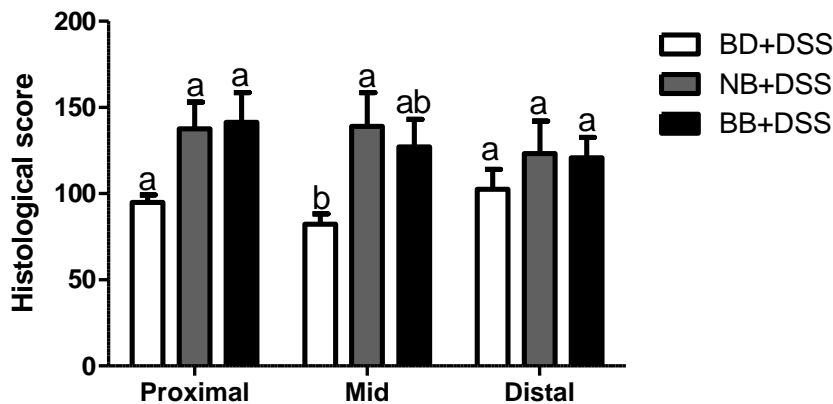


Supplementary Figure 1. HPLC profile of anthocyanin compounds detected in the navy and black bean flours. Characterization of bean flour anthocyanins was determined by reversed phase HPLC using an Agilent Technologies 1100 series system with autosampler and quaternary pump, coupled to a DAD and Phenomenex Luna C18 columns ($250 \times 4.6 \mu\text{m}$; $5 \mu\text{m}$) with a C18 guard column (Phenomenex, Torrance, CA). The binary phase consisted of 5% methanol in acetonitrile (v/v) (solvent A) and 5% formic acid in water (v/v) (solvent B). The flow rate was 0.9 ml/min for 70 min (total run time). The gradient program was as follows: 100% B to 90% B in 10 min, 90% B to 85% B in 2 min, 85% B to 76% B in 5 min and maintained at 76% B for 3 min, 76% B to 66% B in 10 min, 66% B to 0% B in 20 min and maintained at 0% B for 10 min. There was a 10 min post-run for reconditioning with 100% B. The injection volume was 10 μL , and peaks were monitored at 520 nm for anthocyanins. All samples were filtered through a 0.45 μm PVDF filter (Waters, USA) before injection. Peaks were identified by congruent retention times and UV spectra with those of the standards. All samples were prepared and analyzed in triplicate.

(a)

Score	Description from H&E stained sections for crypt erosion score	Description from Alcian blue/Nuclear Fast red stained sections for goblet cell depletion score
0	Normal	Normal
1	Dilated crypts with basal immune cell infiltration	Mild goblet cell disorganization
2	Mild crypt distortion with inflammation and submucosal oedema	Increased goblet cell accumulation at the luminal surface
3	Loss of crypt architecture at the basal layer of the crypt and immune cell infiltration	Hyperplastic goblet cells with increased mucin secretion
4	Crypt architecture loss with focal erosions and increased immune cell infiltration	Loss and vacuolization of goblet cells
5	No crypt architecture remaining but luminal epithelial cells are present	Extensive goblet cell depletion
6	No remaining crypt architecture or surface epithelium	Complete goblet cell depletion.

(b)



Supplementary Figure 2. Histological scoring system (a) and histological scores in the proximal, mid, and distal colon from BD, NB, and BB fed mice exposed to DSS (b). a,b, Data are mean values and the SEM are shown. Values not sharing a letter differ, ($P < 0.05$), as measured by Kruskal-Wallis followed by Dunn's multiple comparisons test. BD, basal diet; NB, navy bean; BB, black bean.

Supplementary Table 1. Proximate analyses and dietary fibre levels in bean flour

Nutrients	Navy Bean	Black Bean
	(g/100g DW)	
Fat	2.179	1.724
Protein	23.71	25.71
Available CHO	40.7	42.1
Total Dietary Fibre	24.3	22.3
Ash	3.5	4.4
Moisture	5.6	3.8

Supplementary Table 2. Scoring system for Disease Activity Index (DAI) criteria

Score	% BW loss score	Stool consistency score	Stool blood score
0	0-1%	Normal	Normal (-Hemoccult)
1	1-5%	Soft but formed	+Hemoccult
2	5-10%	Very soft	Visible blood
3	10-20%	Diarrhea	Rectal bleeding

Supplementary Table 3. Pre-DSS body weight (BW) gain and food intake (FI)^{*}

Diet	BW gain (g) [†]		FI (g/day/mouse) [‡]	
	mean	SEM	mean	SEM
BD	3.18	0.3	3.00	0.08
NB	3.48	0.3	3.14	0.07
BB	3.24	0.4	2.98	0.12

BW, body weight; FI, food intake; BD, basal diet; NB, navy bean; BB, black bean.

^{*}Data expressed as means and SEM are shown. BW and FI values did not differ between dietary groups ($P>0.05$).

[†]BW gain was assessed over 14 d of dietary intervention prior to dextran sodium sulfate (DSS) exposure (n=26 for BD, n=13 for NB and BB).

[‡]Average daily FI per mouse was measured on -7, -5, -2, and -1d before the initiation of the 7 d DSS cycle (n=8 for BD, n=4 for NB and BB). Data expressed as means \pm SEM.

Supplementary Table 4. DSS-induced fold changes in colon gene expression (BD+DSS vs BD alone)*

Gene	Fold Change	P-value	Gene	Fold Change	P-value	Gene	Fold Change	P-value
Bcl6	1.39	0.908566	Crp	0.89	0.924961	Il6	396.6	0.004374
C3	6.47	0.018602	Csf1	0.7	0.185756	Il6ra	0.51	0.017149
C3ar1	1.27	0.470097	Cxcl1	19.6	0.009729	Il7	0.72	0.222682
C4b	1.63	0.129558	Cxcl10	13.97	0.014076	Il9	3.2	0.018455
Ccl1	0.79	0.742105	Cxcl11	0.63	0.090106	Itgb2	2.37	0.036617
Ccl11	0.8	0.491674	Cxcl2	106.8	0.004800	Kng1	1.51	0.326737
Ccl12	5.7	0.012555	Cxcl3	78.55	0.008745	Lta	1.51	0.070502
Ccl17	0.98	0.790880	Cxcl5	75.0	0.001219	Ltb	1.23	0.412168
Ccl19	4.88	0.001049	Cxcl9	14.47	0.052003	Ly96	0.82	0.218582
Ccl2	28.18	0.008596	Cxcr1	3.77	0.010591	Myd88	0.86	0.740425
Ccl20	0.95	0.824371	Cxcr2	26.39	0.008287	Nfkb1	0.67	0.147063
Ccl22	0.99	0.853669	Cxcr4	1.04	0.524266	Nos2	1.07	0.867584
Ccl24	0.45	0.032625	Fasl	0.7	0.037337	Nr3c1	0.44	0.026624
Ccl25	0.38	0.218819	Fos	0.28	0.009669	Ptgs2	2.4	0.036896
Ccl3	5.96	0.001782	Ifny	8.7	0.031302	Ripk2	1.55	0.212214
Ccl4	4.34	0.000886	Il10	1.7	0.053832	Sele	10.48	0.009371
Ccl5	0.68	0.072752	Il10rb	0.54	0.075717	Tirap	0.81	0.159772
Ccl7	22.86	0.001714	Il17a	7.4	0.011979	Tlr1	0.83	0.602059
Ccl8	17.72	0.002809	Il18	0.9	0.115490	Tlr2	1.07	0.610726
Ccr1	2.37	0.000023	Il1a	6.47	0.004528	Tlr3	0.81	0.122462
Ccr2	3.62	0.005359	Il1β	37.13	0.022510	Tlr4	0.4	0.045390
Ccr3	3.08	0.019446	Il1r1	1.17	0.563613	Tlr5	0.34	0.000610
Ccr4	1.72	0.053044	Il1rap	0.69	0.027008	Tlr6	1.19	0.385835
Ccr7	2.82	0.023512	Il1rn	1.52	0.041568	Tlr7	1.81	0.020998
Cd14	3.21	0.046525	Il22	88.6	0.010552	Tlr9	1.18	0.499492
Cd40	2.62	0.012163	Il23a	0.82	0.383072	Tnf	6.6	0.050644
Cd40lg	1.06	0.625608	Il23r	0.45	0.004216	Tnfsf14	2.14	0.005398
Cebpb	1.0	0.028028	Il5	0.37	0.006362	Tollip	0.52	0.018113

BD, basal diet; DSS, dextran sodium sulfate

*Values shown are fold changes in colon gene expression within the BD+DSS group (n=6) normalized to the expression level of the BD healthy controls (n=4). Genes listed comprise the Mouse Inflammatory Response and Autoimmunity PCR arrays (PAMM-077Z, Qiagen) and mRNA expression of genes listed in bold font differ from healthy controls ($P < 0.05$).