**SUPPLEMENTARY MATERIAL**

Supplementary Table 1. Amino acids concentrations (mg amino acid/g protein) for all egg, whey, soy, and pea proteins.

| Amino acids	Amino acid concentration (mg amino acid/g protein)			
	Egg	Whey	Soy	Pea
Cysteic acid	0 ± 0	0 ± 0	0.6 ± 0.1	1.4 ± 0.1
Asx	104.8 ± 0.2	110.6 ± 0.6	117.4 ± 0.4	118.2 ± 0.1
Thr	44.9 ± 0.3	72.8 ± 0.1	38.8 ± 0.1	40.5 ± 0.3
Ser	64.3 ± 0.3	47.1 ± 0.3	50.3 ± 1.0	50.6 ± 0.3
Glx	133.0 ± 0.8	175.0 ± 2.9	197.9 ± 3.0	162.2 ± 2.3
Pro	35.7 ± 0.6	59.8 ± 1.1	52.9 ± 0.1	43.5 ± 0.2
Gly	36.0 ± 0.1	16.8 ± 0.1	42.4 ± 0.2	42.0 ± 0.1
Ala	62.8 ± 0.1	53.6 ± 0.3	44.4 ± 0.4	45.8 ± 0.1
Cystine	13.8 ± 0.2	13.2 ± 0.5	5.5 ± 0.8	4.1 ± 0.2
Val	79.1 ± 0.3	60.9 ± 0.1	49.1 ± 0.3	53.6 ± 0.1
Met	13.4 ± 0.4	8.9 ± 0.9	5.7 ± 0.6	5.6 ± 0.4
Ile	53.6 ± 0.3	67.9 ± 0.7	48.5 ± 0.2	49.7 ± 0.1
Leu	87.5 ± 0.2	109.8 ± 0.2	83.6 ± 0.4	89.4 ± 0.3
Tyr	39.4 ± 0.8	28.2 ± 1.5	39.2 ± 0.6	40.0 ± 0.2
Phe	62.6 ± 1.6	30.8 ± 0.9	55.6 ± 0.2	58.3 ± 0.3
His	38.7 ± 0.7	24.6 ± 1.0	25.3 ± 0.5	23.7 ± 0.1
Lys	72.6 ± 0.4	99.7 ± 0.1	65.3 ± 0.6	83.1 ± 0.7
Trp	0 ± 0	0 ± 0	0 ± 0	0 ± 0
Arg	57.8 ± 0.6	20.2 ± 0.1	77.5 ± 0.7	88.2 ± 0.2

A. 11% Egg Protein
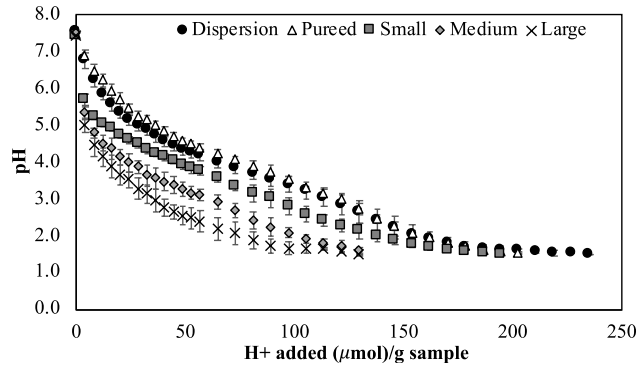
B. 11% Whey Protein
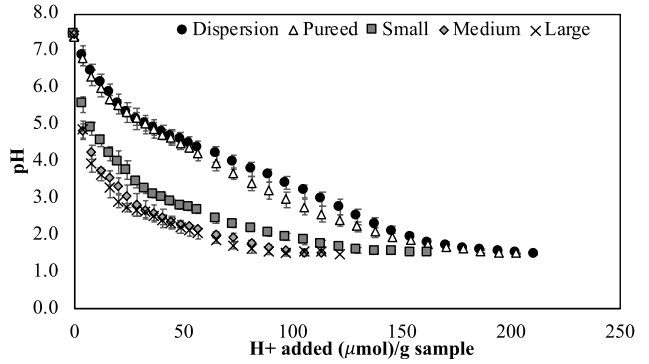
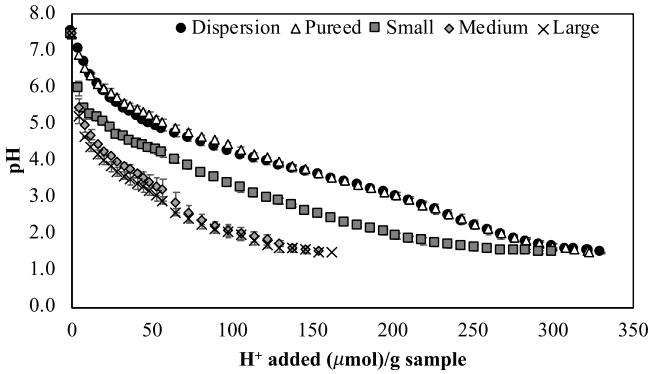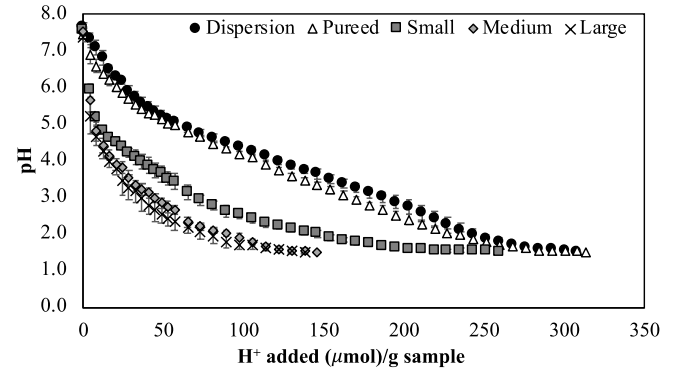**C. 11% Egg Protein**
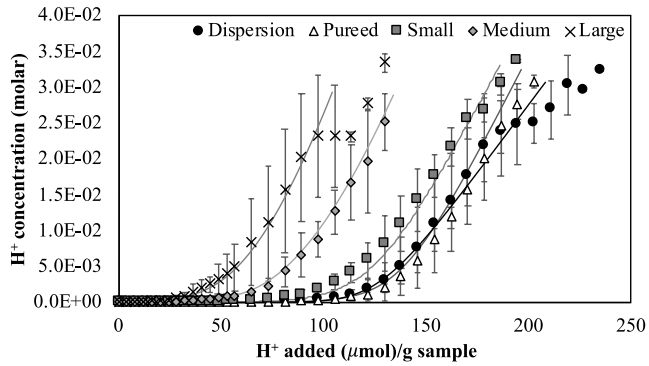
D. 11% Whey Protein
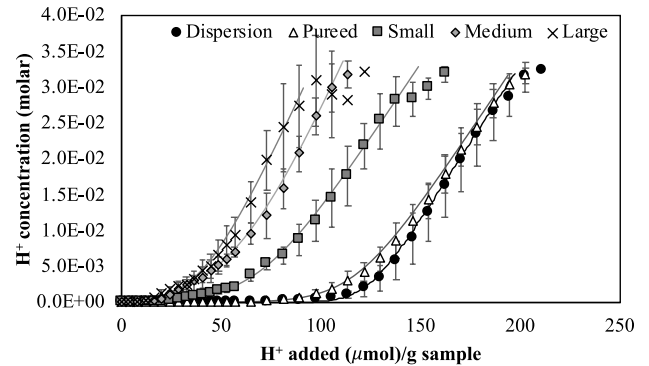
Supplementary Figure 1. Acid titration curves for 11% egg protein (A) and whey protein samples (B) for all particle sizes. Empirical model plots for 11% egg protein (C) and whey protein samples (D) for all particle sizes. Symbols represent the average (n = 3) and error bars represent the standard deviation (error bars in (A) and (B) are too small to be seen). Solid lines in C and D represent the predicted curves from the empirical model.
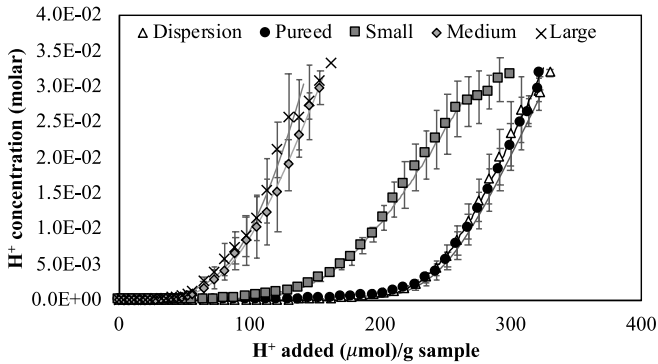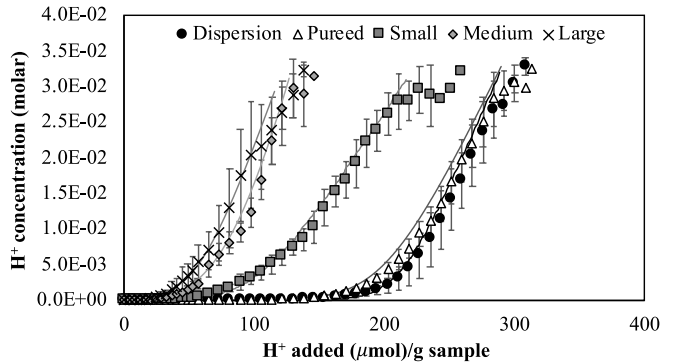
Supplementary Figure 2. Acid titration curves for 20% egg protein (A) and whey protein samples (B) for all particle sizes. Empirical model plots for 20% egg protein (C) and whey protein samples (D) for all particle sizes. Symbols represent the average (n = 3) and error bars represent the standard deviation (error bars in (A) and (B) are too small to be seen). Solid lines in C and D represent the predicted curves from the empirical model.