Supplementary Material

Table S1. Effects of the fruit extract of *L. cubeba* on slaughter performance of white feather broilers

Items	Treatment			*F*	*p*
	CON(n=5)	L(n=5)	H(n=5)		
Dressing percentage	90.52 ± 1.16	90.79 ± 0.35	92.28 ± 0.42	3.395	0.065
Semi-eviscerated percentage	83.42 ± 1.56	83.54 ± 0.54	84.79 ± 0.31	1.579	0.243
Eviscerated percentage	68.08 ± 2.68	68.63 ± 0.35	70.64 ± 0.42	2.352	0.134

The *F*-value and *p*-value are based on one-way analysis of variance followed by Tukey's multiple comparisons test. The parameters labeled with identical superscript letters (a, b) did not exhibit significant differences ($P > 0.05$). Data are presented as Mean ± Std. Error of Mean (SEM).

Table S2. Effects of the fruit extract of *L. cubeba* on breast muscle quality of white feather broilers

Items	Treatment			*F*	*p*
	CON(n=5)	L(n=5)	H(n=5)		
pH_1	6.41±0.04^{a}	6.41±0.06^{a}	6.15±0.06^{b}	7.232	0.009**
pH_{24}	6.37±0.02	6.45±0.04	6.27±0.07	3.357	0.070
Shear force/Kgf	4.94±0.60	3.05±0.44	4.31±0.80	2.297	0.143
Drip loss/%	14.23±2.91	19.22±1.45	14.25±3.89	0.964	0.409
Cooking loss/%	25.66±2.08	26.14±2.25	25.12±2.69	0.047	0.955
a^* 45 min	2.47±0.03	2.97±0.26	2.54±0.16	2.331	0.140
b^* 45 min	7.57±0.08^{a}	7.04±0.04^{b}	7.72±0.12^{a}	16.340	<0.001***
L^* 45 min	45.46±0.14^{a}	42.94±0.29^{b}	44.88±0.12^{ab}	44.17	<0.001***
a^* 24 h	2.49±0.12^{ab}	2.91±0.12^{a}	1.89±0.15^{b}	14.86	<0.001***
b^* 24 h	7.49±0.04^{a}	7.00±0.11^{b}	7.15±0.10^{b}	8.802	0.004**
L^* 24 h	45.64±0.07^{a}	43.50±0.10^{c}	44.62±0.22^{b}	53.85	<0.001***
Crude protein g/100g	22.36±0.24	23.06±0.29	22.84±0.19	2.138	0.161
Crude fat g/100g	1.90±0.25	1.70±0.14	1.38±0.15	1.996	0.179
Moisture %	74.23±0.27	73.83±0.05	73.71±0.07	2.702	0.146
Ash content %	1.44±0.08	1.46±0.13	1.59±0.09	0.564	0.596

The *F*-value and *p*-value are based on one-way analysis of variance followed by Tukey's multiple comparisons test. The parameters labeled with identical superscript letters (a, b) did not exhibit significant differences ($p > 0.05$). Data are presented as Mean ± Std. Error of Mean (SEM).

Table S3. Effects of *L. cubeba* fruit extract on amino acid levels in white feather broilers breast meat

Item	Treatment			*F*	*p*
	CON(n=5)	L(n=5)	H(n=5)		
Gly	148.47±8.66	135.54±7.11	153.09±7.69	1.343	0.298
Ala	338.87±15.70	308.50±11.00	305.79±9.53	2.21	0.152
GABA	1.03±0.05	1.14±0.04	1.02±0.02	3.192	0.077
Ser	217.18±12.39	195.67±6.81	190.18±5.36	2.671	0.110
Pro	95.24±3.93^{a}	98.78±4.74^{a}	74.71±2.72^{b}	11.198	0.002**
Val	132.80±9.99^{a}	106.62±4.87^{b}	111.53±3.45^{ab}	4.286	0.039*
Thr	123.17±8.05^{a}	103.77±5.28^{ab}	100.06±3.99^{b}	4.254	0.040*
Ile	100.95±8.47^{a}	79.75±3.71^{b}	84.75±2.54^{ab}	4.007	0.046*
Leu	202.06±17.69	162.82±8.04	171.33±5.72	3.116	0.081
Asn	68.40±1.56^{a}	45.95±3.63^{b}	53.93±1.88^{b}	20.296	<0.001***
Orn	3.69±0.27^{a}	2.11±0.16^{b}	2.38±0.20^{b}	15.076	<0.001***
Asp	106.56±9.26	94.33±4.14	91.63±4.41	1.552	0.252
Hcy	2.76±0.50^{b}	2.29±0.13^{b}	4.80±0.70^{a}	7.036	0.010**
Gln	155.88±12.97	137.49±7.35	129.02±5.89	2.202	0.153
Lys	204.93±14.24^{a}	168.74±6.84^{ab}	161.83±7.46^{b}	5.266	0.023*
Glu	214.32±14.58	187.62±6.85	187.80±5.83	2.412	0.132
Met	79.30±6.52^{a}	60.93±2.94^{b}	66.18±1.54^{ab}	5.019	0.026*
His	143.18±10.18	123.29±5.46	138.45±3.20	2.256	0.147
Phe	105.88±8.08^{a}	85.63±3.71^{b}	86.77±2.47^{ab}	4.564	0.034*
Arg	135.04±10.31^{a}	111.93±5.04^{ab}	102.99±3.65^{b}	5.658	0.019*
Tyr	141.93±9.56	123.19±4.37	124.85±3.27	2.662	0.110
Trp	33.69±2.22^{a}	28.48±1.31^{a}	27.95±0.64^{a}	4.274	0.040*

The *F*-value and *p*-value are based on one-way analysis of variance followed by Tukey's multiple comparisons test. The parameters labeled with identical superscript letters (a, b, c) did not exhibit significant differences ($p > 0.05$). *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. Data are presented as Mean ± Std. Error of Mean (SEM).

Table S4. Effects of *L. cubeba* fruit extract on fatty acid levels in white feather broilers breast meat

Item	Treatment			*F*	*p*
	CON(n=5)	L(n=5)	H(n=5)		
Caproate (C6:0)	0.65±0.01^{b}	0.66±0.02^{b}	0.74±0.03^{a}	6.567	0.012*
Caprylate (C8:0)	0.55±0.03	0.54±0.02	0.57±0.02	0.397	0.681
Caprate (C10:0)	0.51±0.05	0.57±0.06	0.64±0.05	1.631	0.236
Unndecanoate (C11:0)	0.14±0.00	0.14±0.01	0.15±0.00	1.569	0.248
Laurate (C12:0)	2.63±0.19^{b}	3.43±0.32^{ab}	4.08±0.30^{a}	7.032	0.010**
Tridecanoate (C13:0)	0.22±0.01	0.21±0.01	0.23±0.01	0.967	0.408

Myristate (C14:0)	42.07±4.08	39.79±2.93	41.94±2.29	0.162	0.852
Myristelaidate (C14:1T)	1.54±0.08	1.66±0.11	1.60±0.07	0.448	0.649
Myristoleate (C14:1)	5.70±0.73	5.03±0.44	4.71±0.39	0.871	0.443
Pentadecanoate (C15:0)	3.28±0.33	3.28±0.30	3.48±0.24	0.142	0.869
10-Transpentadecenoate (C15:1T)	4.14±0.18	4.26±0.21	4.33±0.16	0.268	0.769
10-Pentadecenoate (C15:1)	68.89±3.57	62.90±2.90	71.34±2.76	1.963	0.183
Palmitate (C16:0)	761.21±98.08	700.12±70.15	692.73±70.88	0.217	0.808
Palmitelaidate (C16:1T)	9.01±0.83	8.12±0.60	8.91±0.78	0.431	0.659
Palmitoleate (C16:1)	233.35±39.05	191.98±24.89	176.44±19.09	1.035	0.385
Heptadecanoate (C17:0)	5.36±0.48	5.16±0.40	5.73±0.36	0.482	0.629
10-Transsheptadecenoate (C17:1T)	3.86±0.34	3.90±0.31	3.73±0.26	0.08	0.924
10-Heptadecenoate (C17:1)	18.46±0.68	20.52±0.51	21.15±1.09	3.101	0.082
Stearate (C18:0)	363.02±65.50	315.98±42.79	395.95±44.16	0.6	0.564
Elaidate (C18:1N12T)	6.01±0.53	5.89±0.42	5.68±0.30	0.157	0.856
Transvaccenate (C18:1N9T)	8.61±0.71	8.37±0.52	7.99±0.42	0.305	0.742
Petroselinate (C18:1N7T)	6.35±0.32	6.29±0.26	6.43±0.34	0.052	0.949
Oleate (C18:1N9C)	995.18±106.01	958.94±95.21	886.83±76.43	0.349	0.712
Vaccenate (C18:1N7)	107.16±12.29	95.92±7.96	95.98±7.55	0.463	0.64
Linoelaidate (C18:2N6T)	1.74±0.12	1.70±0.08	1.57±0.10	0.736	0.499
7-Transnonadecenoate (C19:1N12T)	1.30±0.21	1.34±0.16	1.24±0.16	0.079	0.924
Linoleate (C18:2N6)	459.02±63.53	459.60±50.38	439.71±43.14	0.046	0.956
Arachidate (C20:0)	7.87±0.62	7.31±0.49	8.32±0.37	1.009	0.393
Gamma Linolenate (C18:3N6)	4.30±0.50	4.93±0.52	4.26±0.37	0.644	0.542
Trans 11-Eicosenoate (C20:1T)	4.46±0.18	4.88±0.27	4.61±0.18	0.966	0.408
11-Eicosenoate (C20:1)	18.85±2.03	17.72±1.49	15.56±1.09	1.117	0.359
Alpha Linolenate (C18:3N3)	13.80±2.22	13.19±1.83	11.77±1.28	0.33	0.725
Heneicosanoate (C21:0)	1.23±0.04	1.17±0.03	1.24±0.05	0.893	0.435
11- 14 Eicosadienoate (C20:2)	16.50±0.84	15.41±0.96	13.28±1.23	2.569	0.118
Behenate (C22:0)	21.36±0.87^{ab}	18.00±0.95^{b}	21.94±0.94^{a}	5.325	0.022*
HomogammaLinolenate (C20:3N6)	36.41±1.11^{ab}	40.04±1.48^{a}	34.69±1.41^{b}	4.158	0.042*
Brassidate (C22:1N9T)	23.50±1.06^{ab}	21.91±0.46^{b}	25.50±0.62^{a}	5.672	0.018*
Erucate (C22:1N9)	120.11±7.89^{ab}	109.39±3.38^{b}	137.14±7.34^{a}	4.607	0.033*
11- 14- 17 Eicosatrienoate (C20:3N3)	0.89±0.05	0.96±0.04	0.91±0.05	0.627	0.551
Arachidonate (C20:4N6)	106.26±3.88^{b}	105.37±4.82^{b}	140.87±5.64^{a}	17.537	<0.001***
Tricosanoate (C23:0)	0.52±0.02	0.51±0.01	0.54±0.01	1.17	0.343
Docosadienoate (C22:2)	3.34±0.10	3.11±0.08	3.34±0.07	2.564	0.118
Eicosapentaenoate (C20:5N3)	7.93±0.25	7.89±0.16	7.86±0.30	0.019	0.982
Lignocerate (C24:0)	4.08±0.18	3.73±0.14	4.35±0.22	2.979	0.089
Nervonoate (C24:1)	19.68±0.58^{ab}	18.82±0.81^{b}	23.15±1.36^{a}	5.579	0.019*
Docosatetraenoate (C22:4)	33.91±1.62^{b}	32.00±1.75^{b}	43.18±1.69^{a}	12.537	0.001**
Docosapentaenoate (C22:5N6)	9.69±0.32^{b}	8.96±0.28^{b}	13.95±0.81^{a}	25.799	<0.001***
Docosapentaenoate (C22:5N3)	14.73±0.48^{b}	13.77±0.47^{b}	18.77±1.04^{a}	13.726	<0.001***
Docosahexaenoate (C22:6N3)	20.51±1.05	18.97±0.34	19.03±1.46	0.68	0.525

The *F*-value and *p*-value are based on one-way analysis of variance followed by Tukey's multiple comparisons test. The parameters labeled with identical superscript letters (a, b, c) did not exhibit significant differences ($p > 0.05$). *$p < 0.05$; **$p <$

0.01; ***$p < 0.001$. Data are presented as Mean ± Std. Error of Mean (SEM).

Table S5. Alpha diversity index of gut flora in white feather broilers

Items	Treatment			*p*
	CON(n=5)	L(n=5)	H(n=5)	
Goods Coverage	0.9952±0.0004	0.9928±0.0034	0.9926±0.0029	0.58
Chao1	1,092.00±42.68	1,254.00±301.00	1,316.00±237.60	0.58
Shannon	7.35±0.05	7.11±0.11	7.33±0.13	0.29

The *p*-value are based on one-way analysis of variance followed by the Kruskal–Wallis test and Dunn's post-hoc test. The parameters labeled with identical superscript letters (a, b) did not exhibit significant differences ($p > 0.05$). Data are presented as Mean ± Std. Error of Mean (SEM).