**Eggnog: process optimization and characterization of a dairy based beverage**

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SUPPLEMENTARY FILE

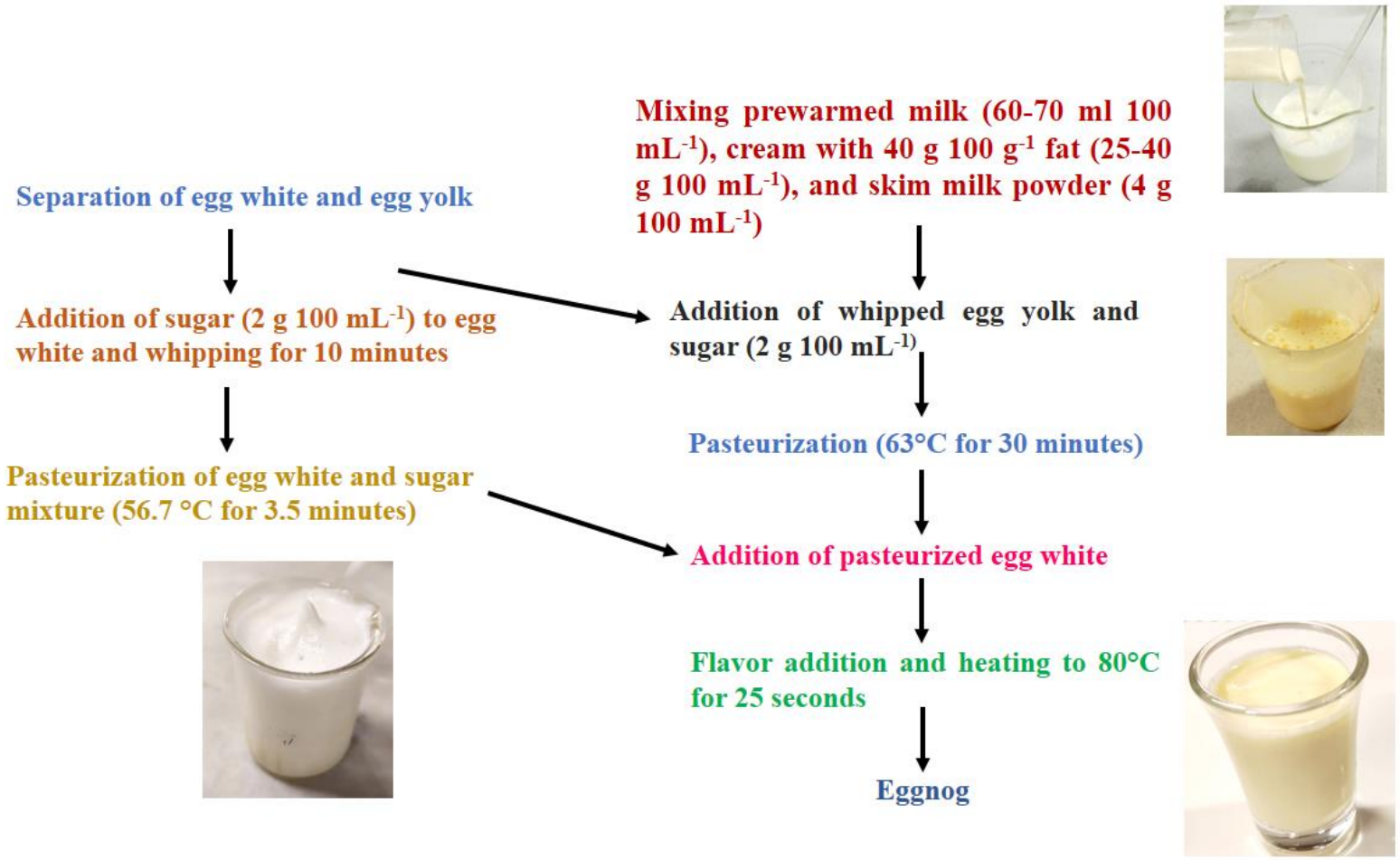
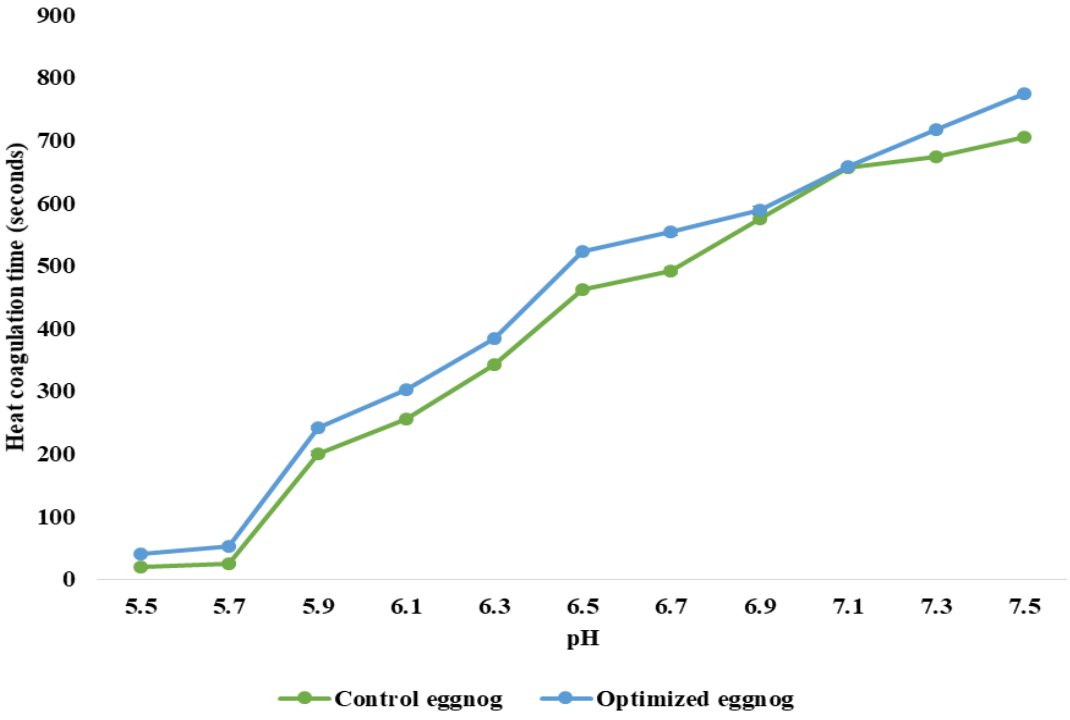
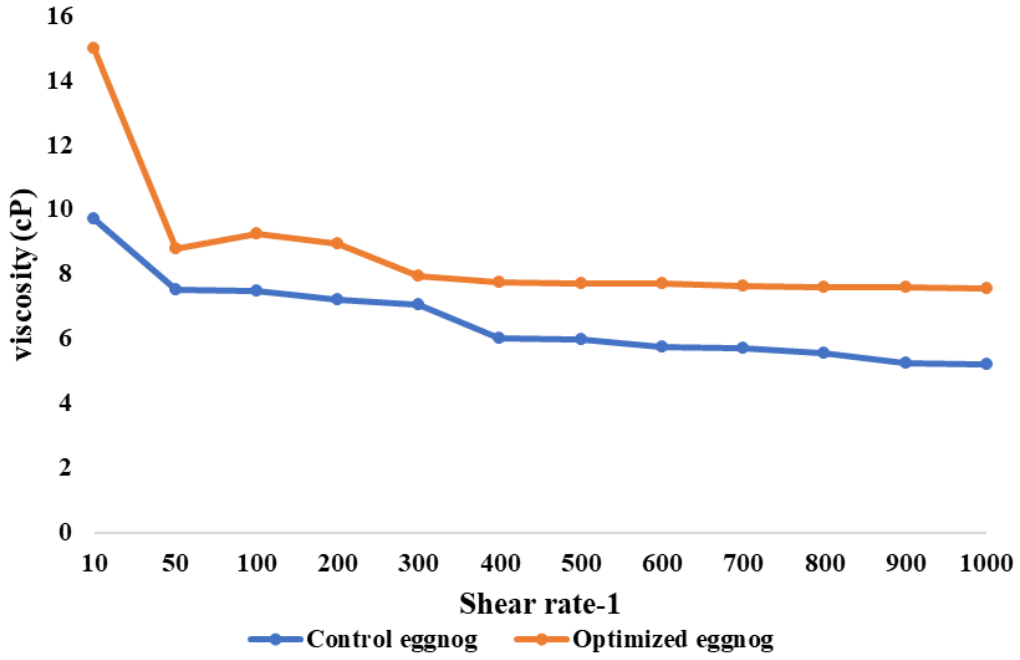



**Fig S1: Process for the preparation of eggnog**


900
800
700
600
500
400
300
200
100
0
Heat coagulation time (seconds)
5.5
5.7
5.9
6.1
6.3
6.5
6.7
6.9
7.1
7.3
7.5
pH
Control eggnog
Optimized eggnog

**(A)**


16
14
12
10
8
6
4
2
0
viscosity (cP)
10
50
100
200
300
400
500
600
700
800
900
1000
Shear rate-1
Control eggnog
Optimized eggnog

**(B)**

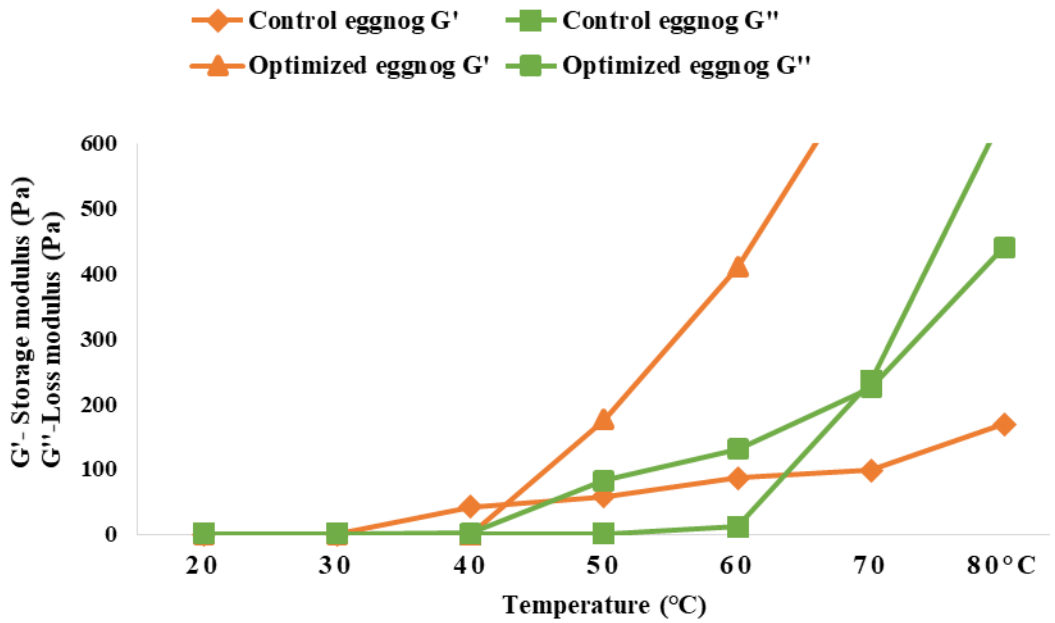



**Fig S2: Effect of composition of control and optimized eggnog on (A) Heat coagulation time (s), (B) Viscosity (mPaS), and (C) storage (G') and loss modulus (G")**

**Table S1: Box Behnken Design of coded and actual values of Eggnog**

| Symbol coded | Independent variables | Unit | Range of actual independent variables | | |
|---|---|---|---|---|---|
| | | | Low (-1) | Middle (0) | High (+1) |
| $X_1$ | Milk | % | 60.00 | 67.50 | 75.00 |
| $X_2$ | Cream | % | 25.00 | 32.50 | 40.00 |
| $X_3$ | Eggnog base | % | 5.00 | 6.50 | 8.00 |

T**able S2: Goal set for constrains to optimize the eggnog (Maximum, Minimum, In range)**

| Name | Goal | Lower Limit | Upper Limit |
|---|---|---|---|
| **Heat coagulation time** | Maximum | 297 | 540 |
| **Viscosity** | In range | 3.54 | 9.49 |
| **Thermal gelation** | Maximum | 45.27 | 53.01 |

**Table S3: Predicted values vs Experimental values of the experimental responses for optimized eggnog formulation**

| Parameter | Predicted value* ($\mu_0$) | Experimental value^ ($\mu_1$) | $t_{0.05}$ (Calculated) |
|---|---|---|---|
| **Heat coagulation time (s)** | 527 | 523 | $4.622^{NS}$ |
| **Viscosity (mPa s)** | 7.00 | 7.51 | $0.327^{NS}$ |
| **Thermal gelation temperature (°C)** | 50.75 | 50.53 | $0.518^{NS}$ |

*Desirability for this result was 0.81.

^Mean of three replications. $\mu_0$: $\mu_0 = \mu_1$. $t_{cal} < t_{table}$ at $P < 0.05$.

**Table S4: Sensory scores for the control and optimized eggnog**

| **Parameters** | **Control Eggnog** | **Optimized Eggnog** |
|---|---|---|
| Sediment | NIL | NIL |
| Colour | $5.00 \pm 1.53^{a}$ | $5.56 \pm 1.64^{a}$ |
| Bland | 0.00 | 0.00 |
| Egg | $4.67 \pm 2.56^{b}$ | $3.56 \pm 2.17^{a}$ |
| Milk | $6.00 \pm 0.82^{a}$ | $7.23 \pm 2.45^{a}$ |
| Cream | $4.67 \pm 1.49^{a}$ | $5.11 \pm 1.66^{a}$ |
| Sweet | $7.83 \pm 0.69^{b}$ | $5.44 \pm 1.34^{a}$ |
| Viscous | $3.83 \pm 1.07^{a}$ | $5.00 \pm 2.16^{b}$ |
| Mouthfeel | $4.00 \pm 1.00^{a}$ | $4.78 \pm 1.31^{a}$ |
| Smooth | $2.33 \pm 1.60^{a}$ | $6.27 \pm 0.94^{b}$ |
| Overall Acceptability | $4.91 \pm 1.02^{a}$ | $7.66 \pm 0.94^{b}$ |

All the values are Mean ± S.D. (n=10)

$^{(ab)}$Mean values in a row with at least one similar superscript do not differ significantly ($P > 0.05$).