

Supplementary data

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	60d
Alcohols							
1	1-Heptanol	-	-	2.68±0.00c	3.42±0.19b	-	6.25±0.00a
2	1-Hexanol, 2-ethyl-	7.39 ±0.00b	-	7.00±1.11bc	12.94±0.00a	7.34±0.00bc	5.49±0.71c
3	2-Octen-1-ol, (E)-	-	4.39±1.08b	-	-	-	6.01 ±0.00a
4	1-Octanol	5.11±0.72b	13.04±2.72b	16.30±3.08ab	14.01±1.50b	20.39±8.45ab	32.07±6.16a
5	Linalool	7.81±1.5bc	-	6.77±0.25c	12.57±3.00a	11.07±2.92ab	-
6	Cyclohexanol, 5-methyl-2-(1-methylethyl)-, (1.alpha.,2.beta.,5.alpha.)-(./-)-	-	-	1.55±0.22b	0.82±0.00c	0.59±0.00d	3.08±0.00a
7	10-Undecen-1-ol	-	4.62±1.51c	2.38±0.00d	6.34±0.14b	-	11.31±0.00a
8	3,6-Nonadien-1-ol, (E,Z)-	2.54±0.23a	60.9±28.7a	49.27±30.48a	56.14±6.36a	91.44±87.48a	93.96±39.21a
9	1-Decanol	-	1.69±0.62a	3.21±1.51a	3.08±1.35a	-	6.16±6.86a
10	[1,1'-Biphenyl]-2,3'-diol, 3,4',5,6'-tetrakis(1,1-dimethylethyl)-1	7.21±1.64ab	2.54±1.59b	6.93±4.33ab	6.09±3.25ab	3.58±0.68b	14.65±8.32a
11	Silanediol, dimethyl-	104.8±181.51b	4.9±4.34b	-	606.56±260.51a	409.24±33.54a	3.72±0.00b
12	2-Ethyl-1-hexanol	7.1±0.85c	4.34±0.72d	5.01±0.00d	8.61±1.14ab	7.45±0.14bc	8.75±0.00a
13	1-Nonanol	-	0.89±0.02b	1.87±0.49b	5.43±1.48b	4.15±1.21b	47.81±38.49a
14	1-Dodecanol	9.05±1.37a	1.53±0.37a	10.4±15.78a	5.7±4.37a	2.21±0.46a	5.07±3.33a
15	Cedrol	-	1.35±0.12c	1.42±0.06c	6.48±0.00a	2.69±0.00b	2.36±1.3bc
16	Ethylene glycol - Adipate - Diethylene glycol	5.29±0.00a	2.86±0.02b	2.56±0.83b	-	4.39±0.76a	2.75±0.00b
17	Isobutanol, TBDMS derivative	3.55±0.00ab	-	-	2.86±0.00b	3.72±1.05a	-
18	1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl-, (E)-	0.62±0.00bc	1.29±0.00ab	-	0.57±0.15bc	0.99±0.00b	2.09±1.16a
19	Ledol	4.13±0.81b	3.05±0.38b	3.57±0.00b	2.49±0.11b	4.37±0.53b	9.09±2.7a

20	Z-4-Dodecenol	-	5.1±0.00c	6.62±0.00c	7.79±0.00c	12.33±3.73b	20.92±0.00a
21	Diethylene glycol, 2TMS derivative	-	1.08±0.00b	1.04±0.12b	2.46±0.00a	-	2.74±0.38a
22	(5S,6R,7S,10R)-7-Isopropyl-2,10-dimethylspiro[4.5]dec-1-en-6-ol	-	1.56±0.00b	1.43±0.77b	0.87±0b	-	5.85±2.12a
23	1-Hexadecanol	-	-	3.28±0.00	-	-	13.66±0.00
24	1-Hexanol	-	-	-	-	33.06±0.00	-
Esters							
25	2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	5.06±0.27a	2.26±0.5a	2.46±1.63a	22.4±27.98a	8.32±3.78a	6.89±6.35a
26	Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester	1.71±0.68bc	1.28±0.62c	2.3±0.46bc	6.44±3.61a	4.56±1.77abc	4.99±0.96ab
27	Hexanoic acid, 3,5,5-trimethyl-, 2-ethylhexyl ester	4.49±1.97b	4.8±2.05b	3.41±0.46b	3.5±1.00b	3.94±0.03b	10.59±4.09a
28	1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester	196.54±38.73a	4.52±0.53b	9.39±8.46b	25±9.60b	21.37±12.55b	22.41±2.81b
29	Dibutyl phthalate	11.62±2.78ab	4.47±1.04b	9.23±8.42ab	8.91±2.43ab	23.8±17.3a	20.21±1.51ab
30	Methyl salicylate	1.44±0.83b	1.75±0.31b	2.54±0.78b	2.08±0.72b	9.08±3.57a	3.64±0.89b
31	Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, methyl ester	3.89±5.46a	4.22±2.23a	2.43±1.62a	3.69±0.94a	1.7±0.00a	-
32	3-Methyl-2-(trimethylsilyl)oxybenzoic acidtrimethylsilyl ester	19.79±0.00a	13.7±0.00bc	9.24±0.00d	18.32±3.18a	16.89±2.68ab	10.66±0.00cd
33	Oxalic acid, isobutyl hexyl ester	-	-	-	-	187.27±142.61a	-
Aldehydes							
34	Octanal	2.11±0.44b	1.44±0.53b	5.02±2.77a	5.43±1.13a	2.3±0.72b	3.78±0.06ab
35	2,5-Dihydroxybenzaldehyde, 2TMS derivative	41.27±6.47bc	24.86±3.38c	29.05±10.69c	54.68±11.49ab	42.4±4.86abc	61.35±16.07a
36	Nonanal	12.17±3.01a	5.22±2.89a	13.7±13.66a	20.09±4.29a	14.51±6.58a	17.85±8.72a
37	Decanal	7.58±2.4a	3.13±0.76a	11.77±15.25a	10.92±3.04a	9.9±2.63a	10.39±4.31a
38	Benzaldehyde, 2,4-dimethyl-	9.78±1.02b	213.63±122.08a	76.48±57.75b	47.37±17.07b	20.85±14.09b	35.51±13.08b
39	Dodecanal	1.73±0.34a	1.72±0.93a	2.33±1.33a	2.26±0.27a	2.57±0.42a	1.87±1.42a
40	3-Hydroxy-4-methoxybenzaldehyde, TBDMS	26.35±3.52b	16.58±1.81c	20.44±8.73bc	35.87±0.00b	27.29±2.42b	26.34±3.34b
41	Undecanal	-	-	4.89±0.00a	-	-	2.51±1.25b
42	Benzeneacetaldehyde	13.03±2.35a	-	2.95±0.00d	10.1±0.00b	-	5.82±0.00c
43	Benzaldehyde	7.27±2.85bc	-	14.78±0.00a	9.1±0.00b	7.46±2.78bc	4.91±0.00c

44	3,5-di-tert-Butyl-4-hydroxybenzaldehyde	1.29±0.19bc	1.01±0.00bc	1.01±0.00bc	2.83±1.49a	1.6±0.57ab	-
45	2-Isopropylidene-3-methylhexa-3,5-dienal	-	-	1.28±0.06b	2.17±0.00a	-	-
46	Tetradecanal	-	-	1.31±0.35a	1.12±0.6a	-	-
47	Hexanal	-	-	-	5.19±0.00	-	-
Phenols							
48	2,4-Di-tert-butylphenol	1645.6±106ab	1376.87±100.76b	1258.82±170.79b	1722.8±452.03ab	1519.28±44.57ab	2100.92±625.11a
49	2-Methoxy-4-vinylphenol	-	-	-	21.3±10.5b	-	56.96±24.51a
50	1,3,5-Benzetriol, 3TMS derivative	1.09±0.00c	0.58±0.00d	-	5.94±0.00a	1.75±0.18b	-
Ketones							
51	Isophorone	55.89±1.33a	19.75±8.8b	14.26±1.56b	26.47±1.18b	43.3±13.31a	-
52	2,5-cyclohexadien-1-one, 2,6-bis(1,1-dimethylethyl)-4-hydroxy-4-methyl-	5.84±1.09b	4.68±0.55b	4.56±0.64b	12.23±6.86a	7.35±0.67ab	5.44±0.00b
53	2,5-Cyclohexadiene-1,4-dione, 2,6-bis(1,1-dimethylethyl)-	2.2±1.29b	2.5±1.12ab	1.81±0.83b	5.32±1.85a	2.37±0.25b	3.63±2.04ab
54	7,9-Di-tert-butyl-1-oxaspiro(4,5)deca-6,9-diene-2,8-dione	11.41±2.53a	2.19±0.00a	4.96±0.00a	30.63±28.37a	29.99±26.52a	-
55	Cyclohexanone, 2-cyclohexylidene-	21.48±28.91a	2.29±0.96a	9.57±7.74a	2.82±0.47a	2.85±0.42a	6.65±4.87a
56	2,2,6,7-Tetramethyl-10-oxatricyclo[4.3.0.1(1,7)]decan-5-one	0.71±0.00c	0.81±0.17c	1.27±0.34b	2.02±0.00a	1.37±0.16b	1.17±0.00b
57	5,9-Undecadien-2-one, 6,10-dimethyl-	2.71±0.84b	-	0.9±0.00c	7.88±0.00a	3.8±1.71b	2.97±0b
58	5,9-Undecadien-2-one, 6,10-dimethyl-, (E)-	2.38±0.00b	1.39±0.00bc	3.03±0.73b	5.91±2.12a	2.87±0.00b	-
59	2,4,4-Trimethyl-3-(3-methylbutyl)cyclohex-2-enone	0.6±0.00c	-	1.03±0.00b	1.33±0.25a	1.47±0.00a	-
60	2-Pentadecanone	1.79±0.52b	-	-	0.49±0.00c	1.61±0.34b	2.39±0.00a
61	Benzophenone	-	-	-	3.45±0.42c	6.00±0.00a	4.97±0.88b
62	2-Octanone	-	-	-	-	-	2.41±0.42a
Others							
63	Naphthalene	1.55±0.71c	19.16±5.63ab	7.29±5.17bc	5.39±2.88bc	-	32.14±16.63a
64	2-Hydrazino-4,6-dimethylpyrimidine, 3TMS derivative	1.12±0.07a	-	1.01±0.00a	1.42±0.64a	1.23±0.20a	-
65	Nordiazepam, tert-butyl dimethylsilyl derivative	6.66±0.32ab	2.41±2.27bc	8.4±1.26a	7.95±6.01ab	5.03±1.52abc	-
66	Thymol	8.11±1.16a	-	-	-	-	-

67	1,4-Benzenediamine, N,N-diethyl-	-	-	-	-	20.41±18.74a	-
68	(-)-O-Acetylmalic anhydride	-	-	-	-	177.9±136.05a	-
69	.beta.-Myrcene	1.13±0.26a	-	-	0.94±0.20a	-	-
70	D-Limonene	50.89±18.9a	1.7±0.14b	1.88±1.08b	48.49±23.84a	8.02±5.61b	2.47±0.00b
71	Benzene, 2-ethyl-1,4-dimethyl-	-	0.93±0.10b	0.65±0.00b	-	-	3.87±2.16a
72	Oxime-, methoxy-phenyl-	78.78±136.45ab	1.92±0.00b	0.48±0.00b	351.93±364.19a	182.62±27.38ab	-
73	Benzene, pentamethyl-	1.22±1.77b	1.09±1.03b	0.59±0.00b	-	-	3.83±0.00a
74	Ethylbenzene	-	4.91±0.98b	-	-	-	7.06±2.38a
75	o-Xylene	-	42.99±0.00b	-	-	-	88.87±15.66a
76	Benzene, 1,2,4,5-tetramethyl-	-	4.97±2.48b	2.98±1.98b	-	-	25.06±20.17a
Acids							
77	Heptadecane	2.82±3.97bc	3.87±0.54b	1.97±1.7bc	3.24±0.44bc	-	7.84±0.04a
78	2,6-Dihydroxybenzoic acid, 3TMS derivative	-	2.31±0.98b	-	3.71±0.21a	4.41±0.12a	-
79	2,5-Dihydroxybenzoic acid, 3TMS derivative	1.00±1.73b	-	-	1.9±0.36b	9.51±2.47a	7.7±0.00a
80	Acetic acid	1.09±1.89b	-	-	15.43±9.04a	2.45±0.00b	-

-: 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	353.54±18.48b	354.31±18.39b	4.86±0.24bc	0.92±0.01a	1.0
7d	638.04±130.02b	638.99±130.03b	4.61±0.35bc	0.76±0.07b	1.0
14d	838.88±76.95b	840.25±77.06b	5.43±0.23ab	0.92±0.01a	1.0
21d	1234.97±120.55a	1237.11±120.63a	6.26±0.13a	0.96±0.02a	1.0
28d	871.5±86.5b	871.61±86.61b	3.21±0.21c	0.62±0.02c	1.0

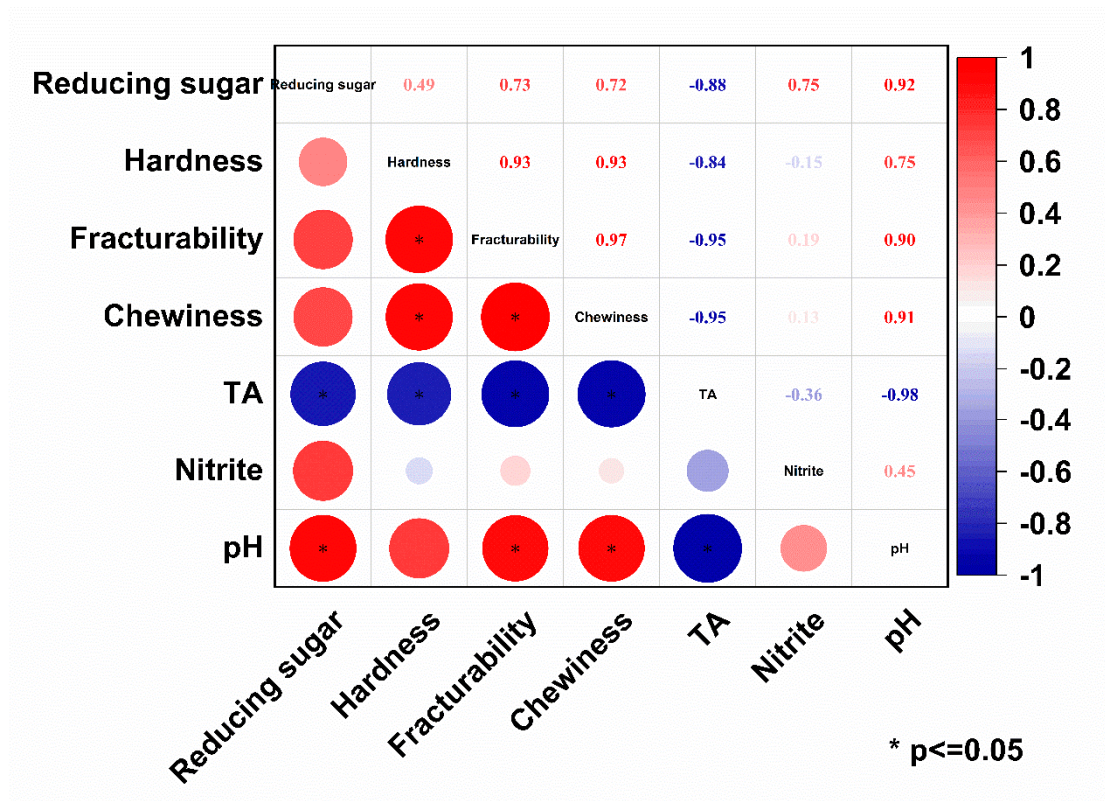


Figure S1 Correlation among reducing sugar, hardness, fracturability, chewiness, TA, pH, and nitrite of sour bamboo shoots conducted by Pearson's correlation analysis. Circles represent a positive (orange) or negative (blue) correlation between the quality indicators. The size of the circle represents the levels of the correlation coefficient (r), * $P \leq 0.05$,

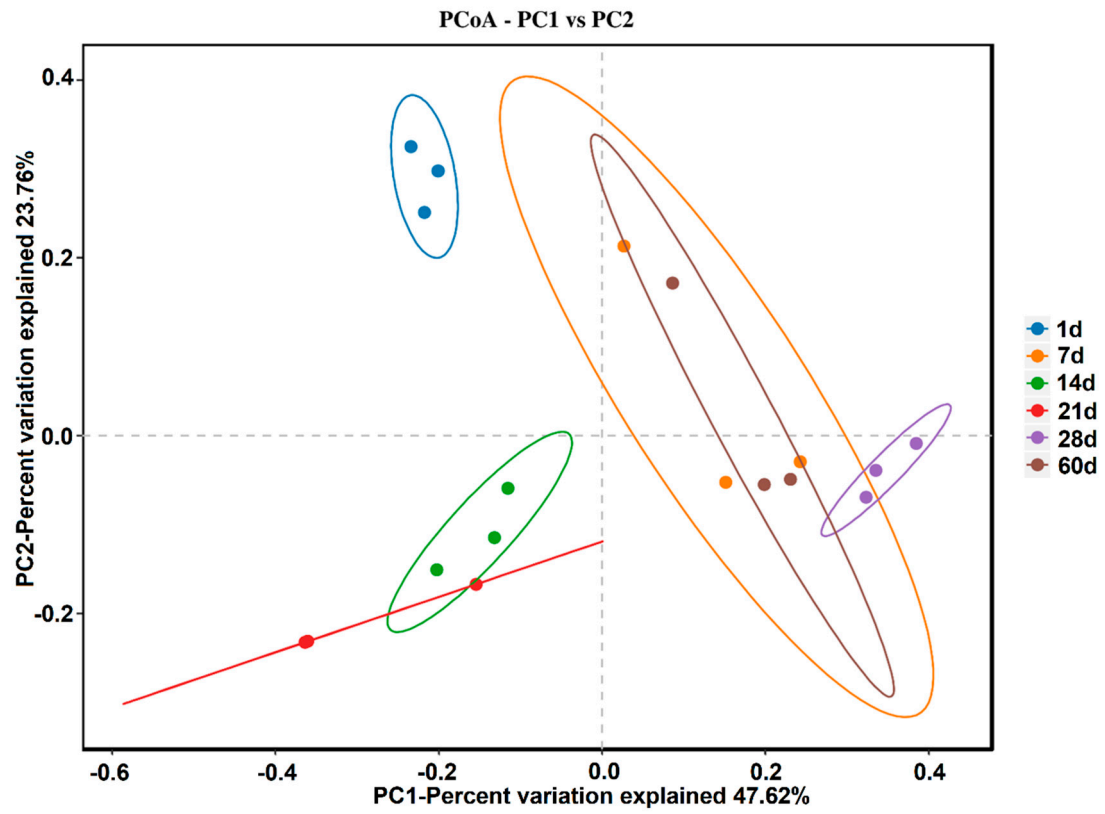


Figure S2 PCoA analysis of the microbial community in sour bamboo shoots during fermentation process.

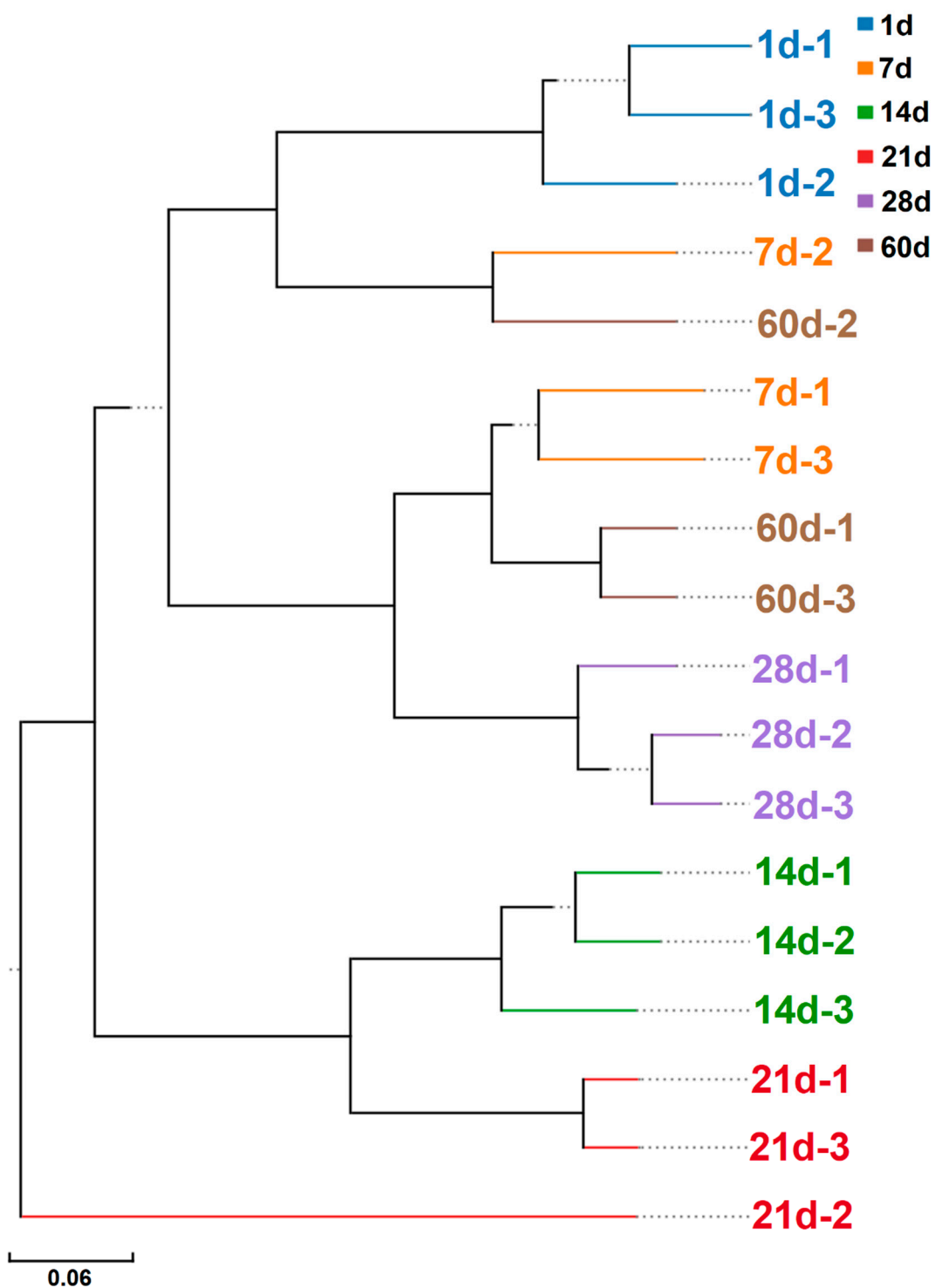


Figure S3 UPGMA analysis of the microbial community in sour bamboo shoots during fermentation process.