

Table S1 Groups of experimental mice and their daily treatments

group	Gavage dose
Control	0.2 mL 0.9% NaCl
Model	0.2 mL 0.9% NaCl
H-LB	0.2 mL high dose of <i>L. brevis</i> PDD-2 ( $2 \times 10^9$ CFU/mL)
L-LB	0.2 mL low dose of <i>L. brevis</i> PDD-2 ( $2 \times 10^7$ CFU/mL)
HI-LB	0.2 mL high dose of heat-killed <i>L. brevis</i> PDD-2 ( $2 \times 10^9$ CFU/mL)
LI-LB	0.2 mL low dose of heat-killed <i>L. brevis</i> PDD-2 ( $2 \times 10^7$ CFU/mL)
PC	0.2 mL silymarin (100 mg/kg body)

Table S2 Diet ingredients of mice in each group

Ingredients	group			
	Control liquid diet		Lieber-DeCarli liquid diet	
	weight(g)	Calories (kcal)	weight (g)	Calories (kcal)
casein	41.4	166	41.4	166
L-cystine	0.5	2	0.5	2
DL-Methionine	0.3	1	0.3	1
Maltodextrin	115.2	461	25.6	102
Cellulose	10	0	10	0
Xanthan Gum	3	0	3	0
Corn oil	8.5	77	8.5	77
Olive oil	28.4	256	28.4	256
Safflower seed oil	2.7	24	2.7	24
Mineral Complex	8.75	4	8.75	4
Multivitamin	2.5	9	2.5	9
Choline Tartrate	0.53	0	0.53	0
95% Alcohol	0	0	67 mL	358

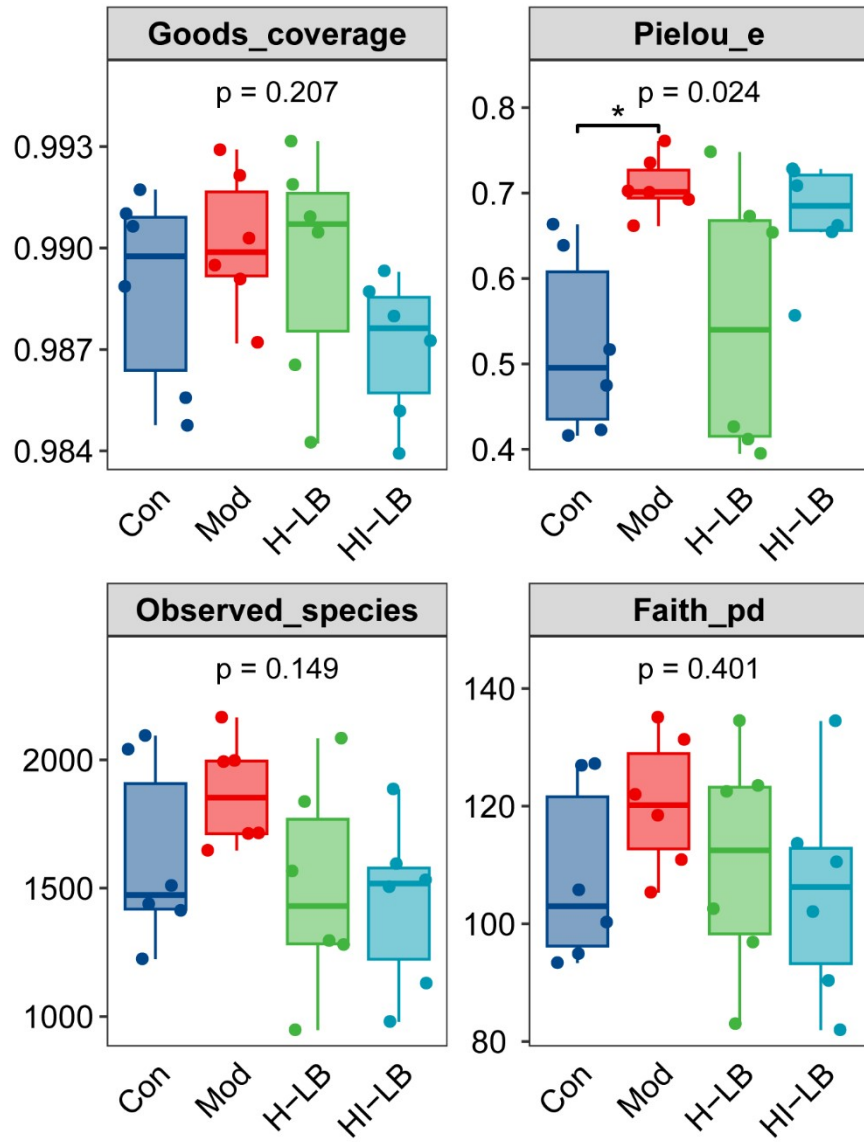
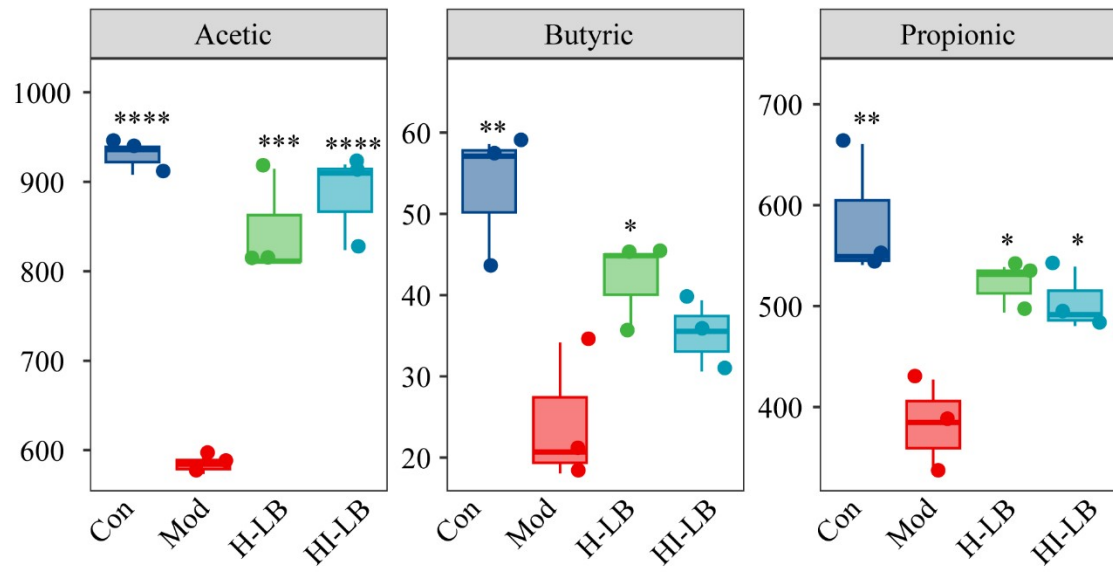


Fig. S1 Effect of *L. brevis* PDD-2 and heat-inactivated *L. brevis* PDD-2 on alpha diversity (n=6).



**Fig. S2** Effect of *L. brevis* PDD-2 and heat-inactivated *L. brevis* PDD-2 on the levels of short-chain fatty acids (SCFAs) in intestinal contents (n=3).