Supplementary Materials

Characterization of key aroma compounds of fried pepper sauce under different pretreatment processes

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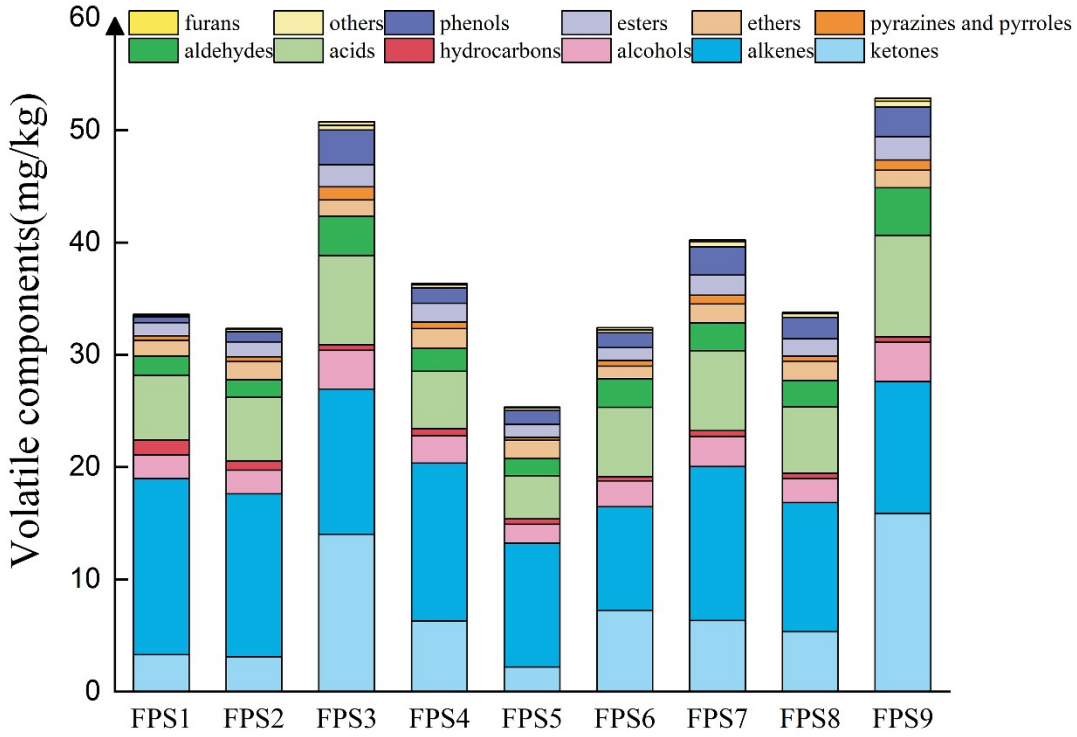

Fig. S1 Fried pepper sauce volatile component type for different pre-treatment process **FPS1:** Soaking in 60°C water and mashing, **FPS2:** Soaking in 100°C water and mashing, **FPS3:** Steaming and mashing, **FPS4:** Soaking in 60°C water and mincing, **FPS5:** Soaking in 100°C water and mincing, **FPS6:** Steaming and mincing, **FPS7:** Soaking in 60°C water and horizontal knife cutting, **FPS8:** Soaking in 100°C water and horizontal knife cutting, **FPS9:** Steaming and horizontal knife cutting.

Table S1 Identification and quantification of volatile compounds in nine FPS samples

No.	Aroma compounds	CAS	RI[a]	Compound content (μg /kg)									Identification methods[b]
				FPS1	FPS2	FPS3	FPS4	FPS5	FPS6	FPS7	FPS8	FPS9	
A	**Alkenes**												
A1	*α*-Thujene	2867-05-2	921	488.15±39.70	471.62±9.51	444.18±27.31	478.78±26.64	371.21±11.32	318.07±30.94	489.78±21.66	414.04±22.56	448.05±13.02	MS/RI/O
A2	(+)-*α*-Pinene	7785-70-8	927	63.60±9.70	75.25±3.16	94.36±3.38	74.82±2.08	63.40±2.44	46.46±3.22	78.95±2.95	55.72±2.88	63.17±0.94	MS/RI
A3	Sabinene	3387-41-5	967	788.04±75.50	801.62±26.01	838.56±43.73	832.28±36.95	645.48±22.31	537.14±49.08	855.58±31.35	679.83±35.78	746.92±15.80	MS/RI
A4	Myrcene	123-35-3	986	4862.37±72.90	4249.60±46.05	3154.68±264.33	3800.38±213.55	3016.31±149.51	2374.26±228.42	3409.09±330.00	2940.22±127.00	2690.71±201.03	MS/RI
A5	*α*-Phellandrene	99-83-2	998	327.61±14.49	279.46±7.83	215.61±12.65	236.56±16.54	191.80±12.39	155.62±14.71	219.40±15.62	185.39±7.53	198.12±5.71	MS/RI
A6	*α*-terpinene	99-86-5	1011	274.25±28.37	258.99±2.84	218.70±14.00	230.81±16.39	183.25±12.99	160.20±17.22	222.14±10.33	194.58±7.08	217.73±6.38	MS/RI
A7	*D*-Limonene	5989-27-5	1024	5593.50±63.92	4950.24±89.03	4989.65±297.11	5030.20±231.73	3967.51±141.22	3553.32±288.47	5180.51±305.59	4413.57±177.80	4634.87±201.74	MS/RI
A8	(*E*)-beta-ocimene	3779-61-1	1033	1622.06±178.10	1594.08±12.49	1202.91±105.14	1511.15±92.88	1160.43±92.33	895.99±109.21	1338.34±118.78	1138.25±48.03	1053.74±56.50	MS/RI
A9	(*Z*)-*β*-ocimene	3338-55-4	1043	664.71±137.55	803.22±19.74	677.48±60.09	831.64±45.49	631.74±68.25	494.69±62.00	735.90±58.78	615.00±30.16	598.98±25.72	MS/RI
A10	*γ*-Terpinene	99-85-4	1053	652.13±51.25	598.96±4.89	545.98±33.30	599.35±41.10	442.59±28.12	388.60±42.97	566.55±23.76	491.08±17.98	546.79±14.55	MS/RI
A11	Terpinolene	586-62-9	1083	109.46±12.41	107.01±3.45	95.76±5.90	103.46±6.21	77.11±4.17	73.42±1.49	100.51±3.59	87.42±2.07	97.65±2.82	MS/RI/O
A12	1,5,8-*p*-Menthatriene	21195-59-5	1116	21.16±4.56	26.85±1.52	24.33±1.57	27.08±0.65	21.42±2.06	17.08±2.02	26.12±3.42	20.93±3.98	22.31±1.29	MS/RI
A13	2,6-Dimethyl-2,4,6-octatriene	673-84-7	1123	ND	ND	132.84±14.27	ND	ND	ND	152.10±15.39	ND	127.22±6.95	MS/RI
A14	(*E*,*Z*)-2,6-Dimethylocta-2,4,6-triene	7216-56-0	1136	99.34±24.16	107.62±1.43	71.75±5.40	92.77±4.87	69.75±5.41	56.54±6.59	78.79±7.53	65.76±3.42	65.92±5.04	MS/RI
A15	Copaene	3856-25-5	1372	7.32±0.77	8.90±0.56	ND	ND	7.83±0.88	7.46±0.49	12.21±0.83	9.65±0.63	ND	MS/RI
A16	Beta-Elemene	515-13-9	1387	27.07±1.77	33.57±1.83	47.93±0.89	43.91±3.18	26.84±3.56	27.22±1.60	47.54±3.38	34.42±2.44	53.58±3.24	MS/RI
A17	Caryophyllene	87-44-5	1416	44.25±1.97	48.16±2.58	63.18±1.71	57.46±2.52	40.64±3.95	39.95±3.00	64.16±2.99	51.68±3.43	69.57±1.24	MS/RI
A18	(+)-Bicyclogermacrene	24703-35-3	1428	2.28±0.27	3.14±0.16	5.10±0.34	4.02±0.36	2.59±0.44	2.69±0.23	4.68±0.60	3.36±0.28	5.13±0.44	MS/RI
A19	Humulene	6753-98-6	1450	11.13±1.36	14.34±1.01	20.88±0.23	19.14±1.27	12.93±1.61	12.24±0.79	20.88±1.45	15.98±0.86	23.04±1.19	MS/RI

Table S1 (Contd.)

No.	Aroma compounds	CAS	RI[a]	Compound content (μg /kg)									Identification methods[b]
				FPS1	FPS2	FPS3	FPS4	FPS5	FPS6	FPS7	FPS8	FPS9	
A20	(1*R*,6*S*)-gamma-himachalene	53111-25-4	1474	ND	5.14±0.23	ND	6.95±0.49	5.61±0.83	ND	8.61±0.85	8.02±0.51	ND	MS/RI
A21	Germacrene D	23986-74-5	1477	ND	ND	ND	ND	6.47±1.00	ND	12.31±1.41	10.96±1.02	16.49±1.07	MS/RI
A22	(-)-beta-Selinene	17066-67-0	1482	1.33±0.17	1.87±0.16	2.39±0.33	ND	1.72±0.32	ND	ND	ND	ND	MS/RI
A23	alpha-Muurolene	10208-80-7	1495	ND	9.04±0.68	ND	ND	ND	ND	ND	ND	ND	MS/RI
A24	alpha-Farnesene	502-61-4	1501	ND	ND	ND	ND	ND	ND	1.26±0.24	ND	ND	MS/RI
A25	(-)-gamma-Cadinene	39029-41-9	1509	17.06±2.65	25.14±1.83	39.94±2.57	34.85±2.82	22.74±4.17	20.96±1.54	37.77±4.89	28.23±2.17	40.72±4.03	MS/RI
A26	(+)-delta-Cadinene	483-76-1	1518	27.05±2.98	34.29±1.96	52.62±3.69	45.40±3.38	29.74±4.99	27.96±1.87	48.94±5.72	36.83±2.49	53.97±5.65	MS/RI
B	**Ketones**												
B1	Acetone	67-64-1	-	374.92±33.10	277.13±4.48	420.26±17.96	350.63±29.59	287.71±25.73	387.00±21.91	321.70±42.80	291.88±25.38	448.12±49.84	MS
B2	Hydroxyacetone	116-09-6	-	492.53±9.28	360.71±17.51	979.10±28.99	492.07±50.07	257.48±34.97	671.28±55.24	434.11±29.94	400.22±45.47	1064.40±109.81	MS
B3	2,3-Pentanedione	600-14-6	-	ND	ND	ND	ND	ND	30.82±6.87	ND	ND	ND	MS
B4	Acetoin	513-86-0	-	36.15±8.14	52.17±1.65	59.61±30.70	32.38±14.11	17.93±2.90	40.68±11.26	39.44±21.78	24.93±2.95	70.95±20.68	MS
B5	2-Methyltetrahydrofuran-3-one	3188-00-9	801	ND	ND	8.14±2.06	ND	ND	9.14±6.14	ND	ND	7.45±0.31	MS/RI
B6	Acetoxyacetone	592-20-1	865	49.65±4.46	ND	53.24±2.30	44.28±3.26	16.43±4.22	52.55±5.83	45.58±4.15	28.06±9.91	75.62±7.81	MS/RI
B7	4-Cyclopentene-1,3-dione	930-60-9	878	28.07±3.39	20.51±1.84	229.82±7.83	49.38±2.93	10.47±1.45	67.27±6.49	51.92±4.79	38.32±4.85	199.61±3.01	MS/RI
B8	*N*-Methylpyrrolidone	872-50-4	1036	50.76±3.54	47.38±1.17	327.64±24.69	84.31±5.84	ND	128.85±17.34	127.72±6.24	93.18±6.10	265.85±6.57	MS/RI
B9	Furyl hydroxymethyl ketone	17678-19-2	1078	ND	ND	ND	29.73±2.13	ND	62.99±6.99	42.98±3.14	28.33±4.18	181.04±21.19	MS/RI/O
B10	2-Pyrrolidinone	616-45-5	1088	ND	ND	ND	ND	ND	31.50±5.18	ND	ND	ND	MS/RI/O

Table S1 (Contd.)

No.	Aroma compounds	CAS	RI[a]	Compound content (μg /kg)									Identification methods[b]
				FPS1	FPS2	FPS3	FPS4	FPS5	FPS6	FPS7	FPS8	FPS9	
B11	3,5-Dihydroxy-6-methyl-2*H*-pyran-4(3*H*)-one	28564-83-2	1150	1827.87±336.39	1761.60±83.67	11244.67±442.19	4509.46±199.74	1119.94±235.67	5373.54±518.44	4596.94±220.12	3853.79±570.40	12827.09±342.54	MS/RI/O
B12	4-Isopropyl-2-cyclohexenone	500-02-7	1182	26.47±3.27	63.16±5.67	ND	37.17±2.43	27.77±2.42	ND	ND	33.54±1.99	ND	MS/RI
B13	Piperitone	89-81-6	1250	392.82±20.83	478.64±19.52	516.92±21.70	559.06±30.96	395.71±57.18	332.62±30.98	536.80±26.58	451.35±36.92	563.28±14.14	MS/RI
B14	Xanthoxylin	90-24-4	1666	6.54±1.71	40.94±7.78	174.58±37.06	87.92±12.59	63.51±8.04	61.20±8.56	134.45±41.37	89.43±4.29	153.66±34.00	MS/RI
C	**Acids**												
C1	Formic acid	64-18-6	-	ND	ND	ND	50.90±28.26	ND	35.30±5.86	42.60±2.65	ND	ND	MS
C2	Acetic acid	64-19-7	-	5732.16±314.90	5661.80±78.09	7919.39±107.59	5056.81±354.94	3849.33±396.01	6165.78±623.05	7071.86±584.56	5905.58±493.82	9038.90±514.30	MS/O/S
D	**Alcohols**												
D1	3-Furanmethanol	4412-91-3	850	43.04±10.61	45.01±2.97	263.27±21.44	72.89±2.43	27.40±4.53	164.16±20.18	84.10±7.40	60.48±4.92	275.28±23.93	MS/RI
D2	4-Thujanol	17699-16-0	1062	244.41±15.95	186.06±9.41	1061.79±28.65	270.38±6.62	141.96±5.87	712.36±66.54	339.08±9.25	177.93±20.73	956.67±31.28	MS/RI
D3	1-Octanol	111-87-5	1066	21.52±3.85	21.04±2.46	ND	26.60±2.05	19.94±1.01	21.11±4.91	26.90±1.84	21.91±2.55	ND	MS/RI
D4	Sabinene hydrate	546-79-2	1093	195.95±0.48	171.21±5.28	185.00±9.76	142.77±3.30	108.85±3.34	109.15±5.71	184.37±10.78	150.47±12.07	170.80±2.51	MS/RI/O
D5	Linalool	78-70-6	1095	422.20±61.71	375.09±14.85	371.06±20.36	403.48±20.56	311.99±19.04	260.40±25.90	396.10±18.86	375.20±18.55	389.13±11.64	MS/RI/O/S
D6	Phenylethyl Alcohol	60-18-6	1108	18.43±6.15	33.38±2.04	51.93±1.93	41.11±0.98	36.48±0.80	34.04±4.76	49.61±3.63	38.82±8.44	53.80±1.70	MS/RI/O
D7	(-)-Terpinen-4-ol	20126-76-5	1174	364.28±29.26	383.39±8.32	390.29±21.89	421.39±18.97	311.07±22.29	276.33±27.38	422.77±17.49	369.52±17.29	431.04±5.94	MS/RI/O
D8	(-)-alpha-Terpineol	10482-56-1	1187	560.54±48.38	613.44±15.87	664.37±32.73	703.75±32.44	498.66±50.56	466.39±44.66	708.16±27.05	599.29±42.93	751.11±5.10	MS/RI
D9	gamma-Terpineol	586-81-2	1214	204.72±32.37	254.02±19.82	420.09±22.74	361.47±13.42	230.67±22.54	240.54±25.40	414.65±16.57	333.48±21.52	420.38±9.43	MS/RI/O
D10	Citronellol	106-22-9	1223	11.69±1.70	17.18±1.89	25.81±0.50	24.24±1.49	18.93±2.27	16.50±1.76	26.34±1.00	22.13±1.78	28.27±1.95	MS/RI
D11	1-Dodecanol	112-53-8	1466	ND	ND	6.43±2.58	2.35±0.27	1.84±0.43	3.54±0.69	5.48±0.91	2.64±0.67	7.01±0.63	MS/RI
E	**Aldehydes**												

Table S1 (Contd.)

No.	Aroma compounds	CAS	RI[a]	Compound content (μg /kg)									Identification methods[b]
				FPS1	FPS2	FPS3	FPS4	FPS5	FPS6	FPS7	FPS8	FPS9	
E1	2-Methylpropanal	78-84-2	-	190.64±26.28	98.81±8.94	207.80±34.78	132.80±8.34	70.18±10.38	171.48±7.98	156.55±32.65	138.12±16.54	221.77±13.95	MS/O/S
E2	3-Methylbutanal	590-86-3	-	384.62±109.49	279.54±79.57	307.58±9.29	193.77±29.86	144.71±12.75	225.08±16.30	222.32±21.54	224.49±8.11	259.13±3.50	MS/O/S
E3	2-Methylbutanal	96-17-3	-	236.64±22.32	161.46±15.54	319.30±7.65	180.19±26.37	106.57±8.85	225.64±16.87	225.57±18.71	212.92±14.19	298.66±6.84	MS
E4	Hexanal	66-25-1	792	81.28±11.25	74.45±12.74	37.08±2.40	41.16±4.58	29.50±3.23	ND	41.35±4.50	37.12±3.66	36.05±3.10	MS/RI
E5	3-Furaldehyde	498-60-2	826	230.45±38.11	179.14±4.38	792.36±46.19	307.94±10.21	113.16±15.75	462.17±47.69	322.75±21.66	337.96±26.04	1061.10±32.57	MS/RI
E6	Heptanal	111-71-7	896	22.29±2.50	17.16±0.29	9.32±0.97	17.03±3.35	12.78±1.99	11.21±1.70	13.36±1.76	13.35±1.43	12.53±1.63	MS/RI
E7	Methional	3268-49-3	900	20.55±6.35	18.78±0.34	59.46±3.01	21.85±1.90	11.55±2.38	28.11±4.11	18.90±4.96	18.05±1.57	23.03±1.10	MS/RI/O/S
E8	2-Pyridinecarboxaldehyde	1121-60-4	943	ND	ND	ND	ND	ND	6.86±1.20	4.06±1.73	ND	11.13±0.97	MS/RI
E9	(*E*)-Hept-2-enal	18829-55-5	951	49.09±10.97	52.94±4.53	143.00±8.33	68.17±4.13	61.87±6.62	85.95±9.21	88.03±11.16	67.22±4.24	139.28±3.24	MS/RI
E10	Benzaldehyde	100-52-7	954	62.70±9.80	69.36±4.15	112.41±2.79	84.19±2.23	66.30±4.99	82.36±6.09	121.38±5.93	99.07±4.70	126.16±2.66	MS/RI
E11	5-Methylfurfural	620-02-0	958	17.02±3.96	16.15±0.43	131.06±4.83	31.69±1.64	11.82±1.24	61.23±4.49	47.70±1.47	31.67±2.75	131.10±1.78	MS/RI
E12	Octanal	124-13-0	997	ND	40.62±0.86	ND	55.41±4.66	40.72±6.39	31.93±3.39	ND	36.95±2.34	ND	MS/RI
E13	(*E*,*E*)-2,4-Heptadienal	4313-05-3	1005	27.93±5.27	31.95±3.46	117.40±1.26	58.90±2.11	51.81±7.39	74.29±6.86	77.42±6.81	69.07±7.35	142.36±18.46	MS/RI
E14	Benzeneacetaldehyde	122-78-1	1039	158.68±39.34	188.84±19.60	406.15±36.81	271.89±15.38	271.89±34.58	377.63±38.96	283.46±29.63	383.94±20.82	576.28±30.78	MS/RI/O/S
E15	Nonanal	124-19-6	1099	104.63±16.26	111.94±4.86	139.51±7.37	130.57±10.91	126.17±5.24	126.51±12.14	173.09±23.70	144.64±22.49	221.63±1.21	MS/RI
E16	(*E*)-2-Nonenal	18829-56-6	1155	14.72±13.79	32.14±4.43	ND	74.63±10.03	34.38±5.10	53.87±4.55	39.80±7.92	42.64±2.49	ND	MS/RI/O/S
E17	3-Ethylbenzaldehyde	34246-54-3	1158	ND	ND	ND	ND	2.88±0.07	ND	ND	ND	ND	MS/RI
E18	Decanal	112-31-2	1200	6.16±1.80	7.89±0.94	24.69±2.41	14.68±3.40	10.45±0.83	12.59±2.88	22.41±9.96	14.21±3.60	30.50±2.18	MS/RI
E19	(2*E*)-2-Decenal	3913-81-3	1256	40.04±11.60	49.64±8.62	143.82±2.67	96.70±5.95	97.23±10.60	123.74±7.10	141.49±11.85	102.80±5.06	210.33±18.27	MS/RI/O/S
E20	2-Phenyl-2-butenal	4411-89-6	1268	8.82±1.19	ND	66.93±3.57	ND	ND	38.93±1.59	34.26±6.15	ND	ND	MS/RI
E21	(*E*,*Z*)-2,4-Decadienal	25152-83-4	1288	7.85±2.53	12.49±2.04	46.39±1.75	24.66±2.81	24.90±2.86	34.68±1.29	38.30±4.65	34.47±2.74	76.18±7.76	MS/RI/O

Table S1 (Contd.)

No.	Aroma compounds	CAS	RI[a]	Compound content (μg /kg)									Identification methods[b]
				FPS1	FPS2	FPS3	FPS4	FPS5	FPS6	FPS7	FPS8	FPS9	
E22	(2*E*,4*E*)-Deca-2,4-dienal	25152-84-5	1310	52.59±15.57	83.79±15.11	359.58±20.72	168.33±15.23	185.07±24.64	233.97±16.52	325.41±46.14	263.31±21.66	518.34±73.40	MS/RI/O/S
E23	2-Undecenal	2463-77-6	1357	19.71±6.71	34.75±4.51	94.75±4.41	58.82±5.88	59.50±6.64	68.47±2.79	78.84±8.53	79.30±4.53	136.72±11.69	MS/RI
F	**Phenols**												
F1	Maltol	118-71-8	1107	ND	ND	181.23±9.10	ND	ND	93.31±5.05	100.80±7.08	66.24±5.77	176.92±10.42	MS/RI
F2	2-Methoxy-4-vinylphenol	7786-61-0	1308	ND	ND	115.92±7.31	ND	ND	ND	ND	ND	ND	MS/RI
F3	2,6-Dimethoxy-4-vinylphenol	28343-22-8	1563	520.39±128.85	916.19±48.04	2785.84±650.49	1356.16±141.72	1219.60±148.46	1226.29±143.71	2414.60±569.47	1843.64±301.92	2475.86±420.79	MS/RI
G	**Ethers**												
G1	Dimethyl ether	115-10-6	-	828.37±32.29	1143.66±49.36	867.08±17.98	1246.69±45.07	1220.25±75.56	761.27±40.71	1148.90±102.91	1301.45±82.89	1085.46±23.08	MS
G2	Eucalyptol	470-82-6	1026	564.16±30.35	484.65±17.65	572.05±20.28	523.61±25.02	407.83±17.74	360.20±29.96	542.31±20.21	418.12±21.72	487.47±7.09	MS/RI/O/S
H	**Esters**												
H1	Methyl acetate	79-20-9	-	104.59±17.46	63.26±15.49	81.34±21.93	73.75±2.78	54.66±16.56	83.65±6.78	79.09±4.85	74.92±16.67	105.66±25.01	MS
H2	Acetic acid ethenyl ester	108-05-4	-	89.48±5.26	42.64±7.78	70.35±6.77	38.57±4.99	27.40±9.11	58.00±9.34	38.28±13.33	37.54±15.79	74.74±16.58	MS/O
H3	4-Hydroxybutanoic acid	591-81-1	907	298.10±85.01	165.82±5.19	385.89±27.53	185.68±10.86	71.40±6.32	198.85±16.97	221.06±25.61	144.83±24.10	338.07±12.84	MS/RI
H4	Octyl acetate	112-14-1	1206	16.91±2.14	24.41±3.47	34.98±1.27	35.12±4.22	23.02±3.99	21.55±3.96	34.92±2.50	26.46±1.51	36.12±0.37	MS/RI
H5	Linalyl acetate	115-95-7	1251	228.33±21.26	437.12±33.31	441.71±19.43	482.74±28.66	380.41±44.27	225.89±21.81	446.38±19.12	476.32±33.21	473.19±10.56	MS/RI
H6	4-Terpinenyl acetate	4829-04-9	1295	76.17±7.08	86.97±5.12	119.01±4.93	112.33±5.69	77.82±7.51	75.26±6.24	119.95±6.75	99.75±5.00	130.63±3.92	MS/RI
H7	*α*-Terpinyl acetate	80-26-2	1345	305.37±22.44	433.71±50.71	707.29±18.02	668.24±49.79	456.30±62.25	425.62±32.56	721.84±43.11	564.94±40.11	779.61±36.01	MS/RI
H8	Citronellyl acetate	150-84-5	1347	27.90±5.42	33.58±2.51	50.03±1.16	43.90±3.51	31.69±4.44	29.94±1.12	49.34±1.35	38.17±2.21	54.34±3.53	MS/RI
H9	Geranyl acetate	105-87-3	1377	8.82±3.55	18.87±3.61	41.84±0.86	34.20±2.86	25.04±3.10	22.80±1.20	39.79±3.66	31.29±2.40	45.19±2.44	MS/RI/O
H10	Ethyl palmitate	628-97-7	1981	1.57±1.16	7.17±1.59	31.15±4.49	11.22±2.46	15.97±1.49	14.52±2.66	32.34±6.81	25.66±1.65	18.91±0.21	MS/RI

Table S1 (Contd.)

No.	Aroma compounds	CAS	RI[a]	Compound content (μg /kg)									Identification methods[b]
				FPS1	FPS2	FPS3	FPS4	FPS5	FPS6	FPS7	FPS8	FPS9	
H11	Linoleic acid ethyl ester	544-35-4	2154	10.19±0.76	2.45±1.11	10.03±2.70	2.55±0.49	5.02±1.12	2.74±0.54	12.10±3.58	7.93±1.28	4.11±0.69	MS/RI
H12	Ethyl Oleate	111-62-6	2160	ND	ND	ND	ND	ND	ND	5.98±1.06	5.33±0.69	ND	MS/RI
I	**Hydrocarbons**												
I1	Heptane	142-82-5	-	ND	ND	ND	ND	29.84±1.32	ND	ND	ND	ND	MS
I2	1,3-Dimethylbenzene	108-38-3	861	59.41±5.02	48.41±0.81	89.61±7.67	53.38±4.20	19.48±1.07	39.07±5.13	76.20±11.41	59.32±3.16	95.68±6.84	MS/RI
I3	o-Cymene	527-84-4	1019	1131.99±178.35	684.75±44.26	292.02±26.69	460.92±37.85	342.17±10.54	255.24±23.70	360.84±46.04	316.96±21.10	292.10±25.50	MS/RI
I4	4-Ethenyl-1,2-dimethyl-benzene	27831-13-6	1084	66.89±14.19	ND	ND	ND	ND	ND	ND	ND	ND	MS/RI
I5	1,2,3,5-tetramethyl-benzen	527-53-7	1125	76.23±12.37	85.64±2.56	72.78±5.94	86.73±3.23	69.61±3.51	55.17±5.48	81.47±7.26	66.76±2.99	ND	MS/RI
I6	Naphthalene	91-20-3	1177	ND	ND	44.66±1.30	ND	ND	ND	ND	ND	ND	MS/RI
I7	1-Nonyl-2-propan-2-ylcyclopropane	41977-39-3	1438	ND	ND	ND	ND	ND	ND	ND	6.34±0.26	ND	MS/RI
I8	2-Methyltetradecane	1560-95-8	1455	3.77±1.27	8.53±1.18	12.08±0.87	11.87±1.57	9.02±0.68	8.67±0.85	17.14±2.51	13.92±1.28	16.93±0.70	MS/RI
J	**Pyrazines and pyrroles**												
J1	1-Methylpyrrole	96-54-8	728	12.66±1.65	11.13±0.70	15.50±1.28	12.01±1.94	6.80±0.79	14.43±1.41	13.05±0.94	9.44±0.88	14.76±2.73	MS/RI
J2	2-Methylpyrazine	109-08-0	817	ND	63.69±1.82	207.93±15.26	86.51±5.25	26.88±4.54	ND	128.29±15.13	ND	137.63±13.08	MS/RI
J3	2,5-Dimethylpyrazine	123-32-0	905	162.74±34.27	199.36±8.61	477.68±37.42	89.29±5.57	98.42±8.18	161.26±65.47	148.31±10.98	98.49±7.49	295.46±6.96	MS/RI/O
J4	2-Acetylpyrrole	1072-83-9	1060	220.18±28.62	138.11±10.27	467.98±20.87	378.41±9.05	117.80±20.29	293.50±10.44	459.69±19.32	340.35±31.52	445.50±9.10	MS/RI
J5	2,6-Diethylpyrazine	13067-27-1	1074	10.72±2.05	13.01±0.53	ND	ND	ND	15.15±0.65	21.64±0.92	14.62±0.63	16.17±0.15	MS/RI/O
K	**Furans**												
K1	3-Methylfuran	930-27-8	-	4.32±0.94	3.51±0.05	10.24±0.90	4.71±0.19	2.03±0.25	7.12±0.63	6.22±1.46	4.67±0.54	9.98±1.40	MS

Table S1 (Contd.)

No.	Aroma compounds	CAS	RI[a]	Compound content (μg /kg)									Identification methods[b]
				FPS1	FPS2	FPS3	FPS4	FPS5	FPS6	FPS7	FPS8	FPS9	
K2	2-Acetylfuran	1192-62-7	906	68.46±3.42	69.50±1.82	311.80±19.50	108.82±3.62	47.38±6.99	181.67±20.72	149.31±11.59	99.57±8.33	276.87±9.56	MS/RI/O
L	**Others**												
L1	Methanethiol	74-93-1	-	23.39±9.72	7.57±0.13	14.71±3.54	8.88±1.19	4.71±0.32	13.67±1.96	12.01±1.64	7.81±0.84	13.58±2.89	MS
L2	Pyridine	110-86-1	739	ND	ND	19.43±2.13	ND	ND	11.79±1.17	14.47±1.57	ND	20.07±2.43	MS/RI
L3	Dimethyl trisulfide	3658-80-8	962	ND	ND	4.17±0.04	ND	ND	3.14±0.18	ND	ND	5.71±0.20	MS/RI
L4	*N*-Acetyl-3-pyrroline	21399-13-3	1103	ND	ND	45.67±0.36	ND	ND	16.68±1.49	19.42±0.81	ND	45.79±1.65	MS
L5	5-(Methylsulfanyl)pentane nitrile	59121-25-4	1196	7.85±2.30	14.25±1.04	21.04±0.14	14.00±0.56	17.78±3.14	15.34±1.82	23.13±1.16	17.62±2.33	19.28±1.41	MS/RI/O
L6	Benzenepropanenitrile	645-59-0	1236	99.45±24.20	156.10±15.64	264.57±0.93	202.89±12.39	196.76±26.03	189.93±16.99	334.71±25.45	252.90±24.15	335.97±23.34	MS/RI
L7	2-Oxabicyclo[2.2.2]octan-6-ol,1,3,3-trimethyl-,acetate	57709-95-2	1337	30.09±4.10	37.12±2.09	56.80±0.66	48.70±3.18	33.84±3.67	33.99±2.01	56.00±2.86	44.73±2.13	64.36±2.62	MS/RI

a: Kováts retention indices calculated of each aroma compound on a non-polar HP-5MS capillary column (30 m × 250 μm × 0.25 μm, Agilent) with a homologous series of n-alkanes (C7-C30).

b: Identification methods: MS, RI, O and S represent being identifying by NIST 20 mass spectral database, linear retention indices reported in the species database (http://webbook.nist.gov/chemistry/name-ser.html) and literature, olfactometry, and standard chemical, respectively.

ND: Not detected.

Table S2 rOAVs of the odor-active substances (rOAV>1) in nine FPS samples

No.[a]	Compounds	Threshold[b] (μg /kg)	rOAV								
			FPS1	FPS2	FPS3	FPS4	FPS5	FPS6	FPS7	FPS8	FPS9
A2	(+)-*α*-Pinene	33	1.93	2.28	2.86	2.27	1.92	1.41	2.39	1.69	1.91
A4	Myrcene	42	115.77	101.18	75.11	90.49	71.82	56.53	81.17	70.01	64.06
A7	*D*-Limonene	210	26.64	23.57	23.76	23.95	18.89	16.92	24.67	21.02	22.07
B2	Hydroxyacetone	200	2.46	1.80	4.90	2.46	1.29	3.36	2.17	2.00	5.32
C2	Acetic acid	1050	5.46	5.39	7.54	4.82	3.67	5.87	6.74	5.62	8.61
D10	Citronellol	10	1.17	1.72	2.58	2.42	1.89	1.65	2.63	2.21	2.83
D11	1-Dodecanol	6.6	0.00	0.00	0.97	0.36	0.28	0.54	0.83	0.40	1.06
D5	Linalool	3.8	111.11	98.71	97.65	106.18	82.10	68.53	104.24	98.74	102.40
D8	(-)-alpha-Terpineol	300	1.87	2.04	2.21	2.35	1.66	1.55	2.36	2.00	2.50
E1	2-Methylpropanal	3.4	56.07	29.06	61.12	39.06	20.64	50.44	46.05	40.62	65.23
E13	(*E*,*E*)-2,4-Heptadienal	30	0.93	1.06	3.91	1.96	1.73	2.48	2.58	2.30	4.75
E14	Benzeneacetaldehyde	9	17.63	20.98	45.13	30.21	30.21	41.96	31.50	42.66	64.03
E16	€-2-Nonenal	66	0.22	0.49	0.00	1.13	0.52	0.82	0.60	0.65	0.00
E19	(2*E*)-2-Decenal	150	0.27	0.33	0.96	0.64	0.65	0.82	0.94	0.69	1.40
E2	3-Methylbutanal	10.8	35.61	25.88	28.48	17.94	13.40	20.84	20.59	20.79	23.99
E21	(*E*,*Z*)-2,4-Decadienal	4	1.96	3.12	11.60	6.17	6.23	8.67	9.57	8.62	19.05
E22	(2*E*,4*E*)-Deca-2,4-dienal	41	1.28	2.04	8.77	4.11	4.51	5.71	7.94	6.42	12.64
E3	2-Methylbutanal	23	10.29	7.02	13.88	7.83	4.63	9.81	9.81	9.26	12.99
E7	Methional	0.05	410.96	375.60	1189.12	436.99	230.94	562.28	377.94	361.06	460.69
G2	Eucalyptol	10	56.42	48.47	57.21	52.36	40.78	36.02	54.23	41.81	48.75
L3	Dimethyl trisulfide	4.2	0.00	0.00	0.99	0.00	0.00	0.75	0.00	0.00	1.36
L1	Methanethiol	0.34	68.78	22.26	43.28	26.13	13.84	40.19	35.32	22.96	39.94

a: The numbers assigned to the compounds are in line with those specified in TableS1.

b: Odor thresholds were referenced from the book (Odor thresholds compilations of odor threshold values in air, water and other media) and a literature.

Table S3 Odor intensity of the odorants in nine FPS samples identified using GC-O

No.[a]	Compounds	GC-O								
		FPS1	FPS2	FPS3	FPS4	FPS5	FPS6	FPS7	FPS8	FPS9
A1	*α*-Thujene	3	4	3	3	3	2	3	3	3
A11	Terpinolene	3	2	3	3	3	3	3	3	3
B9	Furyl hydroxymethyl ketone	2	2	1	1	0	1	3	2	2
B10	2-Pyrrolidinone	0	0	0	0	0	2	0	0	0
B11	3,5-Dihydroxy-6-methyl-2*H*-pyran-4(3*H*)-one	4	4	4	3	4	4	4	4	3
C2	Acetic acid	3	2	2	1	2	2	2	2	3
D4	Sabinene hydrate	0	0	0	0	0	0	0	3	3
D5	Linalool	5	5	5	5	4	4	4	5	5
D6	Phenylethyl Alcohol	0	0	0	0	0	0	0	2	1
D7	(-)-Terpinen-4-ol	3	3	4	4	4	3	4	3	5
D9	gamma-Terpineol	0	0	0	0	0	0	0	1	0
E1	2-Methylpropanal	0	1	0	0	0	0	0	1	1
E2	3-Methylbutanal	3	2	1	1	1	1	1	1	1
E7	Methional	3	4	4	3	4	4	4	4	4
E14	Benzeneacetaldehyde	4	4	4	3	4	4	4	4	4
E16	(*E*)-2-Nonenal	3	4	0	3	4	0	3	4	0
E19	(2*E*)-2-Decenal	3	3	3	2	3	2	2	2	3
E21	(*E*,*Z*)-2,4-Decadienal	2	3	2	2	2	2	2	1	1
E22	(2*E*,4*E*)-Deca-2,4-dienal	3	2	2	2	3	3	3	2	2
G2	Eucalyptol	2	3	3	2	2	3	3	3	3
H2	Acetic acid ethenyl ester	2	2	1	0	2	1	1	1	1
H9	Geranyl acetate	3	2	3	3	3	3	3	3	2
J3	2,5-Dimethylpyrazine	3	3	3	2	3	3	3	3	3
J5	2,6-Diethylpyrazine	1	0	0	0	0	0	0	0	0
K2	2-Acetylfuran	3	3	3	3	3	3	3	3	3
L5	5-(Methylsulfanyl)pentanenitrile	0	0	0	2	0	0	0	0	0

a: The numbers assigned to the compounds are in line with those specified in TableS1.