

Table S1. Nutrition composition of the control diet, DMW, and diet with 2.79% (w/v) DMW

Ingredients	Control diet (w/g)	DMW (w/g)	Diet with 2.79% DMW (w/g)
Casein	140	0.153	139.8
L-Cystine	1.8	0	1.8
Corn Starch	450	0	450.0
Maltodextrin10	125	0	125.0
Fructose	24.3	0.208	24.1
Dextrose	21.7	0.383	21.3
Sucrose	100	0.027	100.0
Cellulose	50	0.478	49.5
Soybean oil	40	0	40.0
tBHQ	0.008	0	0.0
Mineral Mix S10022M	35	0.259	34.7
Vitamin Mix V10037	10	0	10.0
Choline Bitartrate	2.5	0	2.5
DMW/ml		27.9	30.4
FD&C Red Dye #40			0.1
Total wet weight/g			1029.3
Total dry weight/g	1000.308		1004.7

Table S2. Genes and primers for RT-qPCR

NCBI ID#	Sequence Name	Forward primer	Reverse primer
IL-6	NM_031168.2	TGATGGATGCTACCAAAGTGGGA	TCTCTCTGAAGGACTCTGGCTT
IL-1 β	NM_008361.4	TGCCACCTTTTGACAGTGATGA	CATCAGGACAGCCCAGGTCAA
TNF- α	NM_013693.3	CTGAACTTCGGGGTGATCGGT	GTTTGCTACGACGTGGGCTA
ZO-1	NM_009386.2	CGAGATGCTGGGACTGACCA	GACGATCAACCGCATTGTC
Occludin	NM_008756.2	AGTGAAGAGTACATGGCTGCTG	CGTCTGTCATAATCTCCCACCA
GAPDH	NM_008084.3	GGTGAAGGTCGGTGTGAACG	AATGAAGGGGTCGTTGATGGC

Table S3. Content of polyphenols in DMW

Polyphenols	Concentration (mg/mL)
Delphinidin-3,5-diglucoside	1.08 ± 0.01
Cyanidin 3,5-diglucoside	1.34 ± 0.03
Petunidin 3,5-diglucoside	0.99 ± 0.05
Pelargonidin 3,5-diglucoside	0.15 ± 0.01
Peonidin 3,5-diglucoside	1.66 ± 0.01
Malvidin 3,5-diglucoside	0.075 ± 0.05
Total anthocyanins	5.97 ± 0.14
Myricetin	6.95 ± 0.26
Quercetin	1.91 ± 0.09
Kaempferol	0.79 ± 0.05
Ellagic acid	1.15 ± 0.13
Gallic acid	25.60 ± 1.57
Total other polyphenols	36.39 ± 1.93

Data are mean ± SD of triplicate tests.

Table S4A. Pairwise-PERMANOVA results based on Bray-Curtis dissimilarity

Groups	Permutations	F	p-value
Healthy vs Colitis	999	13.042	0.001
Healthy vs Prevention	999	8.6586	0.001
Healthy vs P+T	999	6.0471	0.001
Healthy vs Treatment	999	6.4083	0.001
Colitis vs Prevention	999	1.4026	0.215
Colitis vs P+T	999	3.7006	0.004
Colitis vs Treatment	999	1.2825	0.284
Prevention vs P+T	999	1.5446	0.166
Prevention vs Treatment	999	1.2393	0.292
P+T vs Treatment	999	1.5711	0.153

Table S4B. Pairwise-PERMANOVA results based on Unweighted UniFrac distance

Groups	Permutations	F	p-value
Healthy vs Colitis	999	8.5341	0.001
Healthy vs Prevention	999	6.5331	0.002
Healthy vs P+T	999	5.3748	0.002
Healthy vs Treatment	999	5.9474	0.001
Colitis vs Prevention	999	0.9435	0.498
Colitis vs P+T	999	2.0835	0.01
Colitis vs Treatment	999	1.4299	0.109
Prevention vs P+T	999	1.6902	0.066
Prevention vs Treatment	999	1.3278	0.189
P+T vs Treatment	999	1.3294	0.14

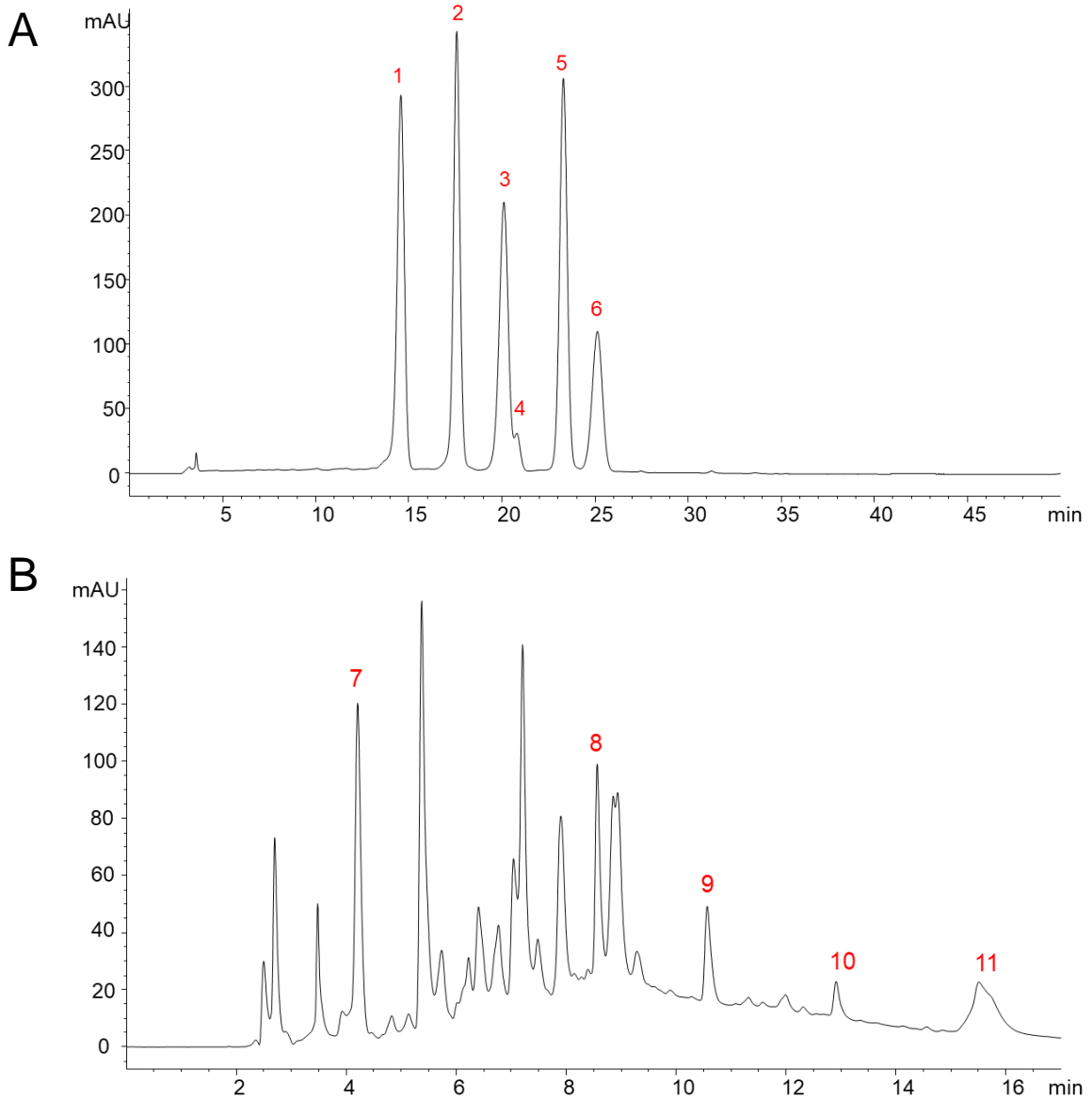


Figure S1: HPLC chromatogram of anthocyanins (A) and other polyphenols (B) in DMW using 520 nm and 260 nm detection, respectively. Peaks 1, 2, 3, 4, 5 and 6 in panel A are delphinidin-3,5-diglucoside, cyanidin-3,5-diglucoside, petunidin-3,5-diglucoside, pelargonidin-3,5-diglucoside, peonidin-3,5-diglucoside and malvidin-3,5-diglucoside, respectively. Peaks 7, 8, 9, 10, and 11 in panel B are gallic acid, ellagic acid, myricetin, quercetin, and kaempferol, respectively.

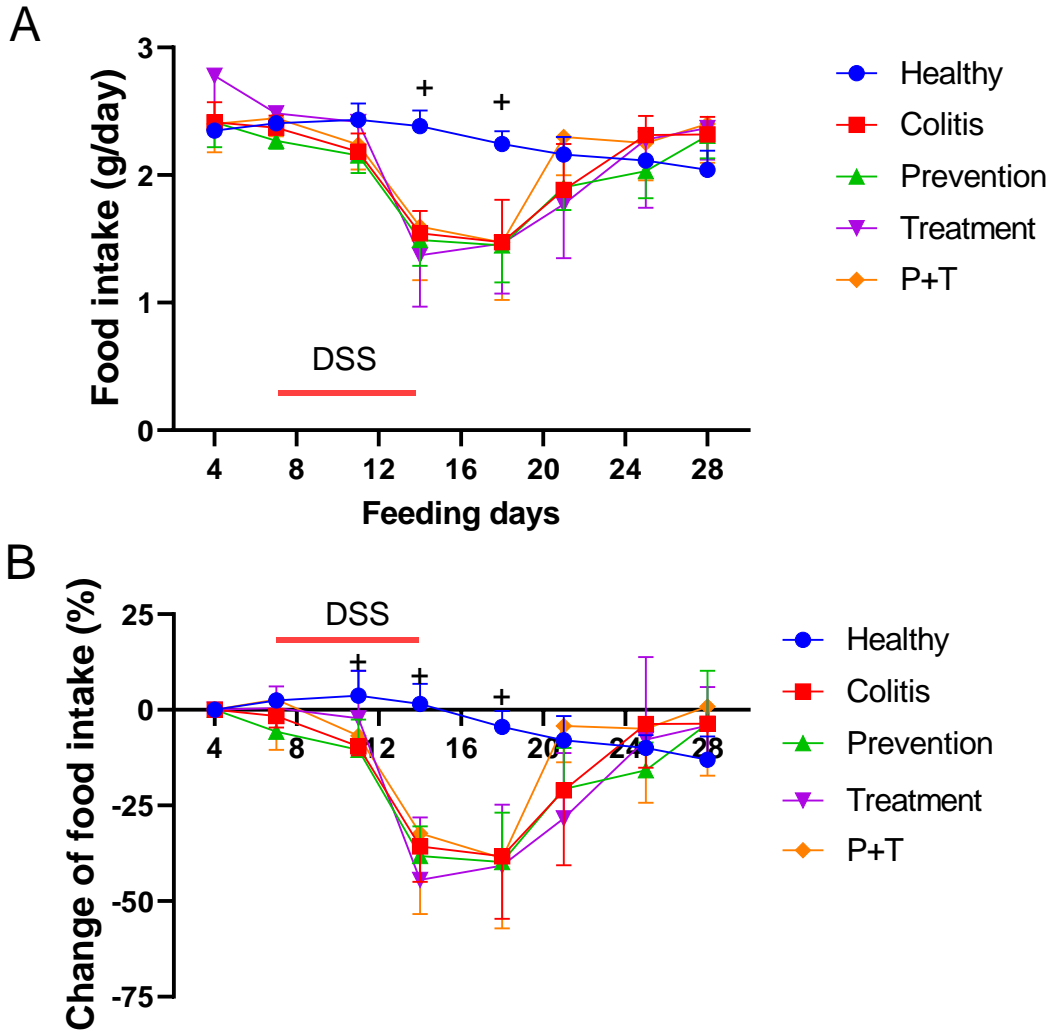


Figure S2. Food intake (A) and Change of food intake % (B) in different groups. Data were mean \pm standard deviation for 4 cages per group. +, $p < 0.05$ in Healthy vs Colitis; #, $p < 0.05$ in Prevention vs Colitis; *, $p < 0.05$ in P+T vs Colitis; ^, $p < 0.05$ in Treatment vs Colitis.

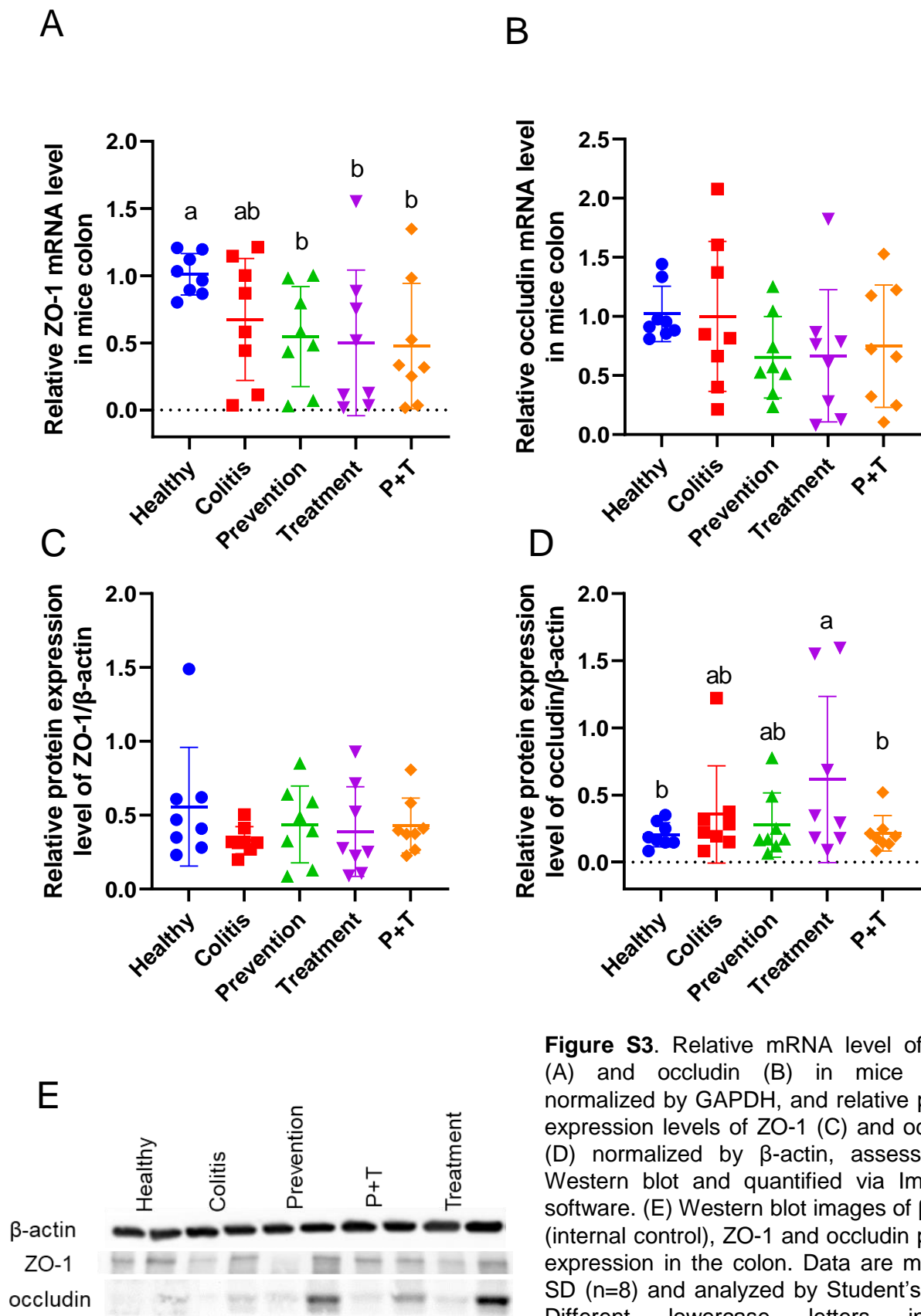


Figure S3. Relative mRNA level of ZO-1 (A) and occludin (B) in mice colon, normalized by GAPDH, and relative protein expression levels of ZO-1 (C) and occludin (D) normalized by β -actin, assessed by Western blot and quantified via Image J software. (E) Western blot images of β -actin (internal control), ZO-1 and occludin protein expression in the colon. Data are mean \pm SD ($n=8$) and analyzed by Student's t-test. Different lowercase letters indicate significant differences among groups.