

Supplementary data

Table S1

Disease activity index (DAI) scoring criteria for DSS-induced colitis mice.

Score	Weight loss (%)	Diarrhea	Hematochezia
0	<1	None	-
1	1-5	Loose stool	+
2	5-10	Diarrhea	++
3	10-15	Mild diarrhea	+++
4	>15	Liquid stool	++++

Table S2

Histological injury score for the assessment of tissue damage.

Symptom	Description	Score
Epithelial cells	Normal	0
	Goblet cells disappear	1
	Large area of goblet cell disappears	2
	Crypt disappearance	3
	Large area of crypt disappearance	4
Inflammatory infiltration	Normal	0
	Infiltration to the base of the crypt	1
	Infiltration into the mucosa	2
	Extensive mucosal infiltration	3
	Mucosal infiltration to the lower layer	4

Table S3

Analysis of alpha diversity

Groups	Species richness	Species diversity	
	Chao1	Shannon	Simpson
NC	557.33 ± 103.84 ^a	6.12 ± 0.56 ^a	0.95 ± 0.01 ^a
DSS	332.05 ± 29.26 ^b	5.02 ± 0.16 ^b	0.79 ± 0.02 ^b
PM-DSS	336.59 ± 84.46 ^b	5.27 ± 0.36 ^{ab}	0.92 ± 0.02 ^{ab}
W-S-DSS	492.66 ± 94.15 ^a	5.90 ± 0.61 ^{ab}	0.94 ± 0.02 ^a

PM, physical mixture of whey protein isolate and stachyose; W-S, whey protein isolates glycosylated with stachyose.

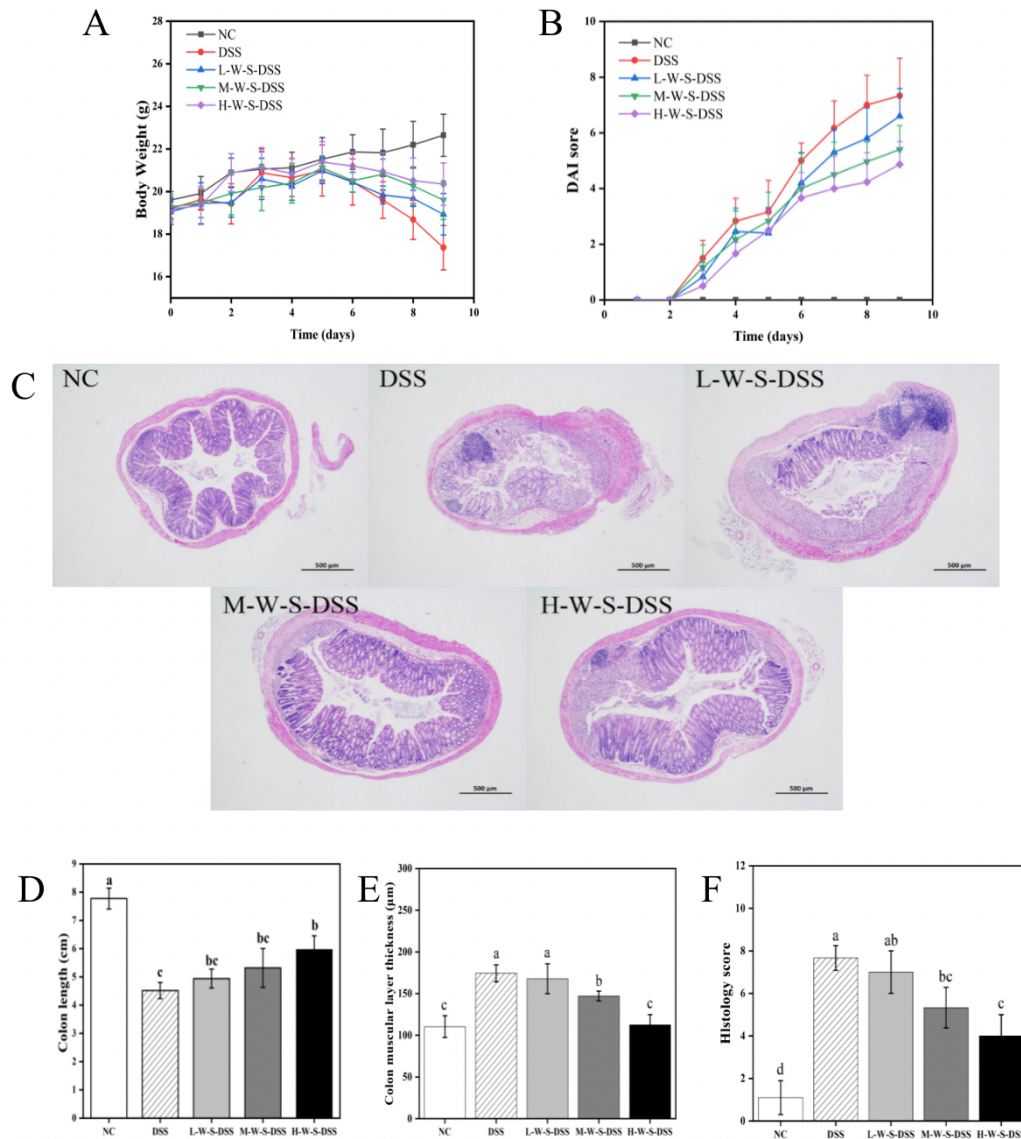


Fig S1

Fig S1. Assessment of pre-experimental parameters: (A) Body weight changes throughout the experimental period. (B) Disease activity index (DAI) scores illustrating the severity of the disease. (C) Representative hematoxylin and eosin-stained colon images from each mice group (40× magnification). (D) Comparison of colon lengths among different mice groups. (E) Measurements of colon muscular layer thickness. (F) Histopathology scores for each experimental group. Abbreviations: NC - normal control; DSS - induced colitis; L/M/H-W-S-DSS low (250 mg/kg) /medium (500 mg/kg) /high (1000 mg/kg) oral dosage of WPI-Stachyose treatment post-DSS induction.