | 0.29c (0.002) |
| PC | 8.79a (1.15) | 91.04ab (10.26) | 0.27ab (0.001) |

1Gelation time refers to the time when G’ value was higher than 1.

Data are means (± standard deviation) of three replicate trials.

a,b,c Means within the same column not sharing a common superscript differ significantly (P<0.05).

**Table 2.**

Composition of cheeses made from control, skim milk with cream (SC), reconstituted micellar casein concentrate with cream (MC) and reconstituted low heat skim milk powder with cream (PC) at 14 days of ripening, pH values at 14, 30, 60, 120 and 180 days of ripening, and pH 4.6-SN/TN levels at 180 days of ripening.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Control | SC | MC | PC |
| Moisture% | 38.41ab (0.41) | 37.41a (0.41) | 37.80a (1.43) | 39.31b (1.14) |
| Fat% | 35.25a (2.47) | 35.75a (2.13) | 35.50a (2.75) | 34.84a (2.12) |
| Protein% | 23.85a (0.71) | 24.12a (0.95) | 23.44a (0.95) | 23.73a (1.47) |
| Salt% | 1.57ab (0.11) | 1.48a (0.10) | 1.70c (0.10) | 1.66bc (0.07) |
| MNFS% | 59.33 (0.65) | 58.22 (0.65) | 58.61 (2.21) | 60.33 (1.75) |
| FDM% | 59.50 (3.00) | 58.14 (1.87) | 59.22 (2.94) | 58.31 (2.59) |
| pH at 14 days | 5.03a (0.09) | 5.05a (0.07) | 5.23b (0.14) | 5.06a (0.11) |
| pH at 30 days | 5.07ab (0.04) | 5.01a (0.04) | 5.26c (0.04) | 5.14b (0.08) |
| pH at 60 days | 5.07a (0.07) | 5.11ab (0.07) | 5.20b (0.07) | 5.12ab (0.03) |
| pH at 120 days | 5.13a (0.09) | 5.17a (0.06) | 5.40b (0.04) | 5.25ab (0.03) |
| pH at 180 days | 5.04a (0.03) | 5.07a (0.04) | 5.31b (0.10) | 5.17ab (0.07) |
| pH 4.6-SN/TN | 23.01bc (1.22) | 22.21ab (1.23) | 25.89c (1.65) | 19.71a (2.03) |

Data are means (± standard deviation) from three independent trials.

a,b,c Means within the same row not sharing a similar superscript differ significantly (P<0.05). There were no significant differences found for MNFS or FDM between means with in a row.

Abbreviations: MNFS, moisture in non-fat substance. FDM, fat in dry matter.

**Table 3.**

Plasmin activity and residual chymosin activity (performed as % of that in the control cheese) of cheeses made from control, skim milk with cream (SC), reconstituted micellar casein concentrate with cream (MC) and reconstituted low heat skim milk powder with cream (PC) at 180 days of ripening.

|  |  |  |
| --- | --- | --- |
| Treatment | Plasmin activity (nmol AMC mL-1 min-1) | Residual chymosin activity (% of control) |
| Control | 0.572b (0.121) | 100b |
| SC | 0.656b (0.185) | 106.04b (4.89) |
| MC | 1.116c (0.024) | 132.58c (3.81) |
| PC | 0.396a (0.042) | 80.74a (6.61) |

Data are means (± standard deviation) from three independent trials.

a,b,c Means within the same column not sharing a similar superscript differ significantly (P<0.05).

**Table 4.**

Rheological properties of cheeses made from control, skim milk with cream (SC), reconstituted micellar casein concentrate with cream (MC) and reconstituted low heat skim milk powder with cream (PC) at 180 days of ripening, as assessed by dynamic small amplitude oscillatory rheology.

|  |  |  |  |
| --- | --- | --- | --- |
|  | LTmax | Temperature at LTmax (℃) | Temperature at LT=1 (℃) |
| Control | 1.25a | (0.31) | 70.55a | (0.70) | 62.02c | (0.58) |
| SC | 1.42a | (0.33) | 71.36a | (2.49) | 61.80b | (2.88) |
| MC | 2.93b | (0.33) | 77.76b | (1.91) | 55.24a | (1.57) |
| PC | 1.92c | (0.18) | 75.64b | (4.75) | 58.93b | (1.58) |

Data are means (± standard deviation) from three independent trials.

a,b,c Means within the same column not sharing a similar superscript differ significantly (P<0.05).

**Table 5.**

CIE LAB colour values of cheese made from control, skim milk with cream (SC), reconstituted micellar casein concentrate with cream (MC) and reconstituted low heat skim milk powder with cream (PC) after 180 days of ripening, and ΔE\*ab between control and each treatment after 180 days of ripening.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | L\* | a\* |  b\* | ΔE\*ab |
| Control | 81.05b | (1.81) | -4.44a | (0.23) | 36.72ab | (2.42) | - |
| SC | 80.91b | (1.19) | -4.36a | (0.32) | 37.43b | (1.53) | 1.82 |
| MC | 79.34a | (1.56) | -3.88b | (0.29) | 35.56a | (1.43) | 0.15 |
| PC | 79.74ab | (0.85) | -3.40c | (0.54) | 36.07ab | (0.89) | 1.47 |

CIELAB data are means (± standard deviation) of five replicate analyses from three independent trials.

a,b,c Means within the same column not sharing a similar superscript differ significantly (P<0.05).

ΔE\*ab data are calculated from CIELAB results.

The just noticeable differences (JND) of ΔE\*ab was approximately 2.3.