Table S1. Mayonnaise recipes varying emulsifiers and additive amounts

Table S2. Comparison of proximate composition in CSF, DSF-SC and egg yolk: Moisture, Crude Fat, Crude Fiber, and Crude Protein Content.

Table S3. pH of mayonnaise with different emulsifiers at different concentrations: CSF, DSF-SC, and EY.

Table S4. Particle size analysis of mayonnaise with different emulsifiers at different concentrations.

Table S1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ingredients | Samples | | | | | | | | | | | | | | |
| CSF0.5 | CSF1 | CSF1.5 | CSF2 | CSF3 | DSF-SC0.5 | DSF-SC1 | DSF-SC1.5 | DSF-SC2 | DSF-SC3 | EY0.5 | EY1 | EY1.5 | EY2 | EY3 |
| Control soybean flour | 0.5 | 1 | 1.5 | 2 | 3 | - | - | - | - | - | - | - | - | - | - |
| De-fatted soybean flour | - | - | - | - | - | 0.5 | 1 | 1.5 | 2 | 3 | - | - | - | - | - |
| Egg yolk powder | - | - | - | - | - | - | - | - | - | - | 0.5 | 1 | 1.5 | 2 | 3 |
| Soybean oil | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| Sugar | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Salt | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Mustard powder | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| Vinegar | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Water | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 | 22.2 |

Table S2.

|  |  |  |  |
| --- | --- | --- | --- |
| Proximate composition (%) | CSF | DSF-SC | Egg Yolk |
| Moisture content | 7.41±0.651)c | 3.30±0.08a | 3.48±0.24b |
| Ash content | 5.41±0.29b | 6.26±0.14c | 3.94±0.21a |
| Crude protein content | 38.66±0.66b | 48.93±0.82c | 36.20±0.74a |
| Crude fat content | 18.95±0.95b | 0.51±0.37a | 54.27±0.56c |

1)a-cMeans with different superscripts in the same row are significantly different at p<0.05 by Duncan's multiple range test.

Table S3.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **pH** | **Different addition of emulsifier (%)** | | | | |
| **0.51)** | **1** | **1.5** | **2** | **3** |
| **CSF** | 3.83±0.01bA2) | 3.99±0.02bB | 4.11±0.01bC | 4.20±0.01bD | 4.34±0.00bE |
| **DSF-SC** | 3.61±0.02aA | 3.80±0.01aB | 3.92±0.00aC | 4.03±0.01aD | 4.16±0.02aE |
| **EY** | 4.17±0.01cA | 4.31±0.01cB | 4.42±0.00cC | 4.58±0.01cD | 4.67±0.01cE |

1)Emulsifier Quantity Variation (0.5-3) for Each Formulation

2)Lowercase letters (a-c) indicate significant differences between different emulsifiers within the same column, while uppercase letters (A-E) indicate significant differences between different additive levels within the same row. Different letters denote significant differences among samples (*p* < 0.05).

Table S4.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **d4,3** | **Different addition of emulsifier (%)** | | | | |
| **0.51)** | **1** | **1.5** | **2** | **3** |
| **CSF** | 53.35±0.12cE2) | 45.85±0.25cD | 42.46±0.30cC | 39.38±0.32cB | 33.01±0.22cA |
| **DSF-SC** | 35.84±0.1bE | 32.90±0.04bD | 28.64±0.05bC | 24.24±0.20bB | 12.02±0.26bA |
| **EY** | 28.98±0.03aE | 27.70±0.12aD | 23.33±0.21aC | 15.96±0.08aB | 8.3±0.16aA |

1)Emulsifier Quantity Variation (0.5-3) for Each Formulation

2)Lowercase letters (a-c) indicate significant differences between different emulsifiers within the same column, while uppercase letters (A-E) indicate significant differences between different additive levels within the same row. Different letters denote significant differences among samples (*p* < 0.05)