

## Supplementary Information

### GC-MS based identification and statistical analysis of liposoluble components in rhizosphere soils of *Panax notoginseng*

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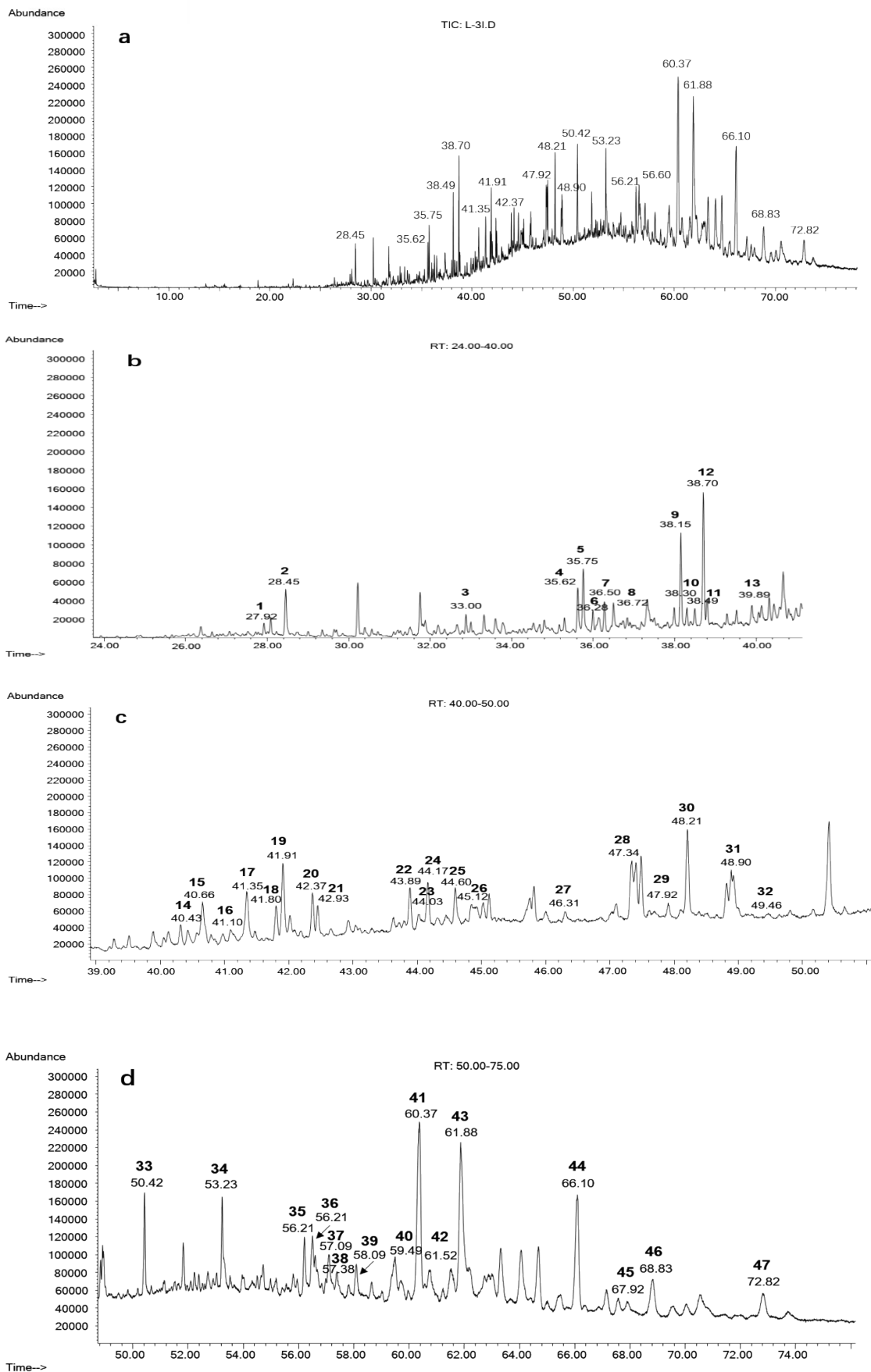
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1. **Figure S1.** GC-MS total ion chromatograms (TIC) of the soil sample L-3I.
2. **Table S1.** Relative peak area percentage of total (%) for 47 identified compounds in the soil samples.
3. **Table S2.** The sources of identified compounds in the collected soils of *P. notoginseng*
4. **Table S3.** Contribution of variances identified in the cultivated and uncultivated soils.
5. **Table S4** Compounds responsible for separation of cultivated and uncultivated soils.

**Figure S1.** GC-MS total ion chromatograms (TIC) of the soil sample L-3I. Plots **b**, **c** and **d** are the magnified version of chromatogram **a** in 24-40 (**b**), 40-50 (**c**) and 50-75 (**d**) min.



**Table S1.** Relative peak area percentage of total (%) for 47 identified compounds in the soil samples.<sup>a</sup>

Peaks	A-3H	A-3I	A-M	L-3H	L-3I	L-M	W-1-3H	W-1-3I	W-1-M	W-2-3H	W-2-3I	W-2-M	W-3-3H	W-3-3I	W-3-M
1	-	0.074	0.069	-	0.183	0.024	0.135	-	0.061	-	-	-	0.050	0.137	-
2	0.075	0.152	0.424	0.281	0.417	0.059	0.342	0.078	0.149	0.067	0.063	0.121	0.117	0.260	0.160
3	0.064	0.056	0.079	0.071	0.137	-	-	0.073	0.063	-	-	0.090	0.047	0.102	0.083
4	0.177	0.103	0.082	0.230	0.361	0.085	0.607	0.202	0.132	0.312	0.261	0.119	0.202	-	0.071
5	0.321	0.248	0.412	0.295	0.572	0.079	0.554	0.336	0.300	0.390	0.344	0.266	0.198	0.414	0.202
6	0.147	0.092	0.169	0.119	0.229	0.031	0.118	-	0.235	0.068	0.052	0.180	0.065	0.233	0.457
7	-	0.094	0.135	0.190	0.339	0.050	0.309	-	0.126	0.125	-	-	0.111	0.104	0.193
8	0.110	0.069	0.114	0.178	0.177	0.037	0.114	0.124	0.126	0.097	0.136	-	0.047	-	0.086
9	0.263	0.290	1.573	0.251	0.677	0.103	0.224	-	0.313	0.140	-	0.335	0.110	0.297	0.562
10	-	-	0.066	0.226	0.137	0.051	-	0.102	0.204	0.109	-	-	0.051	-	0.114
11	0.234	0.083	0.114	0.214	0.131	0.129	-	-	0.436	0.138	0.134	0.176	0.277	0.101	0.166
12	1.034	0.860	1.300	1.478	1.225	0.299	0.690	1.085	0.205	1.044	1.366	1.028	0.523	0.817	0.859
13	0.223	0.185	0.265	0.349	0.229	0.144	0.156	-	0.346	0.135	0.270	-	0.127	0.119	0.466
14	0.142	0.092	0.244	0.145	0.208	0.059	0.123	0.119	0.180	0.082	-	0.137	0.087	-	0.226
15	0.358	0.536	0.557	-	0.729	0.127	0.301	-	0.564	0.337	-	0.713	0.318	0.228	0.552
16	-	0.227	0.323	0.181	0.239	0.108	0.115	-	0.298	-	-	0.490	-	-	0.366
17	-	0.469	0.999	0.526	0.700	0.368	0.440	-	0.898	-	-	-	0.418	0.296	1.001
18	-	-	-	-	0.320	0.298	0.250	0.537	0.660	0.438	0.611	-	0.367	-	0.469
19	0.640	1.361	1.089	1.474	0.765	0.320	0.555	0.636	0.773	0.652	0.708	0.758	0.555	0.326	0.644
20	0.702	0.932	1.896	0.952	0.424	0.388	0.385	0.953	1.015	0.696	1.189	0.946	0.630	0.369	1.228
21	0.366	0.309	-	0.359	0.258	-	0.120	0.526	0.894	0.390	0.450	0.565	0.335	0.150	0.574
22	-	0.338	2.292	1.281	0.684	0.804	0.504	-	0.383	0.596	-	1.579	0.404	0.351	1.758
23	0.212	-	-	0.068	0.282	0.272	0.234	0.328	-	0.243	1.560	0.209	0.174	-	0.243
24	0.476	0.784	1.385	0.690	0.580	0.397	0.268	0.590	1.274	0.499	0.710	0.797	0.548	0.419	-
25	0.512	0.527	0.846	0.383	0.536	0.734	0.323	-	0.937	0.542	-	0.926	0.454	-	-
26	-	0.998	1.127	0.776	0.671	0.744	0.389	-	0.662	0.803	-	0.702	-	0.607	0.776
27	0.356	0.841	-	-	0.174	0.752	0.287	0.461	1.061	0.375	-	-	0.764	0.395	0.751
28	1.015	-	2.162	1.227	1.258	1.276	1.259	0.976	-	0.780	1.301	2.036	1.596	1.408	-
29	0.418	0.423	0.841	0.481	0.356	1.595	0.187	0.514	0.638	0.473	-	0.712	0.487	0.489	0.545
30	0.675	1.487	4.154	4.433	1.276	1.624	0.752	1.505	1.393	0.731	0.631	2.070	0.992	0.970	1.395
31	-	1.336	1.894	1.575	1.442	1.934	0.760	1.390	1.695	1.127	1.707	-	1.305	1.416	-
32	0.454	0.057	-	0.056	0.189	-	-	0.719	0.611	-	0.073	0.889	-	1.171	-

<b>8</b>	1.177	1.418	1.835	0.785	1.584	-	1.123	-	1.615	1.047	-	1.119	1.377	1.592	1.270
<b>34</b>	1.277	1.482	1.473	1.229	2.152	-	1.398	1.201	1.356	-	1.081	1.312	1.356	1.907	1.299
<b>35</b>	-	1.366	1.280	1.484	1.637	-	1.858	-	1.088	-	-	1.275	1.679	-	-
<b>36</b>	0.510	-	-	-	-	-	-	0.894	-	1.647	-	1.988	1.506	2.119	-
<b>37</b>	1.636	1.334	1.547	1.251	1.943	1.128	1.891	1.264	1.167	1.415	1.217	1.082	1.413	1.280	1.310
<b>38</b>	-	1.186	-	0.960	1.265	-	-	0.782	1.123	0.928	0.695	-	1.365	1.572	-
<b>39</b>	1.108	0.964	1.609	1.138	1.671	-	1.641	1.643	1.185	1.651	1.455	0.892	1.356	1.847	1.015
<b>40</b>	2.872	1.961	1.961	1.655	2.033	1.568	2.379	3.106	1.789	3.110	3.155	2.243	2.846	2.866	1.766
<b>41</b>	6.179	4.112	2.353	2.878	5.410	1.878	5.065	7.134	3.010	6.595	6.754	-	3.993	4.325	-
<b>42</b>	-	1.236	-	1.088	1.596	0.918	2.117	1.625	1.229	-	0.967	-	1.496	-	1.025
<b>43</b>	-	4.316	4.001	3.741	5.689	1.889	-	-	3.545	8.669	8.171	3.543	-	4.240	-
<b>44</b>	2.459	2.250	1.024	2.396	2.974	0.967	4.714	2.881	1.904	3.329	2.668	1.221	2.745	3.680	2.107
<b>45</b>	-	0.827	0.063	0.636	0.719	0.421	1.696	-	1.105	1.407	-	-	0.814	1.112	0.894
<b>46</b>	1.543	1.468	0.803	0.678	1.442	0.686	-	1.523	1.215	1.382	1.644	0.601	1.275	1.497	-
<b>47</b>	0.938	0.940	0.705	0.643	1.220	0.182	1.580	1.058	0.330	1.279	1.068	-	0.990	1.260	-

<sup>a</sup> The data of each compound were the average of three parallel samples and normalized by peak area normalization method. A, L and W: the sites of sample collections (A: A-San-Long; L: Lao-Mu-Shao; W: Wenshan). And the three samples collected in Wenshan county were numbered as W-1, W-2 and W-3, respectively. M: mock group, used as blank control. I and L: the growing status of 3-year-old *P. notoginseng* (I: Ill, H: Healthy). -: without detection.

**Table S2.** The sources of identified compounds in the collected soils of *P. notoginseng*

Soil samples	Compounds
A-3H	1-22, 24-27, 29-35, 37-47
A-3I	1-9, 11-17, 19-22, 24-27, 29-35, 37-47
A-M	1-17, 19-20, 22, 24-26, 28-31, 33-35, 37, 39-41, 43-47
L-3H	2-14, 16-17, 19-26, 28-35, 37-47
L-3I	1-47
L-M	1-2, 4-20, 22-31, 37, 40-47
W-1-3H	1-2, 4-9, 12-31, 33-35, 37, 39-42, 44-45, 47
W-1-3I	2-5, 8, 10-12, 14, 18-21, 23-24, 27-32, 34, 36-42, 44, 46-47
W-1-M	2-6, 8-9, 11-15, 19-21, 23-25, 27-30, 32-34, 36-37, 39-41, 44, 46-47
W-2-3H	2, 4-15, 18-31, 33, 36-41, 43-47
W-2-3I	2-6, 8, 11-13, 18-21, 23-24, 28, 30-32, 34, 37-44, 46-47
W-2-M	2-6, 9, 11-12, 14-16, 19-26, 28-30, 32-37, 39, 40, 43, 44-46
W-3-3H	1-15, 17-25, 27-31, 33-42, 44-47
W-3-3I	1-3, 5-7, 9, 12-13, 15, 17, 19-20, 22, 24, 26-34, 36-41, 43-47
W-3-M	2-23, 26-27, 29, 30, 33-34, 37, 39-40, 42, 44-45

**Table S3.** Contribution of variances identified in the cultivated and uncultivated soils.

Var ID <sup>a</sup>	PC 1	PC 2	Var ID	PC 1	PC 2	Var ID	PC 1	PC 2
<b>1</b>	0.037	0.267	<b>17</b>	0.245	0.076	<b>33</b>	0.174	0.148
<b>2</b>	0.168	0.259	<b>18</b>	-0.096	-0.027	<b>34</b>	0.085	0.208
<b>3</b>	0.144	0.101	<b>19</b>	0.146	0.053	<b>35</b>	0.137	0.170
<b>4</b>	-0.092	0.227	<b>20</b>	0.151	-0.062	<b>36</b>	-0.108	-0.053
<b>5</b>	-0.019	0.312	<b>21</b>	0.004	-0.088	<b>37</b>	0.010	0.288
<b>6</b>	0.180	0.041	<b>22</b>	0.252	-0.037	<b>38</b>	-0.079	0.111
<b>7</b>	0.113	0.267	<b>23</b>	-0.158	-0.019	<b>39</b>	-0.069	0.264
<b>8</b>	0.031	0.181	<b>24</b>	0.122	-0.013	<b>40</b>	-0.250	0.049
<b>9</b>	0.233	0.093	<b>25</b>	0.162	-0.081	<b>41</b>	-0.230	0.152
<b>10</b>	0.120	0.031	<b>26</b>	0.225	-0.005	<b>42</b>	-0.035	0.129
<b>11</b>	0.086	-0.102	<b>27</b>	0.001	-0.115	<b>43</b>	-0.028	0.047
<b>12</b>	0.007	0.118	<b>28</b>	-0.001	0.030	<b>44</b>	-0.171	0.243
<b>13</b>	0.154	0.030	<b>29</b>	0.106	-0.221	<b>45</b>	-0.009	0.150
<b>14</b>	0.243	0.076	<b>30</b>	0.205	-0.017	<b>46</b>	-0.157	0.018
<b>15</b>	0.195	0.056	<b>31</b>	-0.012	0.031	<b>47</b>	-0.176	0.259
<b>16</b>	0.258	-0.045	<b>32</b>	-0.048	-0.043			

<sup>a</sup> Var IDs correspond to those in **Table 2**.

**Table S4** Compounds responsible for separation of cultivated and uncultivated soils.

No. <sup>a</sup>	Name	VIP	RT (min)	Type
1	10-Methylnonadecane	1.07	27.920	alkane
3	Cyclopentadecane	1.36	32.995	alkane
4	Neophytadiene	1.50	35.618	alkene
11	<i>E</i> -11-Hexadecenoic acid, ethyl ester	1.35	38.487	ester
16	Octadecanoic acid, methyl ester	1.29	41.104	ester
22	Cycloeicosane	1.13	43.888	alkane
23	Tetradecanal	1.00	44.032	aldehyde
25	2-Propenoic acid, 3-(4-methoxyphenyl)-, 2-ethylhexyl ester	1.17	44.598	ester
29	Docosanoic acid, methyl ester	1.10	47.916	ester
31	Docosanoic acid, ethyl ester	1.01	48.904	ester
32	Tricosanoic acid, methyl ester	1.19	49.457	ester
34	Nonacosane	1.24	53.231	alkane
38	D- $\alpha$ -Tocopherol	1.32	57.382	benzene derivative
39	(3 $\beta$ ,22 <i>E</i> ,24 <i>S</i> )-Ergosta-5,22-dien-3-ol	1.02	58.093	steroid
40	(3 $\beta$ ,24 <i>R</i> )-Ergost-5-en-3-ol	1.06	59.487	steroid
41	Stigmasta-5,22-dien-3-ol	1.28	60.374	steroid
44	Stigmast-4-en-3-one	1.32	66.095	steroid
45	(3 $\alpha$ )- <i>D</i> : <i>A</i> -Friedooleanan-3-ol	1.05	67.917	terpenoid
46	Friedelin	1.50	68.830	terpenoid
47	(5 $\alpha$ )-Stigmastane-3,6-dione	1.36	72.816	steroid

<sup>a</sup> Compounds No. correspond to those in **Table 2**.