

Supplementary Material

Dietary lemongrass essential oil, growth, and gut bacterial communities of red tilapia: an exploratory eight-week trial

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Table S1 DNA quality-control parameters for pooled red tilapia gut samples

No.	Sample	DNA (ng/ μ L)	OD260/OD280	DNA amount (ng)	QC
1	Control_1	1.14	1.51	45.60	Pass
2	Control_2	0.67	1.63	26.80	Pass
3	S200_1	0.38	1.50	15.20	Pass
4	S200_2	0.52	1.52	20.80	Pass
5	S300_1	9.27	1.56	370.80	Pass
6	S300_2	2.83	1.67	113.20	Pass
7	S400_1	1.06	1.72	42.40	Pass
8	S400_2	1.14	1.53	45.60	Pass
9	Control_3	0.45	1.64	18.00	Pass
10	S200_3	0.97	1.73	38.80	Pass
11	S300_3	2.35	1.54	94.00	Pass
12	S400_3	0.39	1.62	15.60	Pass

Table S2 Library quality-control parameters for 16S rRNA gene sequencing

No.	Sample	Library concentration (nM)	QC
1	Control_1	6.66	Pass
2	Control_2	1.15	Pass
3	S200_1	0.45	Pass
4	S200_2	0.59	Pass
5	S300_1	0.91	Pass
6	S300_2	1.16	Pass
7	S400_1	40.10	Pass
8	S400_2	13.50	Pass
9	Control_3	0.58	Pass
10	S200_3	4.11	Pass
11	S300_3	0.30	Pass
12	S400_3	0.32	Pass

Table S3 Pairwise alpha-diversity comparisons

Metric	Contrast	p	FDR q
Observed ASVs	Control-S200	0.5127	0.6152
Observed ASVs	Control-S300	0.2752	0.6152
Observed ASVs	Control-S400	0.2752	0.6152
Observed ASVs	S200-S300	0.5127	0.6152
Observed ASVs	S200-S400	0.8273	0.8273
Observed ASVs	S300-S400	0.5127	0.6152
Shannon	Control-S200	0.2752	0.3303
Shannon	Control-S300	0.2752	0.3303
Shannon	Control-S400	0.1266	0.2533
Shannon	S200-S300	0.1266	0.2533
Shannon	S200-S400	0.5127	0.5127
Shannon	S300-S400	0.1266	0.2533
Chao1	Control-S200	0.8273	0.8273
Chao1	Control-S300	0.1266	0.3799
Chao1	Control-S400	0.2752	0.4129
Chao1	S200-S300	0.1266	0.3799
Chao1	S200-S400	0.5127	0.6152
Chao1	S300-S400	0.2752	0.4129
Pielou	Control-S200	0.5127	0.5127
Pielou	Control-S300	0.0495	0.0991
Pielou	Control-S400	0.2752	0.4129
Pielou	S200-S300	0.0495	0.0991
Pielou	S200-S400	0.5127	0.5127
Pielou	S300-S400	0.0495	0.0991

Pairwise rank-test outputs were adjusted within each metric using the Benjamini-Hochberg procedure. No q-value was <0.05.

Table S4 Exact pairwise PERMANOVA contrasts

Distance	Contrast	pseudo-F	exact p	FDR q
Bray–Curtis	Control–S200	1.461	0.20	0.24
Bray–Curtis	Control–S300	1.363	0.30	0.30
Bray–Curtis	Control–S400	3.847	0.10	0.20
Bray–Curtis	S200–S300	2.194	0.20	0.24
Bray–Curtis	S200–S400	5.805	0.10	0.20
Bray–Curtis	S300–S400	3.451	0.10	0.20
Jaccard	Control–S200	1.691	0.10	0.10
Jaccard	Control–S300	2.066	0.10	0.10
Jaccard	Control–S400	2.056	0.10	0.10
Jaccard	S200–S300	1.959	0.10	0.10
Jaccard	S200–S400	1.920	0.10	0.10
Jaccard	S300–S400	1.912	0.10	0.10

With three samples per group, each two-group comparison has only 20 unique allocations; exact p-values therefore have coarse resolution. FDR adjustment was applied within each distance metric. No pairwise contrast was significant.

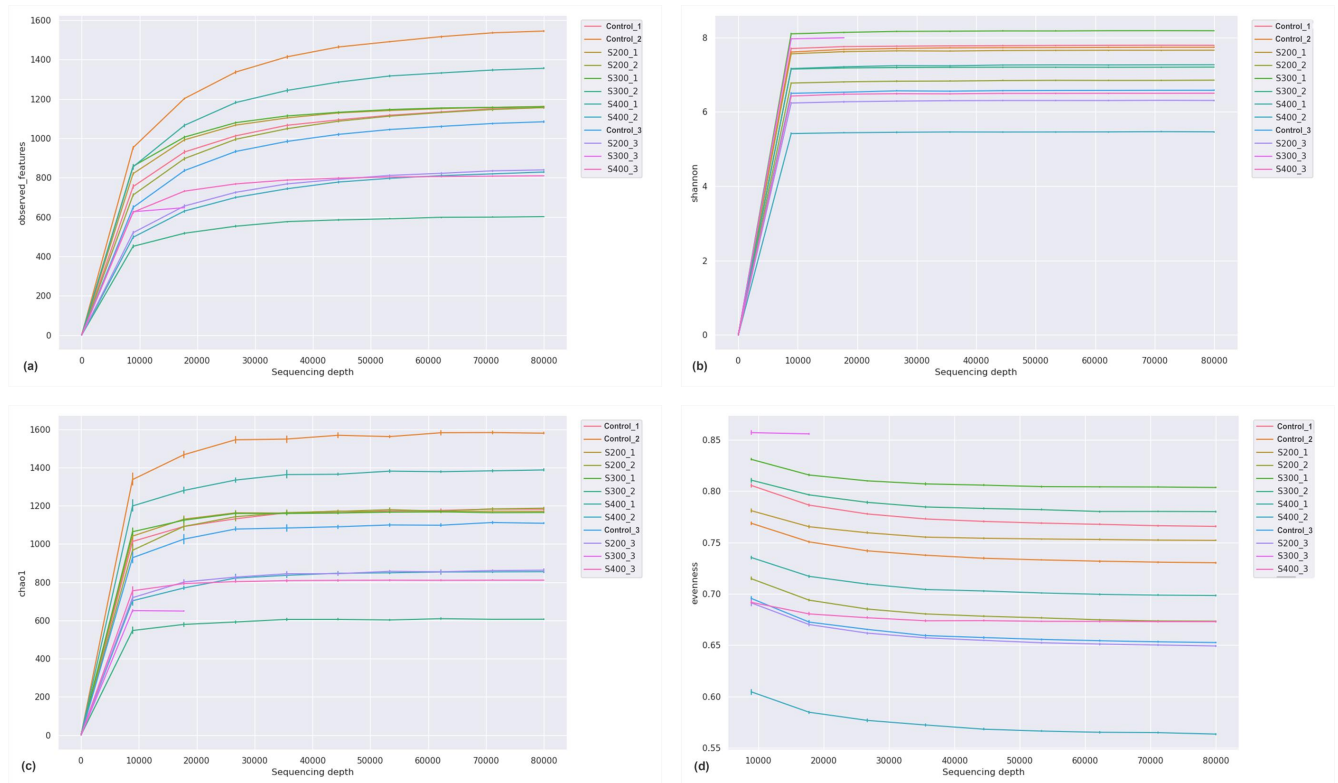


Figure S1 Rarefaction curves for observed ASVs, Shannon diversity, Chao1 richness, and Pielou evenness. The lowest retained depth was 21,356 reads in S300_3; alpha-diversity comparisons in the revised manuscript used this standardized depth.