

Table S1. Change of volatile compounds (mg/kg) during the fermentation of low-salt Yulu with *B. subtilis*.

No.	Volatile compounds	BS5	BS10	BS15	BS30	BS45
Aldehyde (25 kinds)						
1	Acetaldehyde	0.022±0.006	0.010±0.003	0.117±0.041	ND	0.068±0.013
2	Propanal	ND	0.005±0.001	0.055±0.08	0.020±0.001	0.040±0.003
3	2-Butenal	ND	ND	0.013±0.001	ND	ND
4	Isobutyraldehyde	0.003±0.000	0.008±0.002	0.006±0.000	0.105±0.005	0.076±0.026
5	3-Methyl-2-butenal	0.019±0.003	0.038±0.010	ND	ND	ND
6	2-Methyl-2-butenal	0.076±0.006	0.102±0.015	0.065±0.021	0.041±0.000	0.042±0.003
7	2-Methylbutyraldehyde*	0.043±0.019	0.051±0.013	0.262±0.010	0.361±0.027	0.385±0.020
8	3-Methylbutyraldehyde*	0.075±0.023	0.065±0.020	0.702±0.197	0.762±0.026	0.835±0.201
9	2-Ethyl-2-butenal*	ND	0.017±0.001	0.116±0.024	0.032±0.014	0.037±0.006
10	2-Hexenal*	0.009±0.00	0.024±0.005	0.154±0.008	ND	0.024±0.004
11	Hexanal*	0.054±0.006	0.139±0.036	0.409±0.033	0.099±0.029	0.100±0.012
12	Benzaldehyde*	0.532±0.021	0.501±0.079	1.073±0.073	0.369±0.041	0.705±0.145
13	(E,E)-2,4-Heptadienal*	ND	0.026±0.006	0.239±0.027	ND	0.024±0.004
14	(E)-2-Heptenal	ND	ND	0.058±0.008	ND	ND
15	5-Ethylcyclopent-1-enecarboxaldehyde	0.004±0.001	0.021±0.003	0.072±0.006	0.013±0.002	0.014±0.004
16	(E)-2-Octenal*	ND	ND	0.335±0.065	0.007±0.003	0.024±0.020
17	2-Ethylbenzaldehyde	ND	0.005±0.001	0.044±0.001	0.005±0.001	0.011±0.001
18	3-Ethylbenzaldehyde*	0.026±0.001	0.058±0.012	0.339±0.019	0.063±0.007	0.174±0.074
19	3-Methoxybenzaldehyde	0.015±0.002	0.013±0.000	0.017±0.001	0.010±0.002	ND
20	(E,Z)-2,6-Nonadienal	ND	0.006±0.005	0.093±0.007	ND	0.024±0.004
21	(E)-2-Nonenal	ND	0.004±0.000	0.408±0.103	ND	ND
22	Nonanal	0.012±0.002	0.037±0.003	1.322±0.318	ND	ND
23	(E)-2-Decenal	ND	ND	0.271±0.043	ND	ND
24	Lilac aldehyde D*	ND	ND	1.379±0.313	0.265±0.080	0.540±0.098
25	(Z)-13-Octadecenal*	ND	ND	0.150±0.009	0.024±0.004	0.049±0.029
Alcohol (17 kinds)						
1	Ethanol	0.044±0.013	0.026±0.004	0.013±0.000	0.014±0.010	0.013±0.003
2	Methanethiol	0.032±0.014	0.021±0.007	0.012±0.002	0.158±0.001	0.238±0.028
3	1-Penten-3-ol*	0.178±0.010	0.154±0.002	0.238±0.018	0.164±0.041	0.175±0.004
4	(E)-2-Penten-1-ol	0.064±0.002	0.063±0.009	0.074±0.024	0.077±0.013	0.076±0.001
5	(Z)-2-Penten-1-ol	0.029±0.000	0.037±0.002	0.056±0.001	0.043±0.005	0.036±0.008
6	1-Pentanol	0.035±0.004	0.033±0.002	0.073±0.022	0.022±0.009	0.034±0.002
7	Glycerin	ND	ND	0.194±0.006	0.504±0.077	0.668±0.126
8	1-Hexanol	0.031±0.001	0.036±0.003	0.056±0.004	0.028±0.006	0.027±0.001
9	Benzyl alcohol	0.008±0.000	0.015±0.001	0.094±0.021	0.060±0.013	0.097±0.003
10	1-Heptanol*	0.052±0.005	0.070±0.022	0.270±0.006	0.139±0.068	0.209±0.031
11	Phenylethyl Alcohol	0.073±0.013	0.051±0.004	0.070±0.029	ND	ND
12	2-Octyn-1-ol	ND	ND	0.091±0.009	0.024±0.004	0.085±0.011
13	1-Octen-3-ol*	0.215±0.045	0.332±0.042	0.780±0.027	0.248±0.015	0.217±0.019
14	(E)-2-Octen-1-ol*	0.061±0.010	0.084±0.022	0.205±0.016	0.071±0.005	0.090±0.016
15	2-Ethylhexanol	0.080±0.009	0.057±0.011	0.017±0.005	0.012±0.005	0.017±0.003
16	1-Octanol*	0.061±0.002	0.064±0.014	0.384±0.002	0.099±0.014	0.158±0.036
17	1-Nonanol*	0.035±0.005	ND	0.307±0.016	0.049±0.001	0.175±0.050
Ketone (13 kinds)						
1	2-Butanone	0.080±0.005	0.080±0.010	0.038±0.017	0.031±0.001	0.031±0.001
2	2-Pyrrolidinone	ND	ND	0.012±0.002	0.029±0.000	0.038±0.010
3	3-Pentanone	0.0016±0.001	0.016±0.001	0.004±0.000	0.003±0.002	ND
4	2,3-Pentanedione	0.074±0.003	0.062±0.002	0.086±0.003	0.030±0.008	0.037±0.003
5	1,4-Cyclohexanedione*	0.034±0.000	0.080±0.007	0.035±0.005	0.113±0.004	0.124±0.008

6	1-Hepten-3-one	ND	ND	0.061±0.004	ND	ND
7	2-Heptanone	0.057±0.002	ND	0.019±0.009	ND	0.006±0.005
8	Acetophenone	ND	0.007±0.003	0.021±0.009	0.040±0.007	0.043±0.003
9	3,5-Octadien-2-one*	ND	0.022±0.002	0.667±0.087	0.149±0.033	0.286±0.026
10	1-(3-Butyloxiranyl)ethanone	ND	ND	0.071±0.029	ND	0.053±0.007
11	2-Nonanone*	0.013±0.001	0.019±0.009	0.302±0.041	0.027±0.003	0.042±0.002
12	ortho-Hydroxypropiophenone	ND	ND	0.023±0.010	0.005±0.002	0.018±0.000
13	2-Undecanone*	0.016±0.004	0.036±0.006	1.228±0.249	0.241±0.40	0.497±0.099
Acids (11 kinds)						
1	Acetic acid*	0.058±0.004	0.035±0.005	ND	0.128±0.011	0.100±0.022
2	L-Lactic acid*	ND	ND	0.503±0.097	1.155±0.100	0.886±0.114
3	Propanoic acid	0.015±0.005	ND	0.011±0.001	0.006±0.003	0.024±0.001
4	Butanoic acid	0.021±0.001	0.022±0.003	0.008±0.001	0.013±0.003	0.014±0.006
5	3-Methylbutanoic acid	0.110±0.001	0.092±0.032	ND	0.058±0.009	0.075±0.010
6	Pentanoic acid	0.012±0.000	0.020±0.002	ND	0.015±0.001	0.023±0.001
7	Hexanoic acid*	0.100±0.002	0.145±0.019	0.235±0.014	0.197±0.023	0.276±0.011
8	Heptanoic acid	0.012±0.001	0.017±0.001	0.058±0.005	0.035±0.008	0.059±0.008
9	Octanoic acid*	0.109±0.036	0.062±0.002	0.220±0.063	0.141±0.017	0.243±0.015
10	Nonanoic acid*	ND	ND	0.143±0.011	0.045±0.005	0.106±0.012
11	n-Decanoic acid*	0.088±0.033	0.045±0.002	0.147±0.029	0.071±0.013	0.058±0.008
Ester (19 kinds)						
1	Methyl acetate	0.035±0.003	0.038±0.009	0.038±0.005	0.032±0.004	0.042±0.006
2	Ethyl acetate*	0.941±0.160	0.907±0.140	0.614±0.099	0.511±0.01	0.502±0.013
3	Butyl acetate	0.177±0.008	0.193±0.038	0.057±0.017	0.072±0.001	0.047±0.001
4	Methyl caproate	0.080±0.007	0.083±0.007	0.014±0.001	ND	ND
5	Ethenyl hexanoate	0.049±0.004	0.089±0.011	0.067±0.013	0.035±0.004	0.027±0.003
6	Methyl 2-oxohexanoate	ND	0.013±0.003	0.065±0.001	0.033±0.003	0.023±0.003
7	Methyl heptanoate	0.007±0.003	0.012±0.002	0.014±0.006	ND	ND
8	Ethyl hexanoate	0.003±0.001	0.018±0.001	0.007±0.003	0.005±0.000	0.007±0.003
9	Methyl octanoate	0.014±0.005	0.016±0.002	0.078±0.006	0.016±0.001	0.041±0.005
10	Methyl nonanoate	ND	ND	0.130±0.021	0.037±0.019	0.078±0.017
11	Methyl laurate	ND	ND	ND	ND	0.064±0.003
12	Methyl dodecanoate*	ND	ND	0.080±0.024	0.063±0.005	0.124±0.003
13	Methyl tridecanoate	ND	ND	ND	0.029±0.007	0.049±0.001
14	Methyl tetradecanoate*	0.051±0.009	0.088±0.002	0.421±0.098	0.553±0.095	1.021±0.019
15	Methyl 13-methyltetradecanoate	ND	ND	0.012±0.002	0.022±0.006	0.047±0.001
16	Methyl pentadecanoate*	ND	ND	0.010±0.007	0.051±0.009	0.111±0.003
17	Methyl palmitoleate*	ND	0.019±0.002	0.121±0.075	0.148±0.028	0.280±0.030
18	Methyl hexadecanoate*	0.020±0.008	0.040±0.06	0.239±0.052	0.352±0.034	0.762±0.034
19	Methyl benzoate	0.006±0.000	ND	ND	ND	ND
Furan (6 kinds)						
1	4-Methyl-2,3-dihydrofuran	ND	0.008±0.002	0.031±0.009	ND	0.011±0.001
2	2-Ethylfuran*	0.241±0.015	0.306±0.071	0.305±0.012	0.220±0.020	0.241±0.011
3	2-Propylfuran	0.002±0.000	0.008±0.001	0.012±0.002	ND	ND
4	cis-2-(2-Pentenyl)furan*	0.047±0.000	0.007±0.003	0.104±0.004	0.136±0.016	0.116±0.018
5	trans-2-(2-Pentenyl)furan*	0.027±0.002	0.084±0.008	0.083±0.024	ND	0.107±0.007
6	2-Pentylfuran*	0.052±0.003	0.066±0.009	0.200±0.001	0.087±0.003	0.123±0.003
Nitrogen compound (10 kinds)						
1	Pyridine	0.002±0.000	0.007±0.002	0.004±0.003	0.026±0.007	0.022±0.002
2	2-Ethylpyridine	0.007±0.000	0.012±0.001	0.056±0.024	0.032±0.009	0.044±0.000
3	3-Ethylpyridine	ND	ND	ND	0.010±0.002	0.008±0.002
4	3-Phenylpyridine	ND	ND	0.007±0.002	0.022±0.003	0.042±0.012

5	2-Methylpyrazine	0.009±0.001	0.014±0.002	ND	0.026±0.006	0.028±0.006
6	2-Methoxy-6-methylpyrazine	0.011±0.002	0.012±0.001	0.012±0.002	0.015±0.003	0.020±0.006
7	3,5-Diamino-1,2,4-triazole	ND	ND	0.042±0.001	0.016±0.003	0.013±0.003
8	Trimethylamine*	0.060±0.024	0.035±0.007	ND	0.097±0.003	0.145±0.045
9	Isoxazole	ND	ND	0.011±0.001	0.058±0.014	0.090±0.022
10	n-Benzylidenemethylamine	ND	ND	ND	0.013±0.001	0.020±0.001
Sulfur compound (3 kinds)						
1	Dimethyl trisulfide	ND	ND	ND	0.007±0.001	0.007±0.003
2	4-Methyl-5-thiazolyethanol*	0.037±0.009	0.030±0.003	0.105±0.025	0.091±0.006	0.103±0.011
3	3-Phenylthiophene	ND	ND	ND	0.008±0.001	0.009±0.001
Hydrocarbons (17 kinds)						
1	Octane	0.008±0.003	0.014±0.006	0.027±0.003	ND	ND
2	3,5,5-Trimethyl-2-hexene	0.158±0.025	0.275±0.088	0.204±0.004	0.205±0.019	0.082±0.018
3	Nonane	ND	0.018±0.002	0.037±0.013	0.009±0.001	ND
4	beta-Myrcene	0.004±0.001	ND	0.024±0.003	0.017±0.000	0.019±0.003
5	D-Limonene*	0.625±0.136	1.281±0.178	1.519±0.011	1.071±0.050	1.296±0.167
6	4,5-Dimethylnonane	0.010±0.001	0.017±0.000	0.008±0.002	ND	ND
7	Undecane	0.011±0.002	0.026±0.001	0.049±0.003	0.011±0.001	0.019±0.006
8	(E)-2,2-Dimethyl-4-decene	0.007±0.000	0.014±0.006	0.087±0.003	ND	ND
9	Dodecane	0.034±0.004	0.045±0.001	0.213±0.020	0.107±0.031	0.189±0.015
10	1-Tridecene	ND	ND	0.074±0.022	0.005±0.000	0.022±0.002
11	Tridecane	0.017±0.004	0.026±0.006	0.451±0.014	0.163±0.017	0.336±0.002
12	Tetradecane	ND	ND	ND	0.046±0.004	0.138±0.021
13	1-Pentadecene	ND	ND	0.093±0.019	ND	ND
14	Pentadecane	0.014±0.001	0.115±0.063	4.878±0.359	1.627±0.145	3.291±0.092
15	8-Heptadecene	ND	ND	0.083±0.031	0.021±0.001	0.027±0.003
16	Heptadecane	ND	ND	0.209±0.014	0.113±0.004	0.194±0.008
17	Octadecane	ND	ND	0.047±0.003	0.085±0.026	ND
Aromatic compound (12 kinds)						
1	Toluene	0.051±0.006	0.153±0.027	0.058±0.010	0.100±0.006	0.079±0.002
2	Phenol	0.031±0.008	0.038±0.004	0.073±0.010	0.037±0.004	0.061±0.001
3	Styrene	0.139±0.017	0.377±0.033	0.620±0.079	1.264±0.047	1.495±0.292
4	m-Xylene	0.046±0.016	0.172±0.034	0.096±0.038	0.241±0.052	0.189±0.002
5	Ethylbenzene	0.053±0.018	0.218±0.048	0.038±0.010	0.127±0.051	0.099±0.012
6	o-Xylene	0.084±0.026	0.107±0.044	0.092±0.025	0.128±0.008	0.118±0.032
7	p-Xylene	ND	0.205±0.046	ND	0.164±0.024	0.164±0.036
8	1,2,4-Trimethylbenzene	0.006±0.002	0.003±0.000	0.004±0.001	ND	ND
9	4-Ethylphenol	0.006±0.000	0.005±0.001	0.037±0.007	0.013±0.002	0.021±0.000
10	Naphthalene	0.013±0.000	0.013±0.002	0.058±0.006	0.028±0.001	ND
11	1-Methyl-3-propan-2-ylbenzene	ND	0.033±0.004	0.017±0.007	0.011±0.009	ND
12	2,4-Di-tert-butylphenol	0.011±0.001	0.067±0.017	ND	0.008±0.002	0.006±0.000

“ND” means not detected. “*” means characteristic volatile flavor compounds.