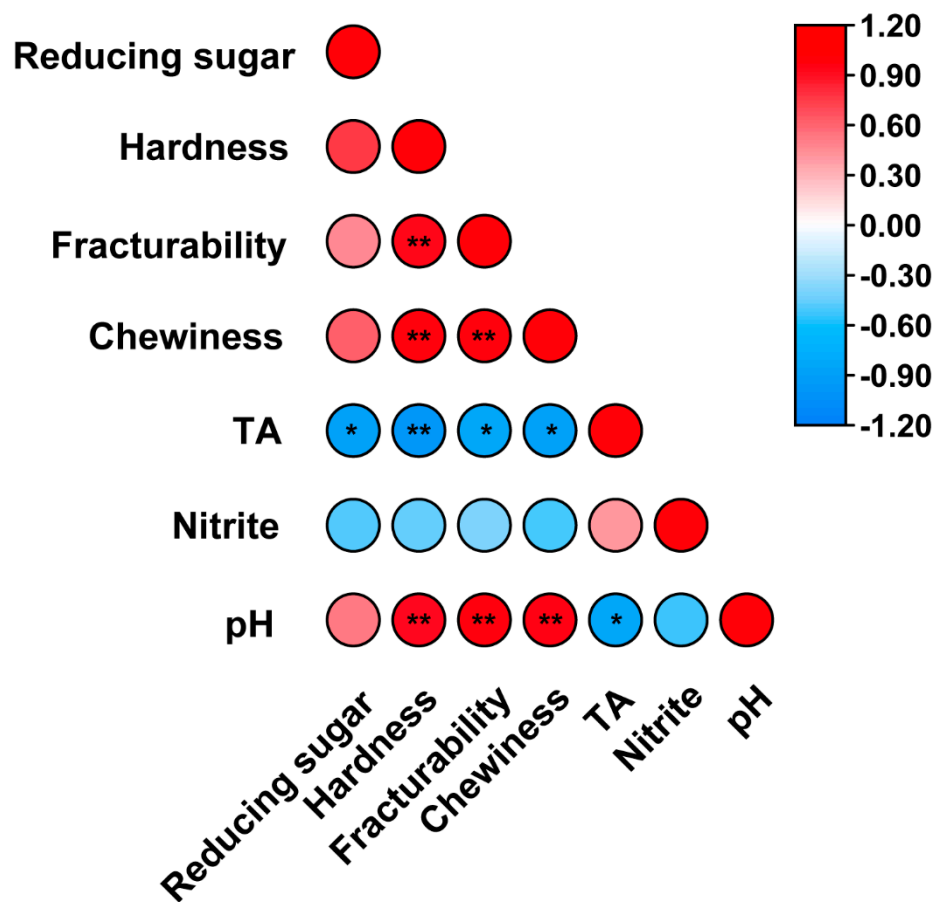


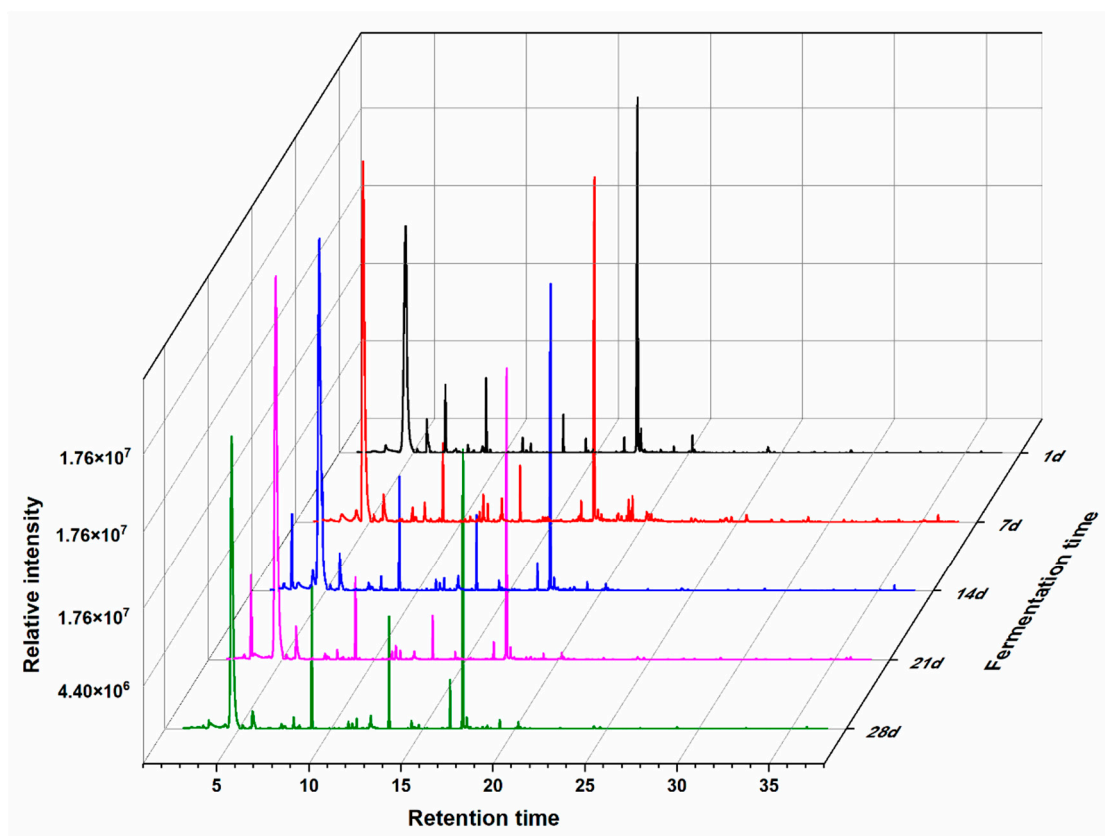
## Supplementary data



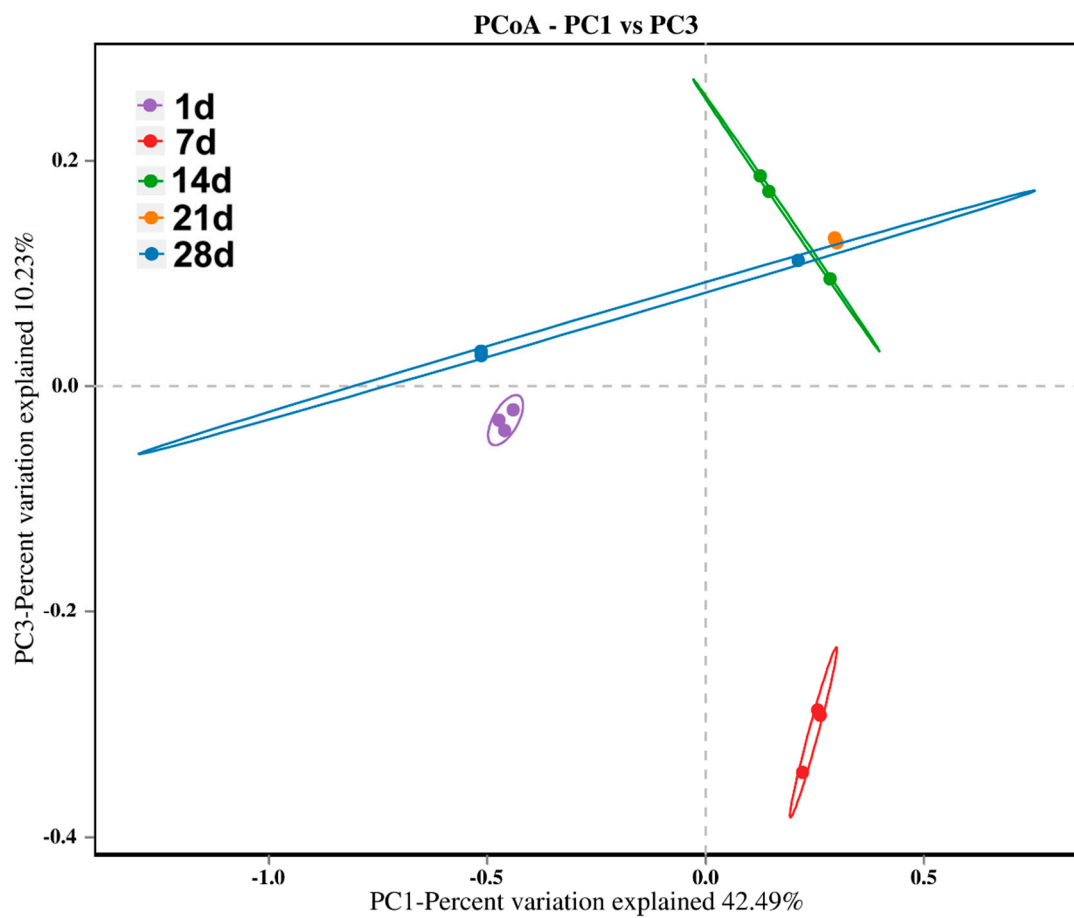
**Figure S1** Correlation among reducing sugar, hardness, fracturability, chewiness, TA, pH, and nitrite of sour bamboo shoots conducted by Pearson's correlation analysis.

Circles represent a positive (orange) or negative (blue) correlation between the quality indicators. The size of the circle represents the levels of the correlation coefficient (r),

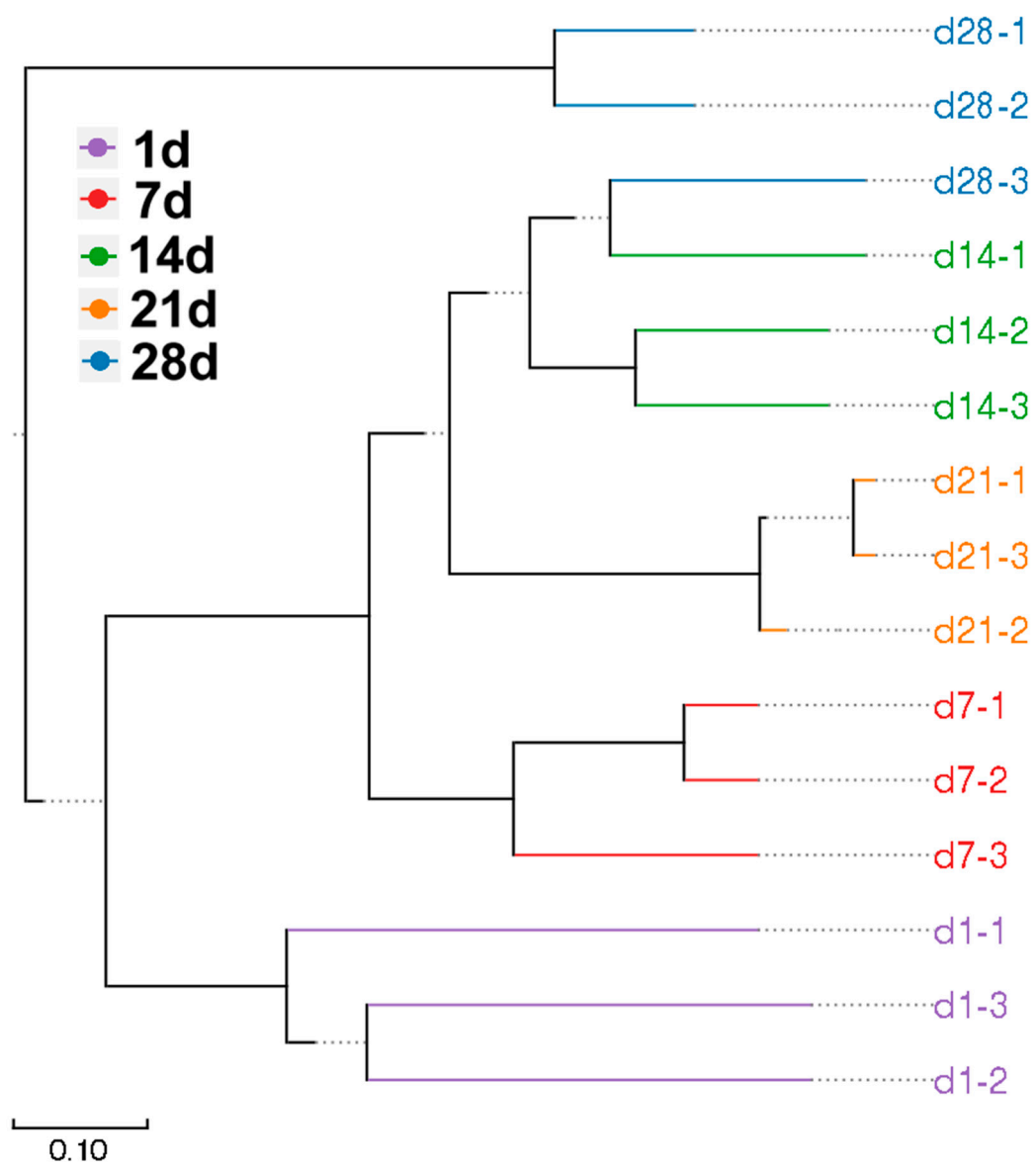
\*  $P < 0.05$ , \*\*  $P < 0.01$ .



**Figure S2** Total ion flow of volatile compounds in sour bamboo shoots during the fermentation process.



**Figure S3** PCoA analysis of the microbial community in sour bamboo shoots during fermentation process.



**Figure S4** UPGMA analysis of the microbial community in sour bamboo shoots during fermentation process.

**Table S1** Volatile compounds of sour bamboo shoots during fermentation measure by GC-MS.

NO.	Volatile components	Relative content (μg/L)				
		1d	7d	14d	21d	28d
Alcohols						
1	1-Heptanol	-	-	8.05±0.77b	-	-
2	1-Octen-3-ol	101.10 ±0.00b	-	-	-	117.68±10.33a
3	2-Ethyl-1-hexanol	50.54 ±0.00a	14.40±1.13b	8.07±0.72d	7.20±1.85d	-
4	(E)-2-Octen-1-ol	8.98±12.70a	18.63±2.06a	14.43±1.26a	13.77±3.38a	11.55±1.75a
5	1-Octanol	-	-	-	-	14.06±3.91a
6	Linalool	1.36±1.92c	-	4.13±0.34c	4.36±0.10c	8.96±0.00b
7	3,6-Nonadien-1-ol	0.84±1.18e	104.85±5.34b	76.60±6.16cd	69.56±4.52d	87.49±2.39c
8	1-Decanol	-	2.88±0.39a	1.43±0.32b	1.90±0.20	3.84±0.34a
9	1-Pentanol	74.48±0.00a	18.26±1.10b	-	-	-
10	dimethylsilanediol	1.74 ±0.00c	-	317.50±58.65b	74.05±33.15a	422.08±0.00a
11	1-Nonanol	2.01 ±0.15c	6.10±0.51a	3.09±0.18b	3.07±0.42b	2.69±0.58bc
12	1-Dodecanol	2.43 ±0.00b	9.77±0.64a	2.16±0.33b	1.56±0.11b	2.49±0.69b
13	3-Methyl-1-butanol	14.85 ±0.00c	23.66±1.44b	-	-	-
14	Cyclooctyl alcohol	8.99 ±0.00b	-	-	-	-
15	Cedrol	3.10 ±0.00c	13.99±0.92a	2.28±0.34c	2.55±0.72c	2.61±0.65c
16	Cyclohexanol, 2-methyl-	-	7.70±0.35a	1.37±0.00b	-	-
17	Bicyclo[3.1.1]heptane-2-methanol,6,6-dimethyl-, (1S,2S,5S)-	-	-	-	-	5.49±0.00b
Esters						
18	2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	7.74±3.32c	25.65±3.34a	17.14±0.16b	14.73±1.50bc	14.45±1.96bc

19	Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester	3.42±1.43c	18.70±1.13a	7.83±1.82b	3.94±0.32c	5.16±0.53bc
20	Hexanoic acid, 3,5,5-trimethyl-, 2-ethylhexyl ester	9.94±0.72b	17.86±0.80a	8.80±1.21b	4.34±0.31c	8.25±0.85b
21	1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester	17.74±11.54bc	22.24±0.58b	50.35±2.61a	10.96±2.22c	25.54±0.68b
22	Dibutyl phthalate	15.36±10.21b	13.24±0.84b	25.04±0.00a	13.69±0.00b	8.38±0.00b
23	Formic acid, octyl ester	-	21.83±1.34a	15.08±0.82b	11.41±0.92c	-
24	Hexadecanoic acid, methyl ester	-	-	-	-	2.27±0.00b
Aldehydes						
25	Octanal	2.50±1.31b	5.27±0.38a	1.56±0.28b	1.43±0.22b	2.32±0.12b
26	Nonanal	9.62±4.01c	16.30±0.11ab	8.76±1.29c	19.36±0.57a	17.26±1.78a
27	Decanal	5.37±0.75bc	13.11±1.01a	4.21±0.13cd	3.41±0.00d	4.27±0.20cd
28	Benzaldehyde, 2,4-dimethyl-	25.95±3.87d	133.77±7.15a	39.74±4.13c	69.28±2.71b	33.41±1.58cd
29	Dodecanal	0.98±0.37d	5.95±0.33a	2.60±0.19b	2.09±0.30c	1.22±0.06d
Phenols						
30	2,4-Di-tert-butylphenol	2249.37±236.93a	1353.07±70.59e	1417.76±73.07de	1692.12±65.90cd	1939.50±143.94bd
31	2-Methoxy-4-vinylphenol	-	4.94±0.26c	-	6.19±0.22c	36.95±0.00a
32	Phenol, 2,5-bis(1,1-dimethylethyl)	-	2.49±0.00c	2.48±0.00d	2.42±0.00e	4.50±0.00a
Ketones						
33	Isophorone	70.16±15.37b	21.06±0.86c	-	-	7.82±0.00d
34	3-Hepten-2-one, 5-ethyl-6-methyl-	13.55±2.00a	6.29±0.59bc	5.17±0.47bc	-	4.85±0.67c
35	2,5-Cyclohexadien-1-one, 2,6-bis(1,1-dimethylethyl)-4-hydroxy-4-methyl-	4.27±1.28b	6.62±0.48a	3.48±0.29b	-	6.45±0.44a
36	2,5-Cyclohexadiene-1,4-dione, 2,6-bis(1,1-dimethylethyl)-	4.82±0.34b	6.25±0.27a	2.97±0.13c	-	2.89±0.05c
37	7,9-ditert-butyl-1-oxaspiro[4.5]deca-6,9-diene-2,8-dione	13.45±7.38a	-	-	-	0.10±0.00b
38	Cyclohexanone, 2-cyclohexylidene-	1.29±0.00bc	5.92±0.02a	3.26±0.88abc	-	4.69±0.13ab
Others						
39	D-Limonene	354.21±33.00a	10.45±0.38b	2.41±0.45b	-	3.22±0.09b
40	Naphthalene	5.13±0.35cd	25.45±2.02a	7.78±0.00c	5.71±0.74cd	2.98±0.32d

41	p-Xylene	-	139.10±4.38b	215.11±4.17a	-	37.43±2.36c
42	Benzene, 1,3-dimethyl-	-	2.72±0.75e	5.62±0.82d	6.49±0.00c	8.54±0.27a
Acids						
43	Acetic acid	-	-	31.32±9.79	-	-

-: not detected.

Different letters in same row indicate significant differences between groups ( $P < 0.05$ ).

**Table S2** Alpha diversity of the microbial community in sour bamboo shoots during the fermentation process.

	Chao1	ACE	Shannon	Simpson	Coverage
1d	1454.07 ± 269.71a	1454.82 ± 269.79a	9.06 ± 0.28a	0.99 ± 0.00a	0.99
7d	444.67 ± 52.85b	444.89 ± 52.96b	4.34 ± 0.15b	0.88 ± 0.01b	1.0
14d	473.38 ± 165.44b	473.48 ± 165.49b	4.71 ± 0.67b	0.88 ± 0.02b	1.0
21d	141.04 ± 11.02c	141.50 ± 10.96c	3.66 ± 0.03c	0.86 ± 0.00b	1.0
28d	493.35 ± 78.11b	493.44 ± 78.20b	2.87 ± 1.03d	0.57 ± 0.17c	1.0