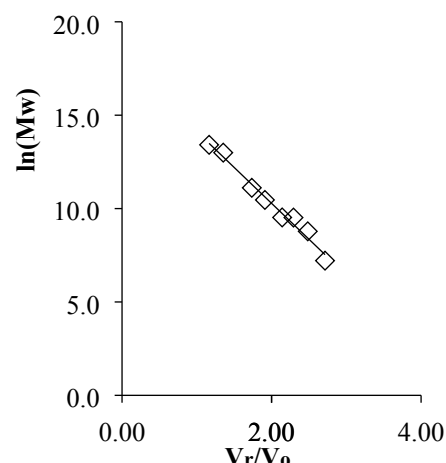


Electronic Supplementary Information

Molecular weight analysis

Table 1. Molecular weight markers used for calibration of the Superdex 200 gel filtration column (void volume, $V_0 = 8.0$ mL). The natural log of the molecular weight was plotted against the elution volume (V_r) divided by the column void

Molecular Weight Marker	Molecular Weight (Da)	Elution Volume (V_r)	V_r/V_0	$\ln(M_w)$
Thyroglobulin	669000	9.32	1.16	13.41
Ferritin	440000	10.83	1.35	12.99
Bovine serum albumin	67000	13.89	1.74	11.11
β -Lactoglobulin (dimer)	35000	15.29	1.91	10.46
Ribonuclease A	13700	17.13	2.14	9.53
Cytochrome C	13600	18.34	2.29	9.52
Aprotinin	6512	19.87	2.48	8.78
Vitamin B12	1355	21.72	2.72	7.21



volume (V_0) for each marker, generating the graph and equation shown (right).

Amino acid analysis

The amino acid composition of each sample as received is shown below (Table 2), along with the percentage relative standard deviation (%RSD) as calculated for standard solutions, over 500 observations. Moisture content of the freeze dried samples was determined via thermogravimetric analysis. From the composition below and the protein content (on a dry basis) as determined by total nitrogen assay, the amino acid composition of the dry protein was determined (Table 3).

Table 2. Absolute amino acid composition of bloodmeal (BM) and decoloured bloodmeal after treating with 2 wt% PAA (2PAA), 3 wt% PAA (3PAA), 4 wt% PAA (4PAA), 5 wt% PAA (5PAA) and 26 wt% HP (HP) solutions. Results expressed in mg/g of sample on an as received basis. NB: Moisture content of the freeze dried powders determined via thermogravimetric analysis and crude protein determined by total nitrogen assay.

Amino acid (mg/g)	BM	2PAA	3PAA	4PAA	5PAA	HP	%RSD
Aspartic Acid	95.93	107.11	110.75	113.5	113.13	123.79	3.06
Threonine	52.00	51.80	50.51	48.32	46.80	46.49	3.83
Serine	45.88	48.07	46.02	44.72	42.61	42.87	4.30
Glutamic acid	94.69	98.79	96.21	94.81	92.16	94.79	3.22
Proline	36.90	36.93	35.84	35.12	33.05	28.28	3.46
Glycine	37.39	39.00	39.38	44.84	51.98	40.56	3.19
Alanine	76.30	79.51	74.95	73.24	70.61	71.16	4.19
Valine	65.73	64.56	64.72	63.48	58.66	57.72	4.91
Isoleucine	18.10	18.01	18.98	19.77	18.79	16.08	4.37
Leucine	111.91	114.01	112.01	109.46	103.6	96.58	3.04
Tyrosine	29.80	24.17	23.20	21.57	20.20	15.03	4.29
Phenylalanine	64.28	66.13	64.34	63.22	61.09	49.39	3.11
Lysine	85.78	78.34	68.14	41.84	17.47	50.00	3.05
Histidine	53.94	51.11	49.07	44.08	33.96	27.64	3.22
Arginine	44.09	43.97	43.20	41.87	39.66	36.24	2.96
Cystine	11.80	12.83	12.73	11.69	10.62	12.61	3.65
Methionine	12.88	13.51	13.22	12.01	10.53	9.62	3.65
Tryptophan	20.01	8.54	2.15	0.00	0.00	0.37	3.65
Moisture content*	19.00	15.00	26.00	28.00	25.00	24.00	
Undetected	23.59	28.61	48.58	88.46	150.08	156.78	
Sum of Amino Acids	957.41	956.39	925.42	883.54	824.92	819.22	
Total sum	1000	1000	1000	1000	1000	1000	

Crude Protein (wt%)* 100 95.44 94.67 90.11 88.98 95.97

Table 3. Amino acid composition of bloodmeal (BM) and decoloured bloodmeal after treating with 2 wt% PAA (2PAA), 3 wt% PAA (3PAA), 4 wt% PAA (4PAA), 5 wt% PAA (5PAA) and 26 wt% HP (HP) solutions. Results expressed as a weight percentage of dry protein in each sample.

Amino acid (wt%)	BM	2PAA	3PAA	4PAA	5PAA	HP
Aspartic Acid	9.78	11.39	12.01	12.96	13.04	13.22
Threonine	5.30	5.51	5.48	5.52	5.39	4.96
Serine	4.68	5.11	4.99	5.11	4.91	4.58
Glutamic acid	9.65	10.51	10.43	10.82	10.62	10.12
Proline	3.76	3.93	3.89	4.01	3.81	3.02
Glycine	3.81	4.15	4.27	5.12	5.99	4.33
Alanine	7.78	8.46	8.13	8.36	8.14	7.60
Valine	6.70	6.87	7.02	7.25	6.76	6.16
Isoleucine	1.85	1.92	2.06	2.26	2.17	1.72
Leucine	11.41	12.13	12.15	12.50	11.94	10.31
Tyrosine	3.04	2.57	2.52	2.46	2.33	1.60
Phenylalanine	6.55	7.03	6.98	7.22	7.04	5.27
Lysine	8.74	8.33	7.39	4.78	2.01	5.34
Histidine	5.50	5.44	5.32	5.03	3.91	2.95
Arginine	4.49	4.68	4.69	4.78	4.57	3.87
Cystine	1.20	1.36	1.38	1.33	1.22	1.35
Methionine	1.31	1.44	1.43	1.37	1.21	1.03
Tryptophan	2.04	0.91	0.23	0.00	0.00	0.04
Undetected	2.40	-1.74	-0.36	-0.87	4.91	12.53
Sum of Amino Acids	97.60	101.74	100.36	100.87	95.09	87.47
Total sum	100.00	100.00	100.00	100.00	100.00	100.00