Table S1. Contents of 33 commonvolatiles in TGY.

No.	Compound	Category	Relative peak area (%)		
			LFT	HFT	SFT
1	Ethanol	alcohols	10.59±4.17	7.54±2.31	6.05±2.58
2	1-Penten-3-ol	alcohols	6.03±3.40	7.71±2.23	7.59±1.30
3	1-Pentanol	alcohols	1.06±0.12	1.12±0.35	2.21±0.95
4	Z-2-Penten-1-ol	alcohols	2.30±1.05	2.19±0.77	2.25±0.68
5	Linalool	alcohols	0.43±0.22	0.27±0.15	0.26±0.17
6	2,6-Dimethylcyclohexanol	alcohols	1.03±0.62	0.72±0.28	0.78±0.38
7	Hotrienol	alcohols	0.53±0.13	0.77±0.28	0.82±0.42
8	Trans-Linalool	alcohols	0.29±0.09	0.33±0.15	0.31±0.16
9	Phenethyl alcohol	alcohols	1.03±0.24	0.62±0.26	0.91±0.37
10	E-nerolidol	alcohols	15.26±6.72	10.02±8.10	2.52±1.71
11	Benzyl nitrile	nitrogenous compounds	0.29±0.10	0.29±0.11	0.52±0.32
12	Butanal	aldehydes	1.29±0.47	1.04±0.50	0.41±0.17
13	Pentanal	aldehydes	6.47±1.50	5.12±0.55	2.48±0.76
14	Hexanal	aldehydes	5.29±2.10	5.79±3.45	2.81±1.75
15	Trans-2-Pentenal	aldehydes	1.91±0.74	1.93±1.02	1.16±0.52
16	2-Hexenal	aldehydes	0.85±0.42	0.60±0.21	0.38±0.19
17	E,E-2,4-Heptadienal	aldehydes	2.31±1.05	1.22±0.48	0.48±0.20
18	Benzaldehyde	aldehydes	1.51±0.73	1.04±0.48	1.08±0.32
19	Epoxy-2-decenal	aldehydes	0.59±0.25	0.88±0.60	0.37±0.13
20	Acetic acid	acids	3.69±1.22	13.15±6.46	21.86±5.87
21	Propanoic acid	acids	0.36±0.12	0.85±0.48	3.65±1.99
22	Isobutyric acid	acids	0.11±0.04	0.27±0.12	0.72±0.29
23	Pivalic acid	acids	0.21±0.03	0.27±0.13	0.20±0.05
24	Isovaleric acid	acids	0.34±0.07	0.24±0.05	0.81±0.24
25	Pentanoic acid	acids	0.36±0.11	0.47±0.28	1.13±0.39
26	Hexanoic acid	acids	0.98±0.17	1.38±0.93	3.93±0.78
27	Hexanon	ketones	0.40±0.13	0.56±0.14	0.69±0.16
28	6-methyl-5-Hepten-2-one	ketones	3.36±1.03	3.68±1.67	1.34±0.30
29	Geranyl acetone	ketones	0.33±0.17	0.35±0.07	0.54±0.21
30	Beta-Ionone	ketones	0.92±0.46	0.91±0.14	0.84±0.69
31	Dihydroactinidiolide	ketones	0.48±0.36	0.59±0.29	1.99±2.34
32	Beta-pinene	alkenes	0.17±0.02	0.22±0.06	0.32±0.15
33	Toluene	alkenes	0.44±0.12	0.83±0.26	0.46±0.11

Data are means (±SD) of four replicates.

"-"meansthe compounds was not detected in tea samples.

Table S2.Contents ofvolatile compounds in TGY with VIP value larger than 1.

No.	Compound	VIP	Relative peak area (%)		
			LFT	HFT	SFT
1	Isovaleric acid	1.9	0.34±0.07	0.24±0.05	0.81±0.24
2	2,2,6-Trimethyl-cyclohexanone	1.9	-	-	0.21±0.07

3	1-Octanol	1.8	-	-	0.19±0.07
4	Heptanoic acid	1.8	-	0.05±0.10	0.40±0.06
5	Hexanoic acid	1.7	0.98±0.17	1.38±0.93	3.93±0.78
6	Ethylmethylmaleimide	1.7	-	-	0.20±0.12
7	1-(4-tert-Butylphenyl) propan-2-one	1.7	-	0.31±0.09	0.07±0.07
8	E-3-Hexenoic acid	1.6	-	-	0.26±0.16
9	2-Methyl-butanenitrile	1.6	0.07±0.12	-	0.32±0.21
10	Trans-2-octenal	1.6	0.25±0.06	0.28±0.14	0.05±0.09
11	p-Xylene	1.5	0.22±0.19	0.54±0.28	0.09±0.16
12	Octanoic acid	1.5	0.06±0.07	-	0.15±0.11
13	Pivalic acid vinyl ester	1.5	0.04±0.08	-	0.16±0.11
14	6-methyl-5-Hepten-2-one	1.5	3.36±1.03	3.68±1.67	1.34±0.30
15	Butanoic acid	1.5	0.01±0.04	0.12±0.13	0.66±0.35
16	1-Hexanol	1.5	-	-	0.17±0.13
17	Pentanoic acid	1.5	0.36±0.11	0.47±0.28	1.13±0.39
18	Propanoic acid	1.5	0.36±0.12	0.85±0.48	3.65±1.99
19	Isobutenyl methyl ketone	1.5	-	0.15±0.16	0.58±0.21
20	Toluene	1.5	0.44±0.12	0.83±0.26	0.46±0.11
21	Formic acid	1.5	0.13±0.09	0.30±0.23	1.33±0.74
22	1-Butanol	1.5	0.05±0.05	0.14±0.10	0.48±0.23
23	Hexahydrofarnesyl acetone	1.4	0.04±0.08	0.04±0.08	0.32±0.22
24	Isobutyric acid	1.4	0.11±0.04	0.27±0.12	0.72±0.29
25	1-Ethyl-2-formylpyrrole	1.4	-	0.13±0.09	0.60±0.37
26	1-Pentanol	1.4	1.06±0.12	1.12±0.35	2.21±0.95
27	Pentanal	1.3	6.47±1.50	5.12±0.55	2.48±0.76
28	Z,Z-2,4-Heptadienal	1.2	1.76±0.86	2.22±2.44	0.11±0.20
29	Epoxy-2-decenal	1.2	0.59±0.25	0.88±0.60	0.37±0.13
30	Methyl 2-Methylpentanoate	1.2	0.31±0.13	0.26±0.19	0.03±0.06
31	2,6-Dimethyl-3,7-octadiene-2,6-diol	1.2	0.40±0.22	0.04±0.08	0.47±0.49
32	Nonanoic acid	1.2	0.02±0.06	-	0.15±0.18
33	Z-4-Heptenal	1.2	1.01±0.48	0.76±0.52	0.07±0.13
34	Penten-3-one	1.2	2.53±1.16	1.99±1.41	0.29±0.42
35	Butanal	1.2	1.29±0.47	1.04±0.50	0.41±0.17
36	Trans-2-decenal	1.1	0.08±0.06	0.03±0.05	0.17±0.18
37	Dihydrolinalool	1.1	0.07±0.08	0.08±0.08	0.20±0.15
38	1-(2-Furanyl)-ethanone	1.1	-	0.05±0.10	0.21±0.16
39	Phenethylisobutyrate	1.1	0.01±0.04	0.13±0.08	0.30±0.18
40	2-Butanone	1.1	-	0.57±0.50	1.62±1.05
41	4-Oxoisophorone	1.1	-	0.03±0.05	0.10±0.07
42	Acetylpropionyl	1.1	-	0.23±0.18	0.08±0.08
43	3R,6R-2,2,6-Trimethyl-6-vinyltetrahydro-2H-pyran-3-ol	1.1	0.02±0.06	-	0.08±0.10
44	Hexanal	1.1	5.29±2.10	5.79±3.45	2.81±1.75
45	Geranyl acetone	1.0	0.33±0.17	0.35±0.07	0.54±0.21
46	E-2-heptenal	1.0	0.23±0.05	0.28±0.09	0.15±0.16

47	Benzyl nitrile	1.0	0.29±0.10	0.29±0.11	0.52±0.32
48	Dihydrolinalool	1.0	0.07±0.08	0.08±0.08	0.20±0.15
49	Divinylcarbinol	1.0	0.14±0.15	0.21±0.29	-
50	3-Hexenal	1.0	0.10±0.10	0.11±0.13	-
51	Acetic acid	1.0	3.69±1.22	13.15±6.46	21.86±5.87
52	E-nerolidol	0.9	15.26±6.72	10.02±8.10	2.52±1.71

Data are means (±SD) of four replicates.

"-"meansthe compounds was not detected in tea samples.

Table S3.Contents ofvolatile compounds in matrix spiking samples(20 ng/mL)extratedbyDHI and SPMEapproche.

Compound	Relative peak area (%)	
	DHI	SPME
Acetoin	1.34	0.03
α-Pinene	4.33	0.48
Camphene	3.53	0.33
Sabinene	5.67	0.66
β-Pinene	4.60	0.48
β-Myrcene	6.59	0.66
α-Phellandrene	5.79	0.79
β-ocimene	5.79	1.02
R-Limonene	5.20	1.73
p-Cymene	2.92	2.11
γ-Terpinene	5.41	1.33
1-Octanol	5.20	7.12
Linalool	4.34	6.16
Benzyl alcohol	2.38	3.79
S-Terpinen-4-ol	4.60	4.74
2-Phenylethanol	3.44	4.57
α-Terpineol	4.07	4.33
S-β-Citronellol	2.56	5.17
Geraniol	4.10	7.08
Indole	2.05	5.60
β-Ionone	4.76	18.25
Valencene	4.05	17.67
Nerolidol	3.42	3.00
E-nerolidol	3.87	2.90