

Supplementary Table S1. Significantly different compounds (p-value <0.05; one way ANOVA test corrected by Tukey's procedure) found between gluten free bread fermented fecal batches after 20h (T20) of fermentation. Breads were differently labelled based on the use of sourdough (SB) or not (YB) and based on the artichoke extract (AE) addition.

Compound	f-value	p-value	FDR	Tukey's HSD
Hexanal	21.725	0.00033581	0.01151	SBAE-T20 vs SB-T20; YB-T20 vs SB-T20; YBAE-T20 vs SB-T20; YBAE-T20 vs SBAE-T20; YBAE-T20 vs YB-T20
Oxirane, tetradecyl-	20.817	0.00039016	0.01151	SBAE-T20 vs SB-T20; YB-T20 vs SBAE-T20; YBAE-T20 vs SBAE-T20
1-Propanol	14.274	0.0014125	0.02778	YB-T20 vs SB-T20; YBAE-T20 vs SB-T20
Pentadecanal-	10.766	0.0035052	0.039647	SBAE-T20 vs SB-T20; YB-T20 vs SBAE-T20; YBAE-T20 vs SBAE-T20
Undecane	10.392	0.0039133	0.039647	YB-T20 vs SB-T20; YBAE-T20 vs SB-T20; YB-T20 vs SBAE-T20; YBAE-T20 vs SBAE-T20
Decane	10.188	0.0041613	0.039647	YB-T20 vs SB-T20; YB-T20 vs SBAE-T20; YBAE-T20 vs YB-T20
Hydrocinnamic acid	9.544	0.0050841	0.039647	SBAE-T20 vs SB-T20; YB-T20 vs SBAE-T20; YBAE-T20 vs SBAE-T20
3-Ethyl-3-methylheptane	9.3703	0.0053759	0.039647	YB-T20 vs SB-T20; YB-T20 vs SBAE-T20; YBAE-T20 vs YB-T20
Butanoic acid, ethyl ester	8.3872	0.0074857	0.048452	SBAE-T20 vs SB-T20; YBAE-T20 vs SBAE-T20
Benzaldehyde, 2,5-dimethyl-	8.0225	0.0085254	0.048452	YB-T20 vs SBAE-T20; YBAE-T20 vs SBAE-T20
Dodecane	7.864	0.0090334	0.048452	YB-T20 vs SB-T20; YB-T20 vs SBAE-T20

Supplementary Table S2. Significantly different compounds (p-value <0.05; one way ANOVA test corrected by Tukey's procedure) found between gluten free bread fermented fecal batches after 42h (T42) of fermentation. Breads were differently labelled based on the use of sourdough (SB) or not (YB) and based on the artichoke extract (AE) addition.

Compound	f.value	p.value	FDR	Tukey's HSD
Ethanol	80.894	2.5197e-06	0.00013859	SBAE-T42 vs SB-T42; YB-T42 vs SB-T42; YBAE-T42 vs SB-T42; YBAE-T42 vs YB-T42
1-Butanol	61.47	7.2312e-06	0.00019886	SBAE-T42SB-T42; YB-T42SB-T42; YBAE-T42 vs SB-T42
Hexanoic acid	48.148	1.8269e-05	0.00032756	YB-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42; YBAE-T42 vs YB-T42
Hydrocinnamic acid	44.867	2.3823e-05	0.00032756	SBAE-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42
Heptanoic acid	38.077	4.3958e-05	0.00048354	SBAE-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs YB-T42
9-Octadecenal, (Z)-	33.9	6.7541e-05	0.00061912	SBAE-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42
Pentanoic acid	28.016	0.00013543	0.00098149	SBAE-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs YB-T42
Butanoic acid, 3-methyl-	27.611	0.00014276	0.00098149	YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42; YBAE-T42 vs YB-T42
Tetradecanal	26.66	0.00016201	0.00099005	SBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42
Butanoic acid	25.222	0.00019767	0.0010872	SBAE-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs YB-T42

Phenylethyl Alcohol	20.593	0.00040521	0.002026	SBAE-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs YB-T42
Octadecanal	18.36	0.00060341	0.0027656	SBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42
2,4-Di-tert-butylphenol	17.421	0.00072256	0.0029333	SBAE-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42
2-Tetradecanone	17.254	0.00074666	0.0029333	SBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42
Methyl Isobutyl Ketone	15.937	0.00097744	0.0035839	YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs YB-T42
Gamma-Dodecalactone	15.017	0.0011933	0.0040694	SBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42
Propanoic acid, 2-methyl-	14.782	0.0012578	0.0040694	SBAE-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs YB-T42
p-Cresol	14.276	0.001412	0.0043144	SBAE-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs YB-T42
8-Methylnonanoic acid	13.917	0.0015358	0.0044457	SBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42
1-Propanol	11.435	0.0028991	0.0078621	SBAE-T42 vs SB-T42; YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs YB-T42
Dodecanal	11.309	0.0030019	0.0078621	SBAE-T42 vs SB-T42; YBAE-T42 vs SBAE-T42
Phenol	10.696	0.0035768	0.008942	YBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs YB-T42
Benzaldehyde, 2,5-dimethyl-	10.052	0.0043373	0.010372	YB-T42 vs SB-T42; YBAE-T42 vs YB-T42
Hexanoic acid, ethyl ester	9.7699	0.0047339	0.010848	YBAE-T42 vs SBAE-T42
Cyclohexanecarboxylic acid	9.4314	0.0052709	0.011596	YB-T42 vs SB-T42; YB-T42 vs SBAE-T42
1H-Pyrrole-2,5-dione, 3-ethyl-	9.2999	0.0054999	0.011634	SBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42
Undecane	8.7574	0.0065871	0.013258	YB-T42 vs SB-T42; YBAE-T42 vs YB-T42
Benzaldehyde	8.6859	0.0067497	0.013258	SBAE-T42 vs SB-T42; YB-T42 vs SBAE-T42
1H-Indole, 4-methyl-	7.7279	0.0094999	0.018017	SBAE-T42 vs SB-T42; YB-T42 vs SB-T42; YBAE-T42 vs SB-T42
Propanoic acid	7.3238	0.011074	0.020303	SBAE-T42 vs SB-T42; YB-T42 vs SB-T42; YBAE-T42 vs SB-T42
2-Tridecanone	7.0796	0.012185	0.021618	YB-T42 vs SBAE-T42; YBAE-T42 vs SBAE-T42
2-Pentadecanone	6.3054	0.016759	0.028804	SBAE-T42 vs SB-T42; YBAE-T42 vs SBAE-T42
2-Dodecanone	5.6122	0.02281	0.038017	YB-T42 vs SBAE-T42
3-Pentanone, 2-methyl-	5.5327	0.023667	0.038285	YBAE-T42 vs YB-T42