

Table S1 Flavor materials in BLMJ and TGRW identified by headspace solid phase microextraction-gas chromatography mass spectrometry (HS-SPME/GC-MS)

Names	Retention time (RT)	RI	BLMJ		TGRW		odor description
			Content(μg/L)	Odor intensity	Content(μg/L)	Odor intensity	
Esters			12	6	10	5	
Ethyl acetate	7.6731	923.1871	1.498	0.1	2.087	0.2	fruity, sweet
3-Methyl-1-butanol acetate	15.678	1137.7131	0.277	0.1	0.839	0.2	sweet, banana
Ethyl hexanoate	21.9244	1247.493	0.519	0.3	1.354	0.3	sweet pineapple
Ethyl decanoate	46.9491	1664.9882	0.443	0.3	0.198	0.1	fruity, brandy
2-Phenylethyl acetate	53.4536	1840.7278	1.912	0.4	1.217	0.2	rose, honey, fruity
Ethyl hexadecanoate	64.9821	2300.7646	0.623	0.5	0.589	0.3	fruity, cream
Decyl pentafluoropropionate	30.5699	1383.3093	-		0.008		
Diethyl sulfite	15.8839	1141.6918			0.004		
Octyl chloroformate	42.5756	1574.3958			0.101		
Methyl anthranilate	64.5801	2281.2422			0.137		Orange, grape
Hexyl chloroformate	29.3507	1365.2261	0.347		-		
Isobutyl 2-methyl-4-methoxybutyl sulfite	43.7	1592.9908	0.105		-		
Ethyl tetradecanoate	60.491	2090.4304	0.021	0.4	-		floral, violet
Methyl 2-(methylamino)-benzoate	61.0303	2113.4492	0.865		-		
Di(cyclohex-3-enylmethyl) fumarate	45.7756	1638.4083	0.033				
Methyl 2,4,6-trimethyl-nonanoate	60.4616	2089.2952	0.059				
Σ			6.072		6.534		
Alcohols			14	6	19	7	
Ethanol	8.9577	972.4373	260.293	0.5	206.984	0.4	alcoholic
1-Propanol	12.2753	1065.3754	0.604		0.831		alcoholic, fruity
2-Methyl-1-propanol	14.8053	1120.2487	4.461	0.4	0.583	0.2	wine, solvent
3-Methyl-1-butanol	21.0876	1233.3929	53.079	0.5	51.332	0.5	whiskey, banana
2-Dodecanol	28.9323	1358.8468	0.085		0.096		
β-phenylethyl alcohol	56.2091	1930.7626	17.297	0.2	26.647	0.4	floral, rose
Glycerin	65.5966	2329.448	4.684		1.951		
3-(Methylthio)-1-propanol	49.5738	1729.0585	0.137	0.1	0.117	0.1	sweet, onion
2,3-Butanediol	41.3041	1552.7671	0.128		0.080		fruity, butter, cream
2-Tetradecanol	43.2261	1585.2126	0.034		0.095		
1-Hexanol	29.3376	1365.0278	0.314	0.4	-		fusel, sweet alcoholic
6-Methyl-2-heptanol	36.0481	1467.1943	0.127		-		fatty, citrus
5-Methyl-2-hexanol	43.3111	1586.6139	0.016		-		
9-Decen-1-ol	31.5211	1396.9237	0.040		-		floral, rose
1-Heptanol	35.901	1465.0355	-		0.663		plant, fruity
2-Nonanol	40.1895	1533.2526	-		0.250		cream, fruity, cheese
3,7-dimethyl-1,6-Octadien-3-ol	41.8238	1561.6868	-		0.499	0.2	rose, blueberry
4-Methyl-1-(1-methylethyl)-3-cyclohexen-1-ol	44.8179	1616.2063	-		0.550		

α -Terpineol	48.8775	1709.5367	-		0.539	0.2	clove, citrus
3-(butylthio)-1,2-Propanediol	65.4626	2323.2168	-		0.113		
3,6,9,12-Tetraoxatetradecan-1-ol	67.6591	2421.4871	-		0.084		
Trans-p-mentha-1(7),8-dien-2-ol	52.5123	1810.5123	-		0.125		
Cis-2-methyl-5-(1-methylethenyl)-2-cyclohexen-1-ol	53.7544	1850.2715	-		0.076		minty
Σ			341.299		291.615		
Olefins			27	7	17	3	
(1R)-(+)- α -Pinene	11.7752	1053.4724	17.014	0.1	0.821		minty
5-Undecene	16.688	1156.7504	0.014		0.102		
(+)-4-Carene	18.8289	1193.5565	1.239	0.1	0.001		citrus, pineapple
D-Limonene	20.4698	1222.6191	441.934	0.3	21.071	0.1	citrus
(Z)-6-Tridecene	28.6381	1354.3055	0.204		0.849		
γ -Terpinene	22.5454	1257.6133	0.051	0.1	0.771	0.1	lemon, citrus
Naphthalene	50.8224	1763.3878	0.105	0.1	0.092	0.1	Fuel
(Z)-2-Tridecene	29.5468	1368.1848	0.205		0.328		
(E)-2-Tridecene	30.3836	1380.5934	0.145		0.226		
α -Phellandrene	17.6718	1174.217			0.003		
α -terpinene	18.4857	1187.9473	-		0.003		lemon, citrus
5-butyl-1,3-Cyclohexadiene,	20.1953	1217.7274	-		0.015		
(Z)-2-Dodecene,	22.8788	1262.9321	-		3.890		
1-Tridecene	28.6578	1354.6111	-		0.595		
(Z)-4-Tridecene	30.9262	1388.458	-		0.0147		
(E)-Cyclododecene	30.9785	1389.2087	-		0.048		
(E,Z)-2,4-Dodecadiene	32.08	1405.6238	-		0.143		
α -Fenchene	12.9585	1080.8752	0.372		-		pungent
Camphene	13.354	1089.4788	0.882		-		woody
8-p-Menthene (cis)	13.743	1097.6958	0.010		-		
trans-5-Methyl-3-(methylethenyl)-cyclohexene	14.4294	1112.4066	0.006		-		citrus
Isoterpinolene	14.4392	1112.6136	0.005		-		woody, citrus
3-Carene	14.4719	1113.3035	0.031		-		citrus, pineapple
β -Pinene	14.7432	1118.9669	11.872		-		lemon
(+)-Carvomenthene	15.897	1141.9431	0.320		-		
β -Thujene	17.5019	1171.2711	16.657		-		
2-Carene	18.5021	1188.2175	3.644	0.1	-		citrus, pineapple
(3R)-(+)-Isosylvestren	21.9766	1248.3547	0.195		-		
α -Terpinene	23.003	1264.8938	74.617		-		lemon
(Z)-2-Dodecene,	23.2122	1268.1742	1.334		-		
(+)-3-Carene	23.5718	1273.7443	0.027		-		citrus, pineapple
α -Terpinolene	25.1472	1297.1855	8.105	0.1	-		lemon, citrus
(E)-6-Tridecene,	27.5987	1337.8796	0.248		-		
(E)-3-Tridecene,	28.308	1349.1544	0.283		-		
(Z)-3-Tridecene,	31.325	1394.151	0.045		-		
Σ			579.564		28.973		
Alkanes			4	0	4	0	
Tridecane	25.8631	1309.0209	7.162		13.089		
2-butyl-1,1,3-trimethylcyclohexane	27.7033	1339.5603	0.103		0.305		
(-)-cis-Carane	13.7233	1097.2853	0.014		-		
1,3,5-trimethylenecycloheptane	23.1272	1266.8448	1.718		-		

Dodecane	19.0153	1196.5604	-		0.735		
1-Methoxy-3-phenyl-4-trifluoroacetyloxy-butane	35.5121	1459.2853	-		0.125		
Σ			8.997		14.254		
Ketones			10	4	5	1	
2-Octanone	25.4349	1301.603	1.411		1.929		earthy, grass, woody
6,10-Dimethyl-2-undecanone,	31.7989	1400.9772	0.015		-		
4-Acetyl-1-methylcyclohexene	42.3828	1571.1581	0.402		-		
2-Methyl-5-(1-methylethenyl)-trans-cyclohexanone,	45.2853	1627.1005	0.102	0.1	-		pepper
D-Carvone	50.5315	1755.4659	0.297	0.1	-		bread, coriander
1-(4-Methylphenyl)-ethanone	52.0122	1795.3246	2.166	0.1	-		cherry, mimosa, acacia
1-(3-Methylphenyl)-ethanone	52.2475	1801.9149	0.460	0.1	-		Alfalfa, honey,
4-Acetylanisole	56.8792	1954.4163	0.089		-		spicy, acacia
3-Methoxyacetophenone	63.4655	2226.3975	0.037		-		
2,3-Dihydro-3,5-dihydroxy-6-methyl-4H-pyran-4-one	64.8906	2296.3518	0.483		-		
2-Nonanone	31.7728	1400.5437	-		0.029		sweet, grass
3-Aza-5-methyl-4,6-diphenyl-2,6-hexanedione	32.9266	1419.3759	-		0.0247		
1,2-dihydro-3-methyl-5-phenyl-3H-1,3,4-benzotriazepine-2-thione	40.1536	1532.615	-		0.007		
1-(4-methylphenyl)-ethanone,	52.1658	1799.3943	-		1.251	0.2	acacia, coumarin
Σ			5.462		3.241		
Benzenes			10	2	12	2	
pentyl-benzene	33.3319	1425.8348	0.157		0.342		
1-methyl-2-(1-ethylpropyl)-benzene	36.6659	1476.1659	0.062		0.226		
Hexyl-benzene	40.3006	1535.2218	0.156		0.363		
(1,3-Dimethylbutyl)-benzene	41.4577	1555.415	0.181		0.293		
1-methyl-4-(1-methylethenyl)-benzene	34.9793	1451.3041	12.772	0.2	4.119	0.1	clove, coffee and nutty
1-Ethyl-2,3-dimethylbenzene	24.925	1293.9697	0.351		0.058		
o-Cymene	24.2353	1283.8022	102.491	0.2	3.260		citrus, woody
p-Cymene	24.2451	1283.9487	-		3.438	0.1	citrus, woody
m-Cymene	24.9446	1294.2544			0.031		
2-Ethyl-1,4-dimethylbenzene,	24.9805	1294.7755	-		0.030		
1,1'-(1-Ethenyl-1,3-propanediyl)bis-benzene	29.9423	1374.0928	-		0.040		
1,4-Dimethyl-2-(2-methylpropyl)-benzene	39.0226	1512.2335	-		0.046		
2-Methoxy-4-methyl-1-(1-methylethyl)-benzene	44.4387	1607.2842	0.013		-		smoky
Pentamethyl-benzene	64.603	2282.3586	0.076		-		
1,1'-(1-ethenyl-1,3-prop	29.9783	1374.6266	0.151		-		

anediyl)bis-benzene							
Σ			116.41		12.246		
Carboxylic acids			7	5	3	1	
Benzoic acid	68.6528	2461.6125	0.239	0.2	0.502	0.2	phenolic
4-Methyl-benzoic acid	71.4638	2562.7791	0.764		1.112		
3-methyl-pentanoic acid	53.9537	1856.5652	-		0.196		Cheese
Acetic acid	35.7507	1462.8206	0.396	0.1	-		vinegar
Formic acid	39.8725	1527.6034	0.007	0.1	-		vinegar
2-Methyl-propanoic acid	42.8665	1579.2532	0.233	0.1	-		yogurt, milk, cream
Hexanoic acid	53.8982	1854.8151	0.258		-		acidic, cheese
Octanoic acid	59.9975	2071.302	0.305	0.2	-		vegetable, cheese
Σ			2.202		1.81		
Phenolic compounds			4	3	2	1	
Phenol	58.7979	2024.1401	0.189	0.1	0.524	0.2	phenolic
p-Cresol	60.7591	2100.9126	-		0.081		mimosa
3-methyl-phenol	2100.1531	0.0289	0.344		-		
2-methyl-5-(1-methylethyl)-phenol	62.9654	2201.4761	0.262	0.1	-		spicy, woody
Thymol	63.6257	2234.3396	0.122	0.1	-		thyme
Σ			0.917		0.605		
Aldehydes			6	4	3	1	
Benzaldehyde	40.7419	1542.9907	0.121	0.2	0.049	0.1	almond
2-methyl-benzaldehyde	47.3184	1673.2157	-		0.211		
2-methyl-3-phenyl-2-propenal	57.2355	1966.88	-		0.024		sweet, cinnamon
Furfural	36.764	1477.5765	0.425	0.1	-		almond, toasted bread
5-Methyl-2-furancarboxaldehyde	43.4614	1589.0852	0.089		-		burnt sugar
α -4-Dimethyl-3-cyclohexene-1-acetaldehyde	45.6056	1634.5013	0.054		-		
3-methyl-benzaldehyde	47.1157	1668.7078	0.155	0.1	-		cherry, bitter almond
2-methyl-3-phenyl-2-propenal	57.0753	1961.2853	0.490	0.1	-		sweet, cinnamon
Σ			1.334		0.284		
Others			4	0	2	0	
2-propyl-Pyridine	17.6261	1173.4274	1.029				toasted nuts
2-methyl-Benzofuran	44.527	1609.3687	0.214		0.009		phenolic
4,7-dimethyl-Benzofuran	49.4594	1725.87	0.159		0.056		
3,4-dimethyl-Cinnoline	57.7944	1986.2751	0.0044				
Σ			1.406		0.065		
			98	38	77	22	