Table S1 The main composition of RBDF and FBDF

Sample	Dietary fiber (g/100g)	Protein (g/100g)	Moisture (g/100g)	Total polysaccharides (g/100g)	Ash (g/100g)	Total free phenolics (μg GAE/g)
RBDF	77.17±1.41^{b}	3.92±0.11^{b}	1.57±0.08^{b}	34.97±2.04^{a}	5.31±0.11^{a}	187.08±1.79^{b}
FBDF	86.91±2.22^{a}	4.27±0.04^{a}	3.31±0.18^{a}	31.33±2.10^{b}	4.16±0.02^{b}	1261.67±10.46^{a}

Values are expressed as means ± SD. Values in the same line with different letters were considered significantly different ($P < 0.05$).

Table S2 The energy of normal diet (ND) and high fat diet (HFD)

	ND	HFD
Fat (kcal %)	12.79	60.65
Protein (kcal %)	20.54	18.14
Carbohydrate (kcal %)	66.67	21.22
Total (kcal/kg)	3660	5128

Table S3 The feed formula

Ingredient	Content（%）		
	HFD	RBDF	FBDF
Basic diet	32.5	22.5	22.5
Lard	28	28	28
Sucrose	8	8	8
Whole milk powder	10.8	10.8	10.8
Casein	13.5	13.5	13.5
Premix for laboratory animals	3	3	3
RBDF	/	10	/
FBDF	/	/	10
Microcrystalline cellulose	2	2	2
Calcium bicarbonate	1.8	1.8	1.8
Mountain flour	0.4	0.4	0.4

Premix for laboratory animals contains 16% maltodextrin 10, 6% mineral mix, 0.3% choline bitartrate, 0.3% L-Cystine, and 0.1% vitamin mix.

Table S4 Primer sequences used for real-time quantitative PCR

Gene	Forward primer（5’-3’）	Reverse primer（5’-3’）
GAPDH	ACATCATCCCTGCATCCACT	GTCCTCAGTGTAGCCCAAG
Per2	AGCGGCTGCAGTAGTGA	TACTTCAAGGTTGCCAGCGT
Tgm1	CTGTTGGTCCCGTCCCAAA	GGACCTTCCATTGTGCCTGG
Fgl1	GTGGATGGACTGAGCCTAGC	TCTCACTCTCGAGGGCCCAA
Hdc	ACAGCACAGACAAAGGCGAC	TAATCCACCATCTCTTTCCCTCTA
Nrg4	ACGACGAGAGAAGTCCCAGG	TGACAGTAGCAGGGTGCAAG
Eif4ebp3	GGAGTGCAAGAACTCACCCA	TCAAACTGTTCGTCATCGGTT
Myl1	GCTGACCAGATTGCCGACTT	GAAGACACGCAGACCCTCAA
Spon2	GACGCTTTTGCCAGGTGATG	TCATTCTTCCGCCACATGCT
Clpx	ATTAAGGAACCCGAGTCCGC	CGATCTGAAGCAACTCTCTAGGT
Mfap4	GGCAAGTGGACGGTTTTCCA	GCAGAGACTTGGCTGAGGG
Nupr1	GGTCGGACCAAGAGAGAAGC	GTGGTCTGGCCTTATCTCCA
Auts2	CCGCTCACCTAGAGCCTTTT	GTTCTGCACACTGGGGCTAT
mtDNA	AGGAGCCTGTTCTATAATCGATAAA	GATGGCGGTATATAGGCCGAA
RBM15	GGACAGTTTTCTTGGGCAAC	AGTTTGGCCCTGTGAGACAT

Fig. S1

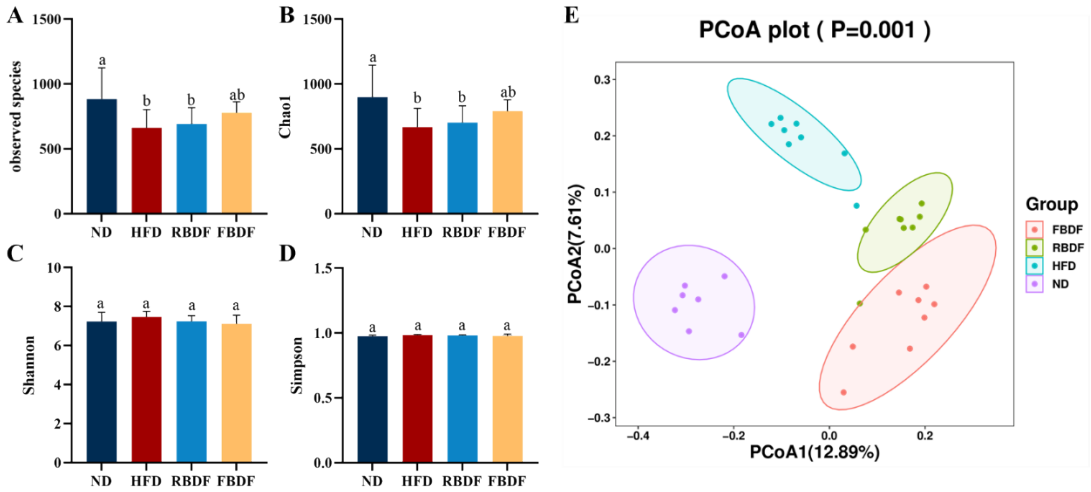

Fig.S1 Effects of RBDF and FBDF on gut microbiota α-diversity and β diversity in mice. (A) Observed species index; (B) Chao1 index ;(C) Shannon diversity index; (D) Simpson diversity index, (E) PCoA score plot. Different letters above the bars indicate significant differences ($p < 0.05$).

Fig.S2

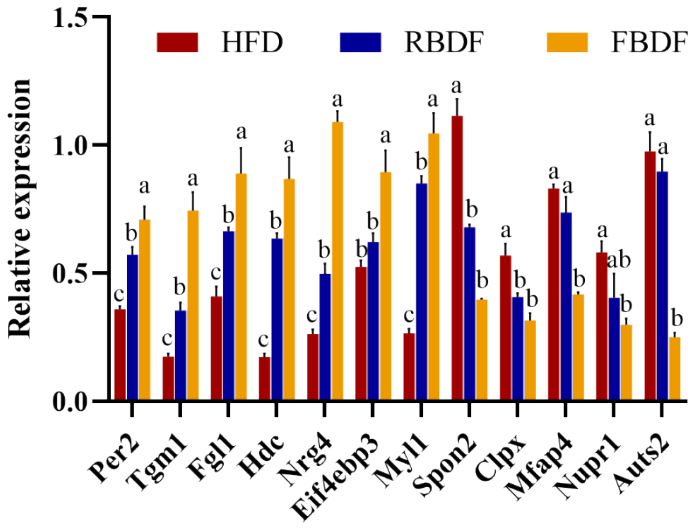

Fig.S2 Realtime-PCR quantification of the partial genes involved in the biological processes based on the hepatic transcriptome. Different letters above the bars indicate significant differences ($p < 0.05$).