

Table S1 Analysis results of volatile compounds in peanut oil

Category	NO.	RT (min)	SI <sup>a</sup>	formula	CAS	Compound name	Relative content (%)
Hydrocarbons							
(5)							
	1	13.6	885	C <sub>10</sub> H <sub>22</sub>	124-18-5	Decane	1.05%
	2	14.77	887	C <sub>10</sub> H <sub>16</sub>	5989-27-5	(+)-Dipentene	1.87%
	3	15.8	717	C <sub>19</sub> H <sub>40</sub>	10544-96-4	6-Methyl-octadecane	0.59%
	4	21.03	898	C <sub>12</sub> H <sub>26</sub>	112-40-3	Dodecane	3.39%
	5	27.77	896	C <sub>14</sub> H <sub>30</sub>	629-59-4	Tetradecane	0.96%
Acids (9)							
	6	2.33	818	CH <sub>2</sub> O <sub>2</sub>	64-18-6	Formic acid	0.93%
	7	2.83	888	C <sub>2</sub> H <sub>4</sub> O <sub>2</sub>	64-19-7	Acetic acid	6.89%
	8	6.17	684	C <sub>3</sub> H <sub>5</sub> NO <sub>4</sub>	504-88-1	3-Nitropropanoic acid	0.26%
	9	8.21	674	C <sub>5</sub> H <sub>10</sub> O <sub>2</sub>	116-53-0	2-Methyl-butanoic acid	0.44%
	10	9.42	819	C <sub>6</sub> H <sub>10</sub> O <sub>4</sub>	616-62-6	2-Propylmalonic acid	0.57%
	11	13.22	869	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	142-62-1	Hexanoic acid	2.51%
	12	16.61	738	C <sub>7</sub> H <sub>14</sub> O <sub>2</sub>	111-14-8	Heptanoic acid	0.63%
	13	24.74	652	C <sub>7</sub> H <sub>13</sub> NO <sub>4</sub>	7766-85-0	4-Amino-1,5-pentandioic acid	0.13%
	14	27.25	706	C <sub>7</sub> H <sub>5</sub> N <sub>5</sub> O <sub>3</sub>	948-60-7	Pterin-6-carboxylic acid	0.06%
Alcohols (6)							
	15	5.73	863	C <sub>5</sub> H <sub>12</sub> O	71-41-0	1-Pentanol	0.53%
	16	8.43	890	C <sub>5</sub> H <sub>6</sub> O <sub>2</sub>	98-00-0	2-Furanmethanol	1.25%
	17	8.86	882	C <sub>6</sub> H <sub>14</sub> O	111-27-3	1-Hexanol	1.87%
	18	12.9	872	C <sub>8</sub> H <sub>16</sub> O	3391-86-4	1-Octen-3-ol	0.88%
	19	20.08	734	C <sub>11</sub> H <sub>24</sub> O	112-42-5	1-Undecanol	0.85%
	20	20.21	746	C <sub>10</sub> H <sub>20</sub> O	21129-27-1	1-Methyl-4-(1- methylethyl)cyclohexanol	0.19%
Aldehydes (21)							
	21	3.49	826	C <sub>5</sub> H <sub>10</sub> O	590-86-3	Isovaleraldehyde	0.51%
	22	3.62	838	C <sub>5</sub> H <sub>10</sub> O	96-17-3	2-Methylbutyraldehyde	0.72%
	23	4.15	801	C <sub>5</sub> H <sub>10</sub> O	110-62-3	Pentanal	0.68%
	24	6.59	902	C <sub>6</sub> H <sub>12</sub> O	66-25-1	Hexanal	6.49%
	25	7.69	900	C <sub>5</sub> H <sub>4</sub> O <sub>2</sub>	498-60-2	3-Furaldehyde	1.01%
	26	9.99	890	C <sub>7</sub> H <sub>14</sub> O	111-71-7	Heptaldehyde	1.07%
	27	12.05	922	C <sub>7</sub> H <sub>12</sub> O	57266-86-1	(Z)-2-Heptenal,	1.98%
	28	12.24	871	C <sub>7</sub> H <sub>6</sub> O	100-52-7	Benzaldehyde	3.39%
	29	12.39	646	C <sub>6</sub> H <sub>6</sub> O <sub>2</sub>	620-02-0	5-Methyl furfural	0.13%

	30	13.79	748	C <sub>8</sub> H <sub>16</sub> O	124-13-0	Octanal	3.47%
	31	14.18	642	C <sub>5</sub> H <sub>5</sub> NO	1003-29-8	Pyrrole-2-carboxaldehyde	0.32%
	32	14.93	771	C <sub>8</sub> H <sub>12</sub> O	931-96-4	1-Methyl-3-cyclohexene-1-carbaldehyde	0.36%
	33	15.91	832	C <sub>8</sub> H <sub>14</sub> O	2548-87-0	(E)-2-Octenal	1.63%
	34	17.62	904	C <sub>9</sub> H <sub>18</sub> O	124-19-6	1-Nonanal	6.79%
	35	21.32	868	C <sub>10</sub> H <sub>20</sub> O	112-31-2	Decyl aldehyde	0.47%
	36	21.67	778	C <sub>9</sub> H <sub>14</sub> O	5910-87-2	(E,E)-2,4-Nonadienal	0.22%
	37	23.3	818	C <sub>10</sub> H <sub>18</sub> O	2497-25-8	2-Decenal	1.07%
	38	23.8	768	C <sub>10</sub> H <sub>10</sub> O	1196-67-4	3-Phenyl-2-butenal	0.56%
	39	24.42	815	C <sub>10</sub> H <sub>16</sub> O	2363-88-4	2,4-Decadienal	0.44%
	40	24.82	774	C <sub>11</sub> H <sub>22</sub> O	112-44-7	Undecanal	0.12%
	41	26.72	857	C <sub>11</sub> H <sub>20</sub> O	53448-07-0	E-2-Undecenal	0.38%
Ester (2)							
	42	12.56	789	C <sub>8</sub> H <sub>16</sub> O <sub>2</sub>	112-23-2	Heptanol, formate	0.75%
	43	26.8	784	C <sub>9</sub> H <sub>16</sub> O <sub>2</sub>	104-61-0	γ-Nonanolactone	0.35%
Ketones (5)							
	44	6.93	665	C <sub>5</sub> H <sub>10</sub> O <sub>2</sub>	5704-20-1	2-Hydroxy-3-pentanone	0.06%
	45	9.61	738	C <sub>7</sub> H <sub>14</sub> O	110-43-0	2-Heptanone	0.62%
	46	15.2	825	C <sub>8</sub> H <sub>14</sub> O	18402-82-9	(E)-Oct-3-en-2-one	0.38%
	47	17.17	659	C <sub>9</sub> H <sub>18</sub> O	821-55-6	2-Nonanone	0.80%
	48	20.86	746	C <sub>10</sub> H <sub>20</sub> O	693-54-9	2-Decanone	0.38%
Furans (2)							
	49	13.35	841	C <sub>9</sub> H <sub>14</sub> O	3777-69-3	2-Pentylfuran	1.98%
	50	21.89	847	C <sub>8</sub> H <sub>8</sub> O	496-16-2	2,3-Dihydrobenzofuran	9.04%
Pyrroles (2)							
	51	5.08	794	C <sub>5</sub> H <sub>7</sub> N	96-54-8	N-Methyl pyrrole	0.27%
	52	16.11	853	C <sub>6</sub> H <sub>7</sub> NO	1072-82-8	3-Acetyl-1H-pyrroline	0.81%
Pyrazines (9)							
	53	7.4	900	C <sub>5</sub> H <sub>6</sub> N <sub>2</sub>	109-08-0	2-Methylpyrazine	1.29%
	54	10.34	920	C <sub>6</sub> H <sub>8</sub> N <sub>2</sub>	123-32-0	2,5-Dimethylpyrazine	7.57%
	55	10.72	755	C <sub>6</sub> H <sub>8</sub> N <sub>2</sub>	5910-89-4	2,3-Dimethylpyrazine	0.27%
	56	13.67	839	C <sub>7</sub> H <sub>10</sub> N <sub>2</sub>	13925-03-6	2-ethyl-6-methylpyrazine	0.69%
	57	13.74	898	C <sub>7</sub> H <sub>10</sub> N <sub>2</sub>	13360-64-0	2-Ethyl-5-methylpyrazine	2.60%
	58	16.73	912	C <sub>8</sub> H <sub>12</sub> N <sub>2</sub>	13360-65-1	3-Ethyl-2,5-diMethylpyrazine	2.80%
	59	16.96	776	C <sub>8</sub> H <sub>12</sub> N <sub>2</sub>	13925-07-0	3,5-Dimethyl-2-ethylpyrazine	0.29%
	60	17.04	803	C <sub>8</sub> H <sub>12</sub> N <sub>2</sub>	13925-07-0	3,5-Dimethyl-2-ethylpyrazine	0.52%
	61	17.5	734	C <sub>8</sub> H <sub>10</sub> N <sub>2</sub>	55138-63-1	2-Methyl-5-(2-propenyl)-pyrazine	0.57%

Phenols (2)							
62	18.04	735	C <sub>6</sub> H <sub>6</sub> O <sub>3</sub>	118-71-8	Maltol	2.17%	
63	25.19	807	C <sub>9</sub> H <sub>10</sub> O <sub>2</sub>	7786-61-0	2-Methoxy-4-vinyl-phenol	5.18%	
Others (1)							
64	25.37	764	C <sub>7</sub> H <sub>7</sub> NO	103-70-8	N-phenyl-formamide	2.94%	

<sup>a</sup> SI: positive correlation score.