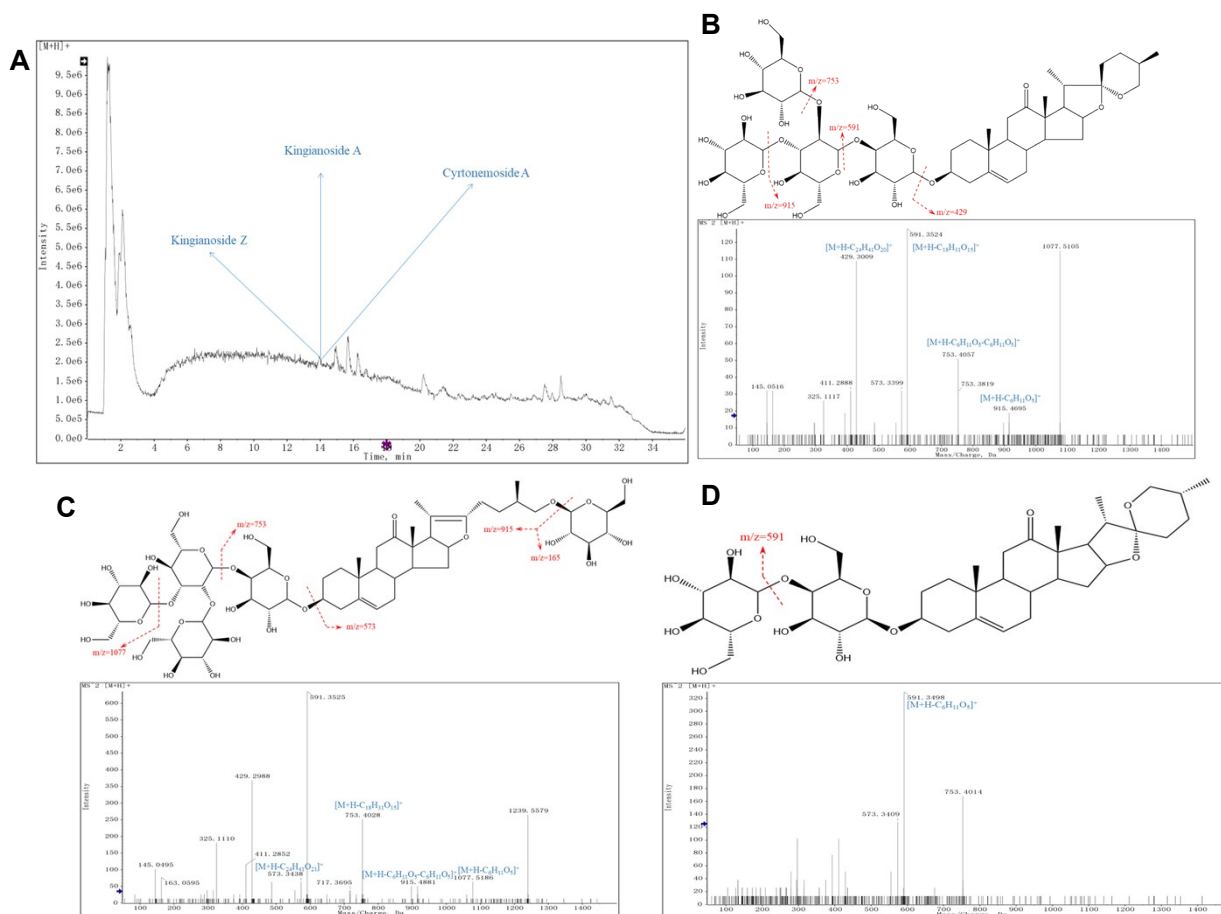


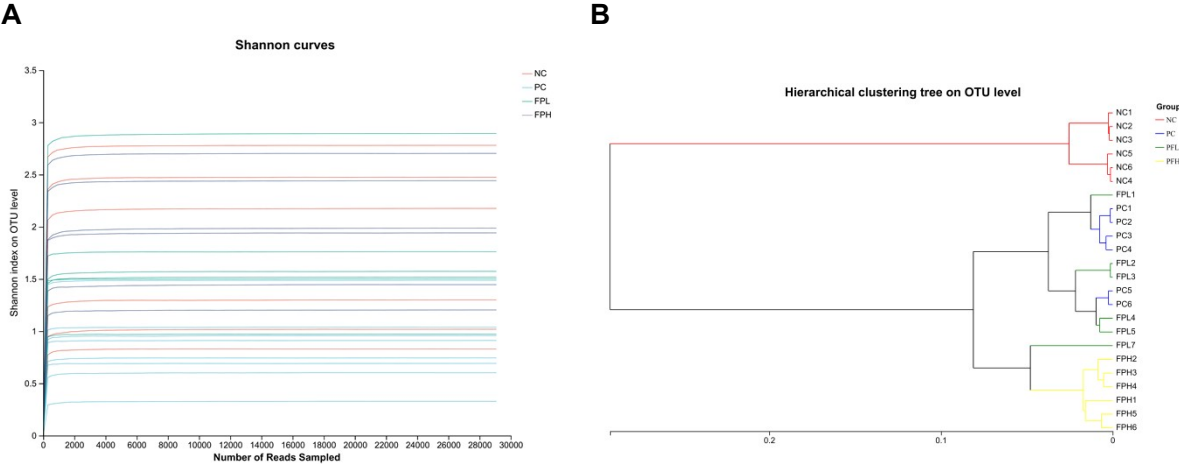
Supplement Figure 1. Fragmentation pathways of a part of saponins. (A) HPLC-MS chromatogram of FP in positive ion mode. (B) Cyrtoneoside A. (C) kingianoside Z. (D) Kingianoside A.

Supplement Figure 1



Supplement Figure 2. Effects of FP on diversity and difference analysis of microbiota in colitis mice. (A) Dilution curve of shannon index on OTU level. (B) Hierarchical clustering tree on OTU level (n=6).

Supplement Figure 2



Supplement Table 1. AIN93G feed composition

Ingredients							
Calories	3766kcal/kg	Lysine	13g	Calcium	5000ppm	Vitamin A	4IU/g
Proportion of	19.3%	Methionine	4.6g	Phosphorus	3000ppm	Vitamin D	1IU/g
Calories in Protein							
Proportion of	16.7%	Cystine	3.7g	Potassium	3600ppm	Vitamin E	0.075IU/g
Calories in fat							
Moisture content	6.6%	Tryptophan	2.1g	Sodium	1039ppm	Vitamin K	0.9 ppm
Fat	7%	Proline	20.5g	Magnesium	513ppm	Thiamine B1	5 ppm
Carbohydrates	64.3%	Serine	9.7g	Iron	45ppm	Riboflavin	6 ppm
Protein	17.8%	Histidine	4.6g	Zinc	38ppm	Nicotinic acid	30 ppm
Ash content	4.17%	Leucine	15.4g	Violent	10ppm	Pantothenic acid	15 ppm
Alanine	4.6g	Isoleucine	8.5g	Copper	6ppm	Vitamin B6	6 ppm
Arginine	6.4g	Phenylalanine	8.8g	Iodine	0.2ppm	Choline	1000 ppm
Aspartic acid	12.2g	Tyrosine	9.3g	Chromium	1ppm	Folic acid	2ppm
Glutamic acid	36.3g	Threonine	6.7g	Inorganic sulfur	300ppm	Biotin	0.2ppm
Glycine	3.2g	Valine	10g	Chlorine	1631ppm	Vitamin B12	25ppb

Supplement Table 2. Disease activity index (DAI) score used to evaluate the DSS-induced colitis.

Weight loss (%)	Stool consistency	Rectum bleeding	Appearance and vitality	Score
None	Normal	None	Normal	0
0.1-5	Mildly soft stool	Occasionally stool bleeding	Slightly poor condition	1
5 -10	Very soft stool	Always stool bleeding	Moderately poor condition	2
≥10	Watery stool	All stool bleeding	Seriously poor condition	3

Supplement Table 3. Gene primers used for real-time quantitative qPCR in this study

Primer	Forward primer	Reverse primer
IL10rb	CTCGACTCAGTGC GACTTCTC	CGAATGTTTCATCCGCCAATTCAG
IL17R (CD127)	GCGGACGATCACTCCTTCTG	AGCCCCACATATTTGAAATTCCA
IL17Ra	GGGAGTCCCTATGTAGGTTCC	TCCAACATTTGTCACTTGCTCT
IL17a (IL17)	TCAGCGTGTC AAAACTGAG	CGCCAAGGGAGTTAAAGACTT
TGF- β (Tgfb1)	CCACCTGCAAGACCATCGAC	CTGGCGAGCCTTAGTTTGGAC
IL1 β	GAAATGCCACCTTTTGACAGTG	TGGATGCTCTCATCAGGACAG
IL33	ATTTCCCCGGCAAAGTTCAG	AACGGAGTCTCATGCAGTAGA
LT β	TGGCAGGAGCTACTCCCT	TCCAGTCTTTTCTGAGCCTGT
NOD2	CAGGTCTCCGAGAGGGTACTG	GCTACGGATGAGCCAAATGAAG
STAT5 (Stat5a)	CAGATGCAAGTGTGTATGGGC	GCTGGCTCTCGATCCACTG
IL21	GGACCCTTGTCTGTCTGGTAG	TGTGGAGCTGATAGAAGTTCAGG
IL22	ATGAGTTTTTCCCTTATGGGGAC	GCTGGAAGTTGGACACCTCAA
IL23 (IL23a)	CAGCAGCTCTCTCGGAATCTC	TGGATACGGGGCACCATTATTTTT
IL23R	AACAACAGCTCGGATTTGGTAT	ATGACCAGGACATTACAGCAGT
ROR α	GTGGAGACAAATCGTCAGGAAT	TGGTCCGATCAATCAAACAGTTC
ROR γ t	TCCACTACGGGGTTATCACCT	AGTAGGCCACATTACACTGCT
MPO	AGGGCCGCTGATTATCTACAT	CTCACGTCCTGATAGGCACA
Cd14	ACTTCTCAGATCCGAAGCCAG	CCGCCGTACAATTCCACAT
Cd80	TCAGTTGATGCAGGATACACCA	AAAGACGAATCAGCAGCACAA
Cd86	TCAATGGGACTGCATATCTGCC	GCCAAAATACTACCAGCTCACT
CD94	ATGCTGTGTTTGCCTGGACAA	GCTCTGGCCTGATAACTGAGAAT
Jak2	GGAATGGCCTGCCTTACAATG	TGGCTCTATCTGCTTACAGAAT
FasL	CAGCCCATGAATTACCCATGT	ATTTGTGTTGTGGTCCCTTCTTCT
Nfkb1	ATGGCAGACGATGATCCCTAC	CGGAATCGAAATCCCCTCTGTT
Ripk2	ATCCCGTACCACAAGCTCG	ACTATGCCCAAAAATTCAGGCTC
Tirap	CCTCCACTCCGTCCAAGAAG	TGAACCATCATAGAGGTGGCTTT
Bcl11 β	CCCGACCCTGATCTACTCAC	GGAGGTGGACTGCTCTTGT
GF11	AGAAGGCGCACAGCTATCAC	GGCTCCATTTTCGACTCGC
AhR	GCCCTTCCCGCAAGATGTTAT	TCAGCAGGGGTGGACTTTAAT
Id2	TCCGGTGAGGTCCGTTAGG	CAGACTCATCGGGTTCGTCC
TOX	TGCCATTAAGGGCCAGAATCC	TCAGGTATTCCTTCTTTGCAGC
LBP	GATCACCGACAAGGGCCTG	CCGCTGAAGTCCGGTAGTG
FOXP3	CACCTATGCCACCCTTATCCG	CATGCGAGTAAACCAATGGTAGA
TLr2	CTCTTCAGCAAACGCTGTTCT	GGCGTCTCCCTCTATTGTATTG
TLr3	GTGAGATACAACGTAGCTGACTG	TCCTGCATCCAAGATAGCAAGT
TLr5	TGGGGACCCAGTATGCTAACT	CCACAGGAAAACAGCCGAAGT
TLr6	AGCCAAGACAGAAAACCCATC	GGGGTCATGCTTCCGACTAT
TLr7	ATGTGGACACGGAAGAGACAA	ACCATCGAAACCCAAAGACTC
TLr9	ATGGTTCTCCGTCGAAGGACT	GAGGCTTCAGCTCACAGGG
PPAR- γ	GGAAGACCACTCGCATTCCTT	GTAATCAGCAACCATTGGGTCA

CCR6	TGGGCCATGCTCCCTAGAA	GGTGAGGACAAAGAGTATGTCTG
ZO1 (Tjp1)	GCCGCTAAGAGCACAGCAA	GCCCTCCTTTTAACACATCAGA
Muc2	AGGGCTCGGAACTCCAGAAA	CCAGGGAATCGGTAGACATCG
Occludin	TGAAAGTCCACCTCCTTACAGA	CCGATAAAAAGAGTACGCTGG
claudin-2	CAACTGGTGGGCTACATCCTA	ATCCAGAGGCCCTTGAAAAAG
claudin1	TGCCCCAGTGGAAGATTTACT	CTTTGCGAAACGCAGGACAT
claudin3	ACCAACTGCGTACAAGACGAG	CGGGCACCAACGGGTTATAG
MCP-1	TAAAAACCTGGATCGGAACCAA	GCATTAGCTTCAGATTTACGGGT
MUC4	CCTCCTCTTGCTACCTGATGC	GGAAGTTGGAGTATCCCTTGTTG
TNF- α	CAGGCGGTGCCTATGTCTC	CGATCACCCCGAAGTTCAGTAG
IL-1 β	GAAATGCCACCTTTTGACAGTG	TGGATGCTCTCATCAGGACAG
IL-6	CTGCAAGAGACTTCCATCCAG	AGTGGTATAGACAGGTCTGTTGG
IL-10	CTTACTGACTGGCATGAGGATCA	GCAGCTCTAGGAGCATGTGG
IL-18	GTGAACCCAGACCAGACTG	CCTGGAACACGTTTCTGAAAGA
IFN- γ	GCCACGGCACAGTCATTGA	TGCTGATGGCCTGATTGTCTT
IL-2	TGAGCAGGATGGAGAATTACAGG	GTCCAAGTTCATCTTCTAGGCAC
IL-4	GGTCTCAACCCCAAGCTAGT	GCCGATGATCTCTCTCAAGTGAT
IL-5	GCAATGAGACGATGAGGCTTC	GCCCCTGAAAGATTTCTCCAATG
GM-CSF	GGCCTTGGAAGCATGTAGAGG	GGAGAACTCGTTAGAGACGACTT
F4/80	CTCAGTCTGCACCAATATCCTG	CCACAGAGTTAGAGCAGTTGGAA
GAPDH	AGGTCGGTGTGAACGGATTTG	GGGGTCGTTGATGGCAACA

Supplement Table 4. Average body weight (gram), mean \pm SD (n=12).

Day	NC	PC	FPL	FPH
0	19.9 \pm 0.9	20.2 \pm 0.8	19.8 \pm 1.1	20.2 \pm 1.0
1	19.4 \pm 1.0	19.7 \pm 0.7	19.2 \pm 0.9	20.1 \pm 1.1
2	18.9 \pm 0.9	19.1 \pm 0.9	18.7 \pm 0.7	19.4 \pm 1.0
3	18.6 \pm 0.9	18.8 \pm 0.8	18.6 \pm 0.9	19.4 \pm 1.1
4	18.6 \pm 0.9	18.6 \pm 0.8	18.7 \pm 0.8	19.6 \pm 0.9
5	18.1 \pm 1.0	18.4 \pm 0.6	18.3 \pm 1.0	18.9 \pm 0.8
6	18.3 \pm 0.8	18.7 \pm 0.9	18.6 \pm 1.0	19.1 \pm 0.9
7	18.4 \pm 0.9	18.6 \pm 0.8	18.6 \pm 0.9	19.2 \pm 0.9
8	18.9 \pm 1.0	19.2 \pm 0.7	18.5 \pm 0.8	19.6 \pm 1.0
9	18.7 \pm 1.0	18.8 \pm 0.8	18.9 \pm 1.1	19.3 \pm 1.0
10	18.7 \pm 1.0	18.8 \pm 0.7	19.0 \pm 0.8	19.5 \pm 0.8
11	18.6 \pm 0.8	18.6 \pm 0.9	18.8 \pm 1.0	19.7 \pm 0.9 [^]
12	18.7 \pm 0.7 ^{^^}	17.6 \pm 1.1	18.1 \pm 0.9	19.8 \pm 0.9 ^{^^^}
13	19.0 \pm 0.9 ^{^^^}	16.5 \pm 1.4	16.9 \pm 1.1	19.5 \pm 1.0 ^{^^^}
14	19.0 \pm 1.0 ^{^^^}	15.7 \pm 1.6	16.2 \pm 1.3	18.9 \pm 0.9 ^{^^^}

“*” Significantly different from the PC groups (p<0.05).

“**” Significantly different from the PC groups (p<0.01).

“***” Significantly different from the PC groups (p<0.0001).