

Formulation and characterization of a novel dairy based dip utilizing heat-acid coagulated milk gel and whey

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SUPPLEMENTARY FILE

Table S1. Independent variables with their coded and un-coded level

Variables	Symbol	Real values of coded levels		
		-1	0	+1
Cream (40% fat) (w/w)	A	15	25	35
Whey (w/w)	B	60	65	70
Common salt (w/w)	C	0.8	0.9	1

-1: factor at low level; 0: factor at medium level; +1: factor at high level.

Table S2. Experimental design matrix for independent variables and sensorial scores for dairy based dip

Std. Order -	Ingredients (g/100 g)			Sensory scores			
	A	B	C	Flavour	BT	CA	OA
1	15	60	0.8	8.18±0.61	7.86±0.86	7.75±0.85	7.93±0.83
2	25	60	0.8	9.00±0.00	8.64±0.16	8.93±0.02	8.86±0.06
3	35	60	0.8	8.64±0.74	8.00±0.50	8.57±0.33	8.43±0.23
4	15	65	0.8	8.00±0.67	8.75±0.25	8.07±0.56	8.25±0.15
5	25	65	0.8	8.85±0.28	8.25±0.15	8.75±0.15	8.64±0.34
6	35	65	0.8	8.18±1.05	8.07±0.53	8.18±0.22	8.07±0.67
7	15	70	0.8	8.17±1.01	7.25±1.01	8.18±0.38	7.86±0.46
8	25	70	0.8	8.42±0.61	7.18±0.87	8.36±0.26	8.00±0.40
9	35	70	0.8	8.00±0.88	7.00±0.69	8.00±0.33	7.50±0.75
10	15	60	0.9	8.25±0.54	6.50±1.23	7.93±0.43	7.50±0.25
11	25	60	0.9	9.00±0.00	7.86±0.51	8.93±0.03	8.64±0.24
12	35	60	0.9	8.75±0.19	7.75±0.65	8.64±0.24	8.36±0.14
13	15	65	0.9	8.07±0.45	8.17±0.57	8.18±0.28	8.07±0.37
14	25	65	0.9	8.93±0.04	9.00±0.00	8.86±0.07	8.93±0.03
15	35	65	0.9	8.25±0.25	8.64±0.33	8.25±0.55	8.36±0.16
16	15	70	0.9	8.07±0.32	8.00±0.50	8.25±0.15	8.07±0.57
17	25	70	0.9	8.57±0.33	8.00±0.25	8.43±0.33	8.36±0.26
18	35	70	0.9	8.07±0.53	7.32±0.62	8.00±0.25	7.75±0.25
19	15	60	1.0	8.07±0.33	6.50±1.34	8.00±0.15	7.50±0.50
20	25	60	1.0	8.93±0.02	7.00±1.25	9.00±0.00	8.36±0.26
21	35	60	1.0	8.57±0.33	7.25±0.94	8.75±0.10	8.18±0.48
22	15	65	1.0	8.00±0.45	7.75±0.84	8.18±0.28	8.00±0.50
23	25	65	1.0	8.75±0.15	8.00±0.45	8.85±0.05	8.57±0.27
24	35	65	1.0	8.07±0.23	9.00±0.00	8.50±0.25	8.50±0.25
25	15	70	1.0	7.93±0.63	8.43±0.23	8.50±0.15	8.25±0.15
26	25	70	1.0	8.35±0.35	8.25±0.25	8.57±0.17	8.36±0.36
27	35	70	1.0	8.00±0.25	8.00±0.54	8.07±0.23	8.00±0.25
28	25	65	0.9	8.64±0.26	8.50±0.26	8.00±0.80	8.36±0.26
29	25	65	0.9	8.93±0.02	8.64±0.14	8.75±0.15	8.75±0.15
30	25	65	0.9	8.18±0.22	8.75±0.10	8.75±0.10	8.57±0.27
31	25	65	0.9	8.86±0.06	8.75±0.05	9.00±0.00	8.86±0.09
32	25	65	0.9	8.25±0.25	8.75±0.15	8.25±0.55	8.43±0.23

A: Cream; B: whey; C: common salt; Ingredients (g/100 g heat-acid induced milk gel); BT: body and texture; CA: colour and appearance; OA: overall acceptability. Values are in mean ±SD (n=7).

Table S3. Experimental design matrix for independent variables and texture profile scores for dairy based dip

Std. Order	Ingredients (g/100 g)			Texture profile scores			
	A	B	C	Firmness (g)	Stickiness (g)	WOS (g.s)	WOA (g.s)
1	15	60	0.8	195.82±10.23	183.14±14.56	184.19±11.92	67.98±0.63
2	25	60	0.8	226.86±14.61	234.99±21.98	219.89±09.20	73.03±1.05
3	35	60	0.8	266.95±22.87	275.93±25.11	262.82±18.50	86.49±0.72
4	15	65	0.8	169.58±14.26	166.59±12.40	153.55±13.41	55.81±0.39
5	25	65	0.8	181.43±18.63	167.43±09.78	162.68±15.16	68.97±0.02
6	35	65	0.8	197.89±17.65	196.17±15.65	186.60±09.63	65.93±0.55
7	15	70	0.8	165.00±14.29	157.81±18.63	156.84±12.56	63.58±0.78
8	25	70	0.8	173.54±15.63	168.15±11.88	157.31±09.55	62.58±1.04
9	35	70	0.8	177.44±13.02	138.07±15.56	157.44±11.93	63.85±0.18
10	15	60	0.9	216.29±19.84	227.61±20.25	178.28±14.78	72.97±0.78
11	25	60	0.9	246.87±14.69	251.17±15.78	240.26±09.42	80.74±0.63
12	35	60	0.9	260.06±15.63	279.10±19.63	245.53±13.12	84.23±1.23
13	15	65	0.9	194.20±12.30	182.56±06.19	185.04±12.51	66.22±0.67
14	25	65	0.9	195.82±08.23	183.14±09.62	184.19±13.07	67.98±0.33
15	35	65	0.9	211.62±22.63	206.72±17.45	207.34±20.23	79.22±0.18
16	15	70	0.9	175.82±09.33	167.61±15.77	146.44±13.31	56.36±0.57
17	25	70	0.9	179.81±06.63	173.13±12.08	167.07±14.99	63.50±0.22
18	35	70	0.9	180.85±09.25	166.94±15.50	178.74±10.07	66.49±1.08
19	15	60	1.0	213.29±15.03	217.97±09.47	199.78±14.49	77.60±0.78
20	25	60	1.0	215.65±11.23	227.60±09.98	186.37±10.03	75.41±0.44
21	35	60	1.0	217.41±17.38	235.39±12.54	193.36±14.40	69.61±0.55
22	15	65	1.0	196.37±13.66	181.06±09.63	179.73±12.50	65.06±0.13
23	25	65	1.0	207.85±11.66	201.92±14.58	189.78±17.60	70.49±0.97
24	35	65	1.0	212.45±14.25	218.07±09.63	202.57±11.39	77.22±1.88
25	15	70	1.0	182.98±06.19	169.26±17.89	168.22±12.02	61.94±0.45
26	25	70	1.0	187.48±10.47	171.58±15.36	187.67±13.47	64.23±0.24
27	35	70	1.0	195.00±14.88	185.07±16.09	191.96±11.09	71.61±0.77
28	25	65	0.9	194.85±13.69	179.71±09.59	196.44±12.66	69.57±0.65
29	25	65	0.9	190.15±11.56	186.69±06.50	181.85±05.19	70.07±0.32
30	25	65	0.9	180.33±06.98	169.63±11.10	165.89±10.63	67.89±0.23
31	25	65	0.9	197.76±17.49	182.62±12.33	180.73±14.79	69.66±0.42
32	25	65	0.9	204.32±14.78	198.27±08.36	191.86±13.10	77.65±0.88

A: Cream; B: whey; C: common salt; Ingredients (g/100 g heat-acid induced milk gel); WOS: work of shear; WOA: work of adhesion. Values are in mean ±SD (n=3).

Table S4. Proximate composition of dairy based dip

Constituents	Amount (g/ 100 g)
Moisture	72.59 ± 0.26
Fat	8.38 ± 0.05
Protein	12.20 ± 0.08
Salt	0.71 ± 0.01
Lactose	5.98 ± 0.38
Ash	0.11 ± 0.002

Mean ± SE. (n=3)

Figure captions

Fig. S1. Process flow diagram for novel dairy based dip

Fig. S2. Influence of independent variables on flavour score (a, b, c), body and texture score (d, e, f), colour and appearance score (g, h, i) and overall acceptability score (j, k, l) of dairy based dip

Fig. S3. Influence of independent variables on firmness (a,b,c), stickiness (d,e,f), work of shear (g, h, i) and work of adhesion (j, k, l) of dairy based dip

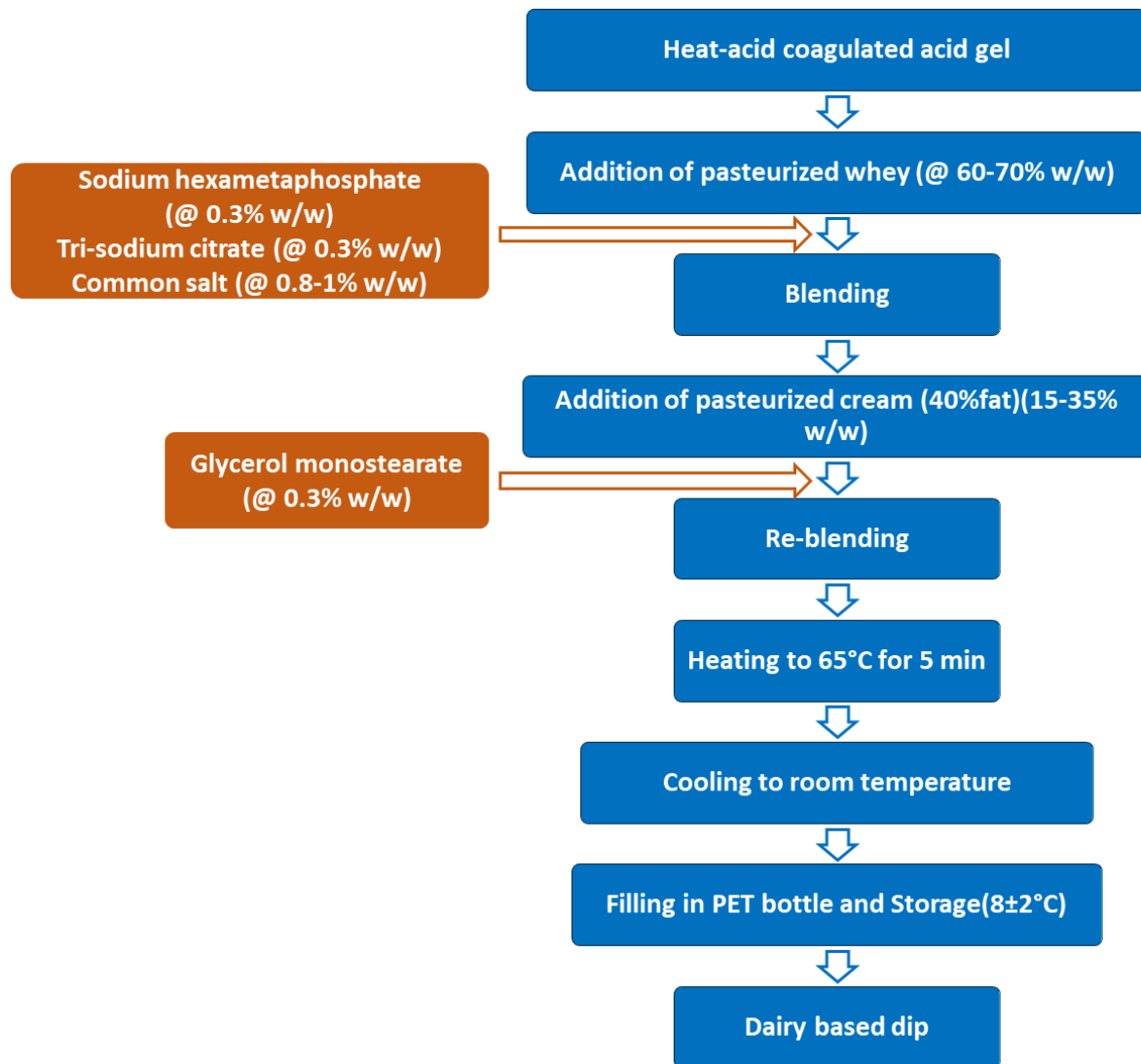


Fig. S1

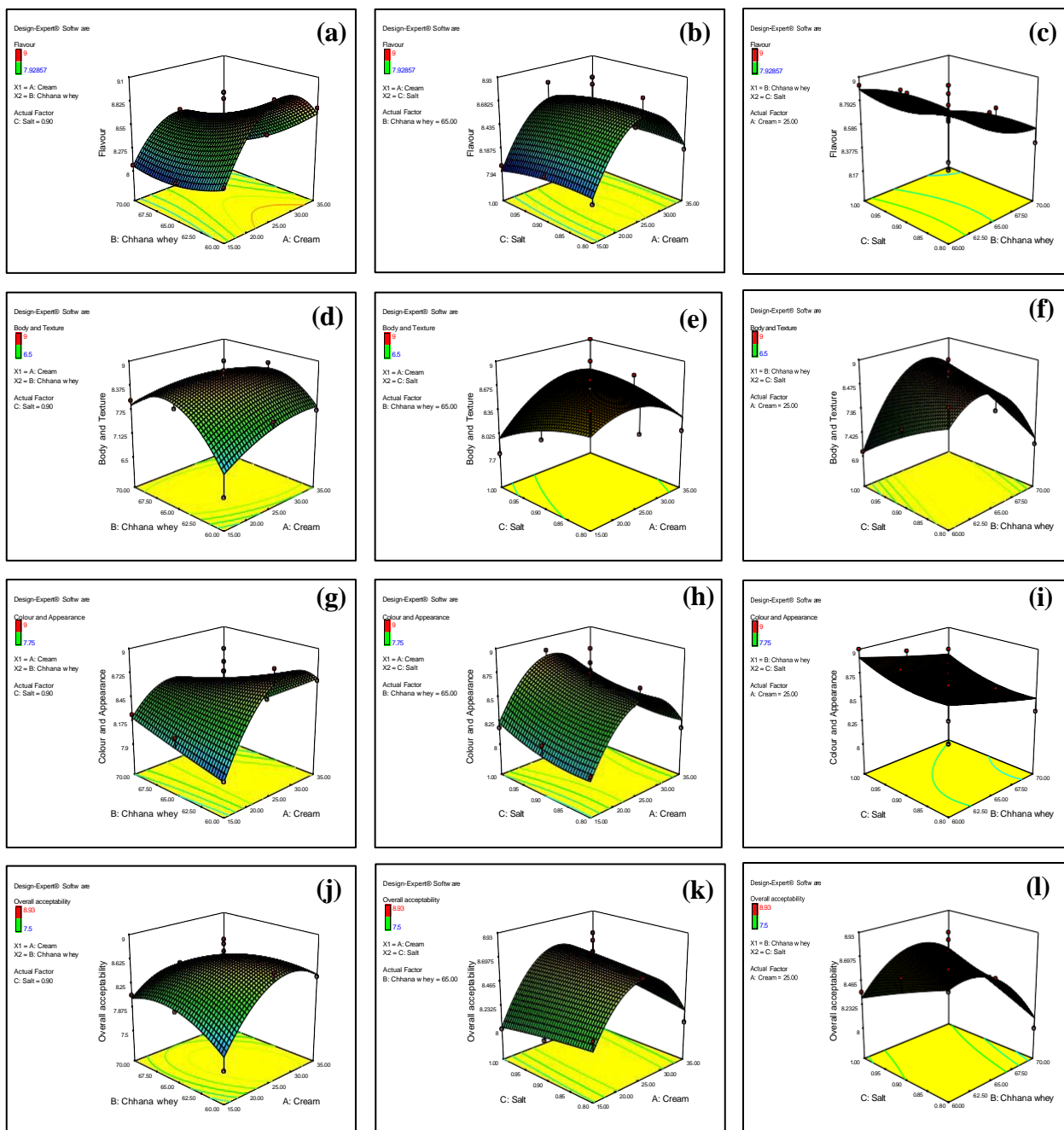


Fig. S2

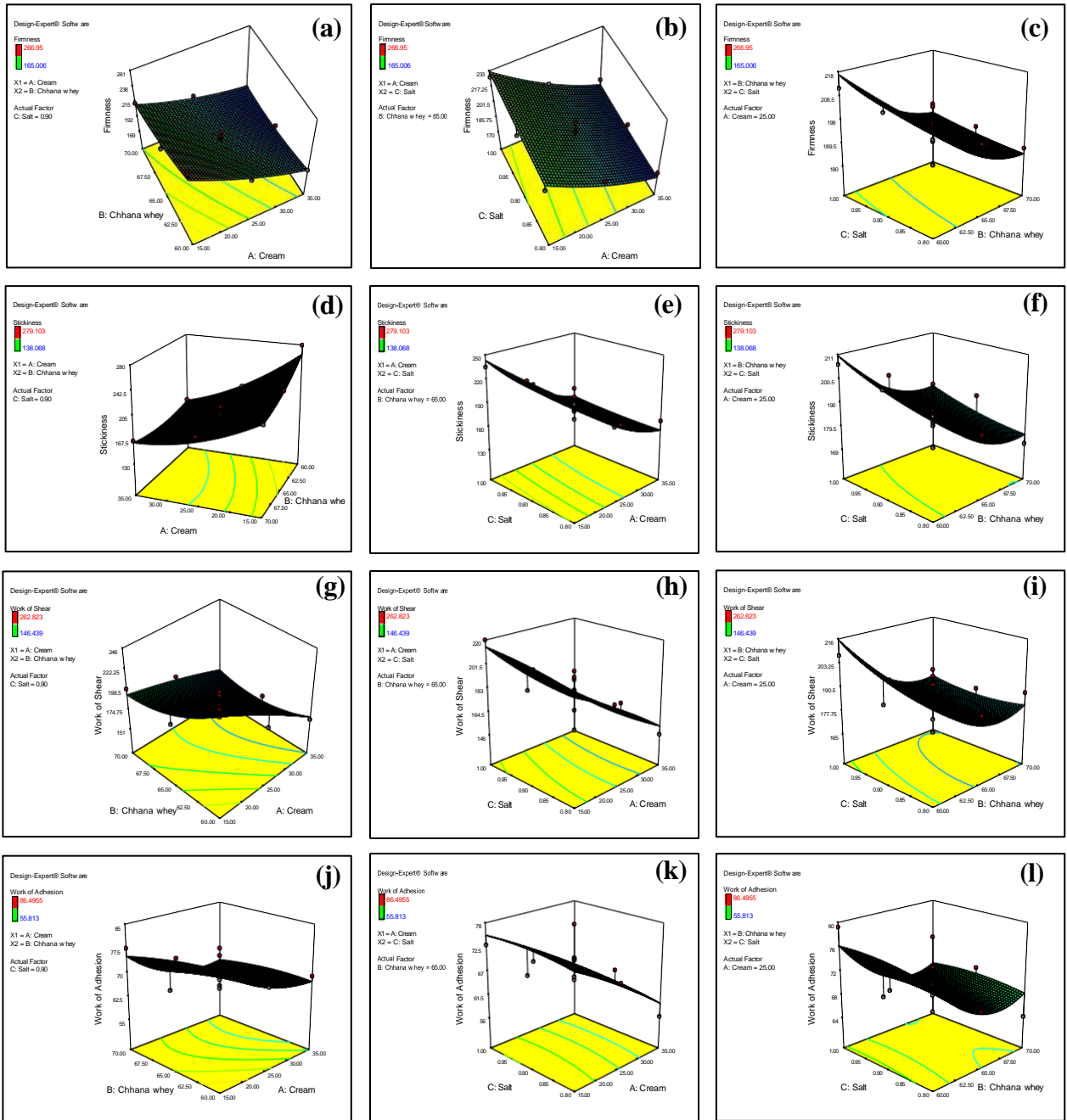


Fig. S3