

Table S1

Composition and nutrient levels of basal diets (% , as air-dry basis)

Ingredients	CON	FML	Nutrient levels ²	CON	FML
Corn	69.42	65.23	Digestible energy/(MJ/kg)	14.21	14.49
Soybean meal	16.49	11.67	Crude protein	15.21	15.18
Wheat bran	8.00	7.30	Crude fiber	3.21	4.59
Soybean oil	2.60	2.60	Neutral detergent fiber	11.56	16.11
L-Lysine	0.38	0.41	Acid detergent fiber	3.78	5.02
DL-Methionine	0.05	0.12	Ether extract	1.73	2.33
L-Threonine	0.06	0.08	Ash	4.17	4.20
L-Tryptophan	0.01	0.05	Calcium	0.61	0.68
CaHPO ₄	0.91	0.93	Total phosphorus	0.50	0.52
Limestone	0.78	0.31	Available phosphorus	0.23	0.22
NaCl	0.30	0.30	Lysine	0.98	0.99
Fermented mulberry leaves		10.00	Methionine + Cystine	0.55	0.55
Premix ¹	1.00	1.00	Threonine	0.59	0.59
Total	100.00	100.00	Tryptophan	0.17	0.18

CON, basal diet; FML, basal diet +10% fermented mulberry leaves;

1 Premix provided the following per kg of diets: VA 6 500 IU, VD₃ 2 000 IU, VE 150 mg, VK₃ 3 mg, VB₁₂ 0.03 mg, VB₁ 3 mg, VB₂ 6 mg, VB₆ 5 mg, nicotinic acid 45 mg, D-pantothenic acid 9 mg, folic acid 1 mg, biotin 0.3 mg, Fe 72 mg, Cu 10 mg, Mn 42

mg, Zn 72 mg, I 0.42 mg, Se 0.2 mg, Mg 34 mg.

2 Crude protein, crude fiber, neutral detergent fiber, acid detergent fiber, ether extract, and ash are measured values, and the others are calculated values.

Table S2

Alapha diversity analysis of unfermented (CON) and fermented mulberry leaves (FML).

Index	CON	FML
Chao	1032±37	1537±98**
Richness	702±32	1240±94***
Shannon	4.06±0.16	4.98±0.15**
Simpson	0.17±0.03	0.11±0.05*
ACE	1104±39	1580±95**

Table S3

Effects of fermented mulberry leaves on chemical composition (fresh meat) and antioxidant capacity of *longissimus thoracis* in finishing pigs.

Items	CON	FML	<i>P</i> -value
Chemical composition			
Dry matter (%)	27.47±0.18	27.42±0.55	0.926
Ether extract (%)	3.27±0.36	2.94±0.51	0.615
Crude protein (%)	22.81±0.03	23.07±0.22	0.299
Inosinic acid (mg/100 g)	229.17±6.90	231.50±6.41	0.903
Antioxidant status			
T-AOC (U/mgprot)	2.66±0.65	3.00±0.40	0.665
MDA (nmol/mgprot)	0.01±0.00	0.01±0.00	0.473
T-SOD (U/mgprot)	0.85±0.02	0.85±0.05	0.914
GSH-Px (U/mgprot)	12.65±1.91	10.86±1.44	0.473

CON, basal diet; FML, basal diet +10% fermented mulberry leaves; T-AOC, total antioxidant capacity; MDA, malondialdehyde; T-SOD, total superoxide dismutase; GSH-Px, glutathione peroxidase.

Table S4

Effect of fermented mulberry leaves on fatty acid profile of *longissimus thoracis* in finishing pigs (% fatty acid).

Items	CON	FML	<i>P</i> -value
C10:0	0.16±0.01	0.15±0.00	0.292
C11:0	4.18±0.79	4.34±0.79	0.893
C12:0	0.13±0.02	0.11±0.00	0.334
C14:0	1.53±0.03	1.60±0.05	0.226
C15:0	0.03±0.01	0.04±0.00	0.053
C16:0	26.00±0.45	25.94±0.30	0.921
C17:0	0.16±0.01	0.20±0.01	0.004
C18:0	13.19±0.54	11.76±0.55	0.093
C20:0	0.22±0.01	0.21±0.01	0.412
C22:0	0.05±0.01	0.05±0.02	0.944
C14:1(cis-9)	0.02±0.00	0.04±0.01	0.073
C16:1(cis-9)	3.26±0.13	3.76±0.22	0.080
C18:1(trans-9)	0.17±0.04	0.14±0.01	0.467
C18:1(cis-9)	41.23±1.06	40.61±0.76	0.645
C20:1(cis-11)	0.83±0.05	0.86±0.04	0.670
C22:1(cis-13)	0.08±0.01	0.07±0.01	0.722
C18:2(all-cis-9,12)	9.99±0.97	11.35±0.72	0.286

C18:3(all-cis-6,9,12)	0.05±0.00	0.05±0.01	0.670
C18:3(all-cis-9,12,15)	0.44±0.03	0.59±0.05	0.045
C20:2(all-cis-11,14)	0.37±0.03	0.42±0.02	0.280
C20:3(all-cis-8,11,14)	0.22±0.03	0.23±0.02	0.932
C20:4(all-cis-5,8,11,14)	1.77±0.27	1.76±0.25	0.986
C20:3(all-cis-11,14,17)	0.06±0.01	0.08±0.01	0.085
C20:5(all-cis-5,8,11,14,17)	0.07±0.01	0.08±0.01	0.954
C22:6(all-cis-4,7,10,13,16,19)	0.06±0.01	0.08±0.03	0.577
Saturated fatty acid	45.61±0.98	44.36±1.25	0.449
Mono unsaturated fatty acid	45.57±1.06	45.46±0.83	0.935
Polyunsaturated fatty acid	12.99±1.31	14.60±0.99	0.350

CON, basal diet; FML, basal diet +10% fermented mulberry leaves,

Table S5

Alpha diversity analysis of gut and feces.

Index	Cecum		Colon		Feces	
	CON	FML	CON	FML	CON	FML
Chao	2150±110	1707±171	2354±66	2398±71	2644±59	2376±83*
Richness	1662±66	1284±011	1850±62	1844±54	2008±76	1846±63
Shannon	7.47±0.15	6.29±0.64	7.81±0.14	7.69±0.10	7.57±0.18	7.67±0.05
Simpson	0.02±0.02	0.09±0.05	0.02±0.01	0.02±0.01	0.02±0.00	0.02±0.00
ACE	2212±117	1736±169*	2412±75	2440±73	2717±58	2447±90*

CON, basal diet; FML, basal diet +10% fermented mulberry leaves.

* indicates $P < 0.05$.

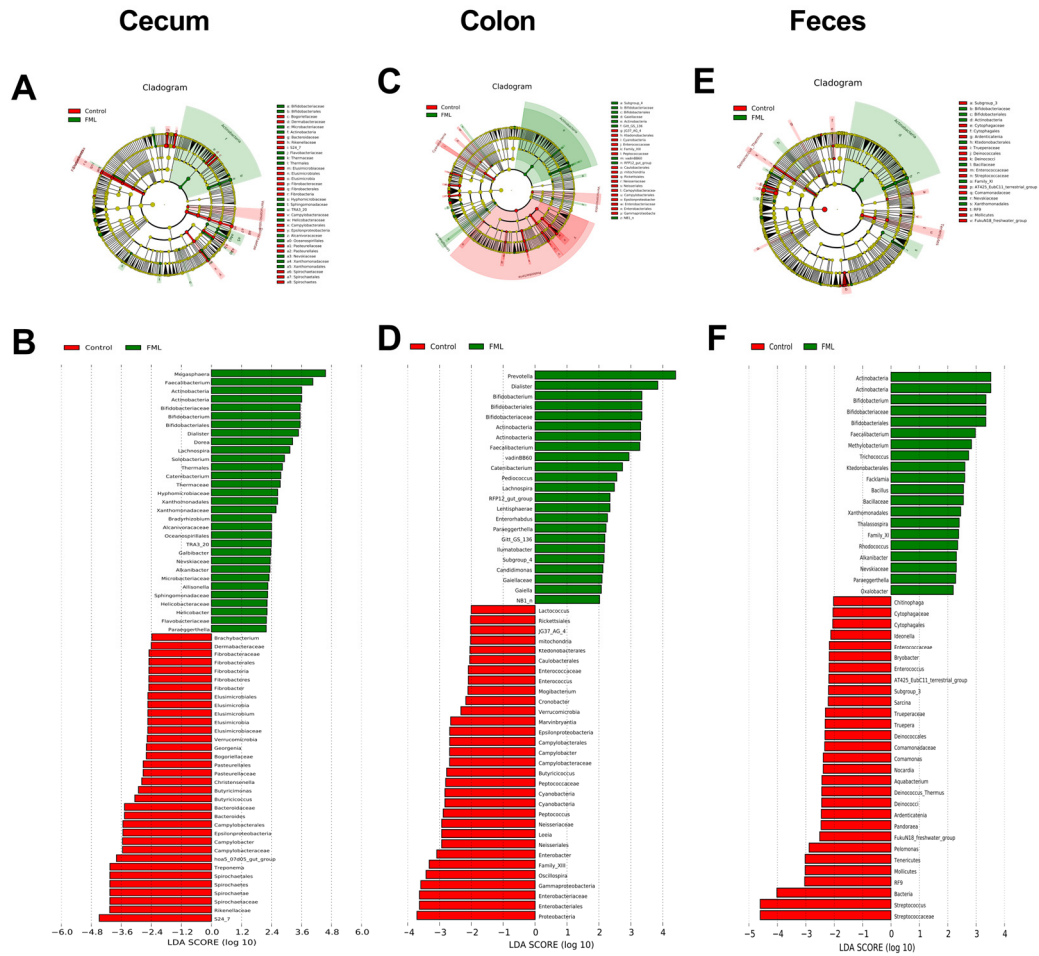


Figure S1. Linear discriminant analysis effect size (LEfSe) analysis ($P < 0.05$, LDA > 2.0) of the gut and fecal microbiota. Control, basal diet; FML, basal diet +10% fermented mulberry leaves.

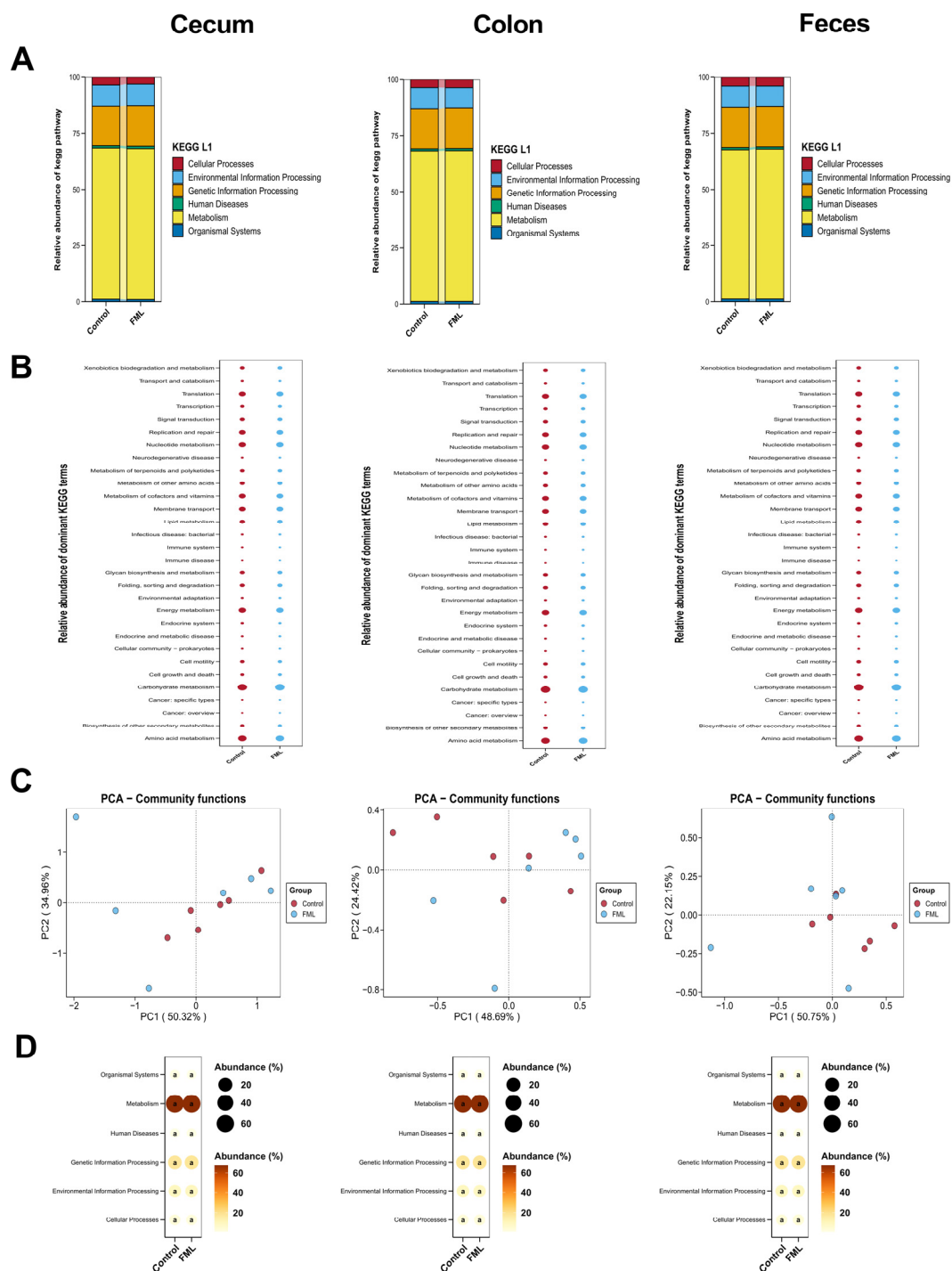


Figure S2. Prediction of the microbial community function in the gut and feces of finishing pigs.

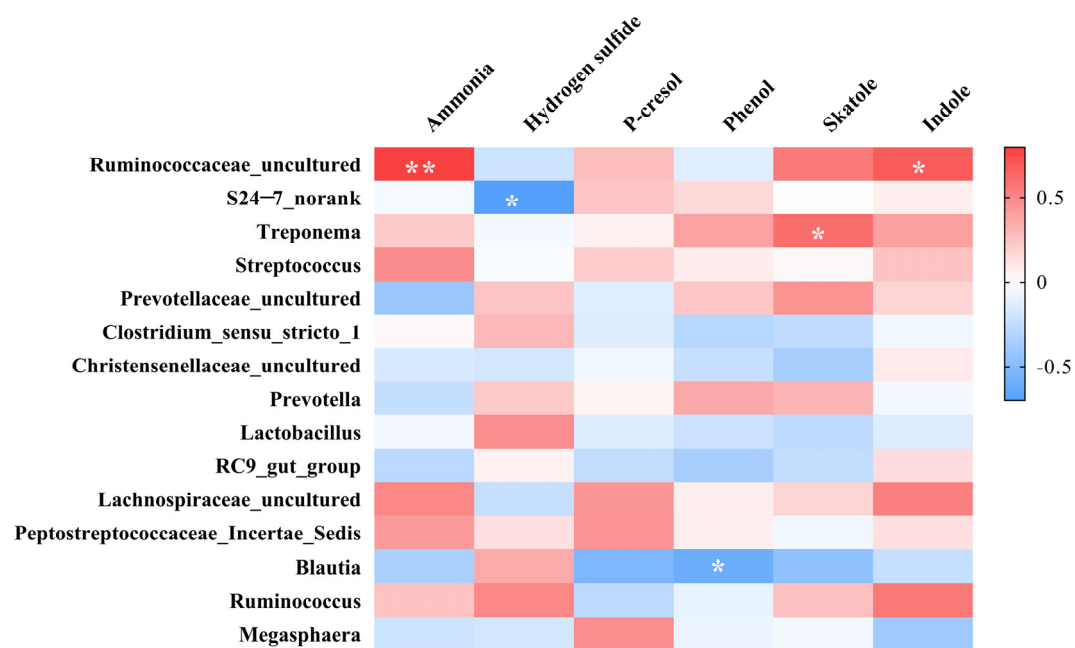


Figure S3. Spearman's correlation analysis between microorganisms and odorous compounds in the feces. * $P < 0.05$; ** $P < 0.01$