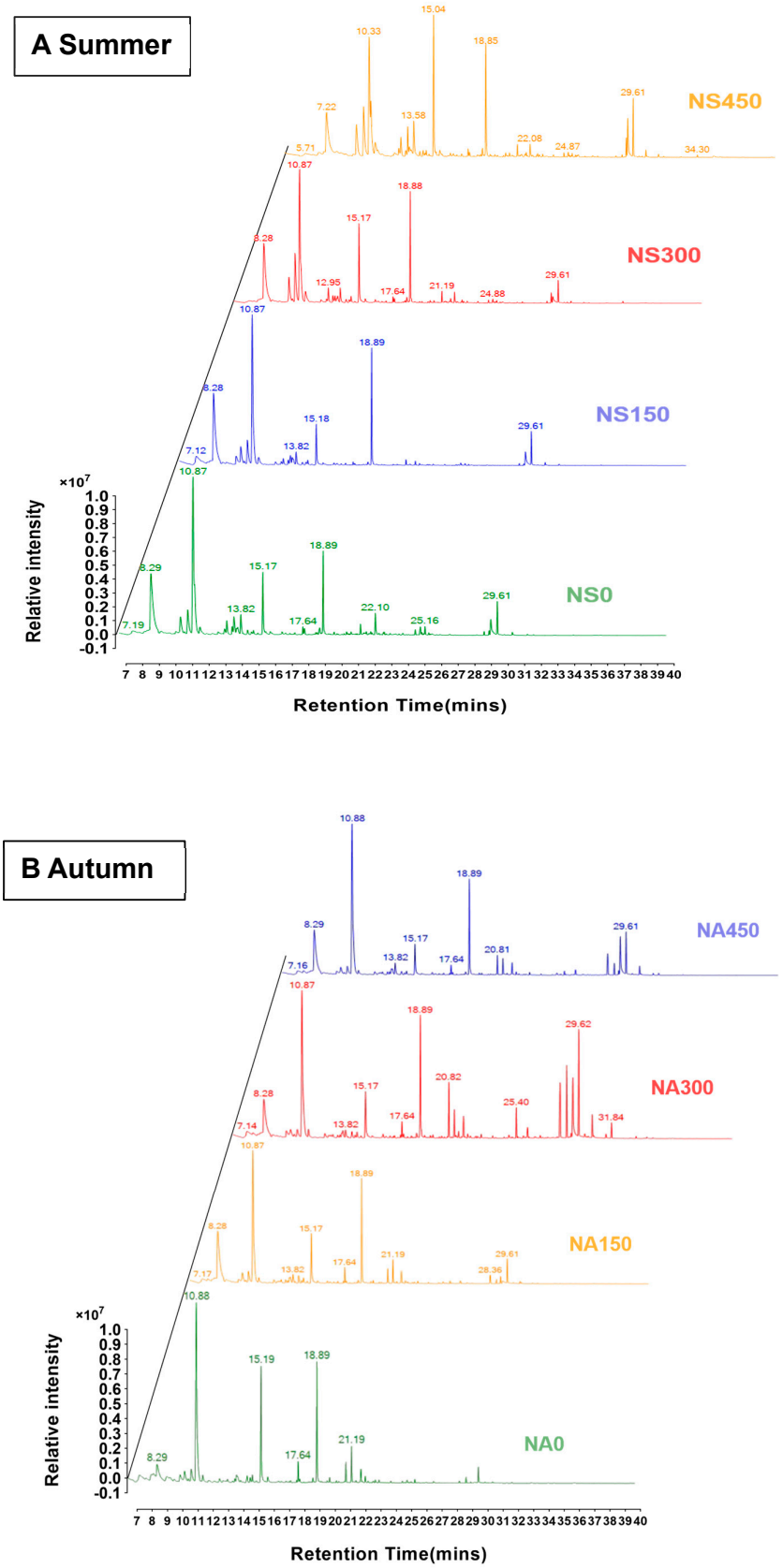


Figure S1. The GC-MS base peak chromatogram of volatile substances. The relative intensity is converted using the peak area normalization method.

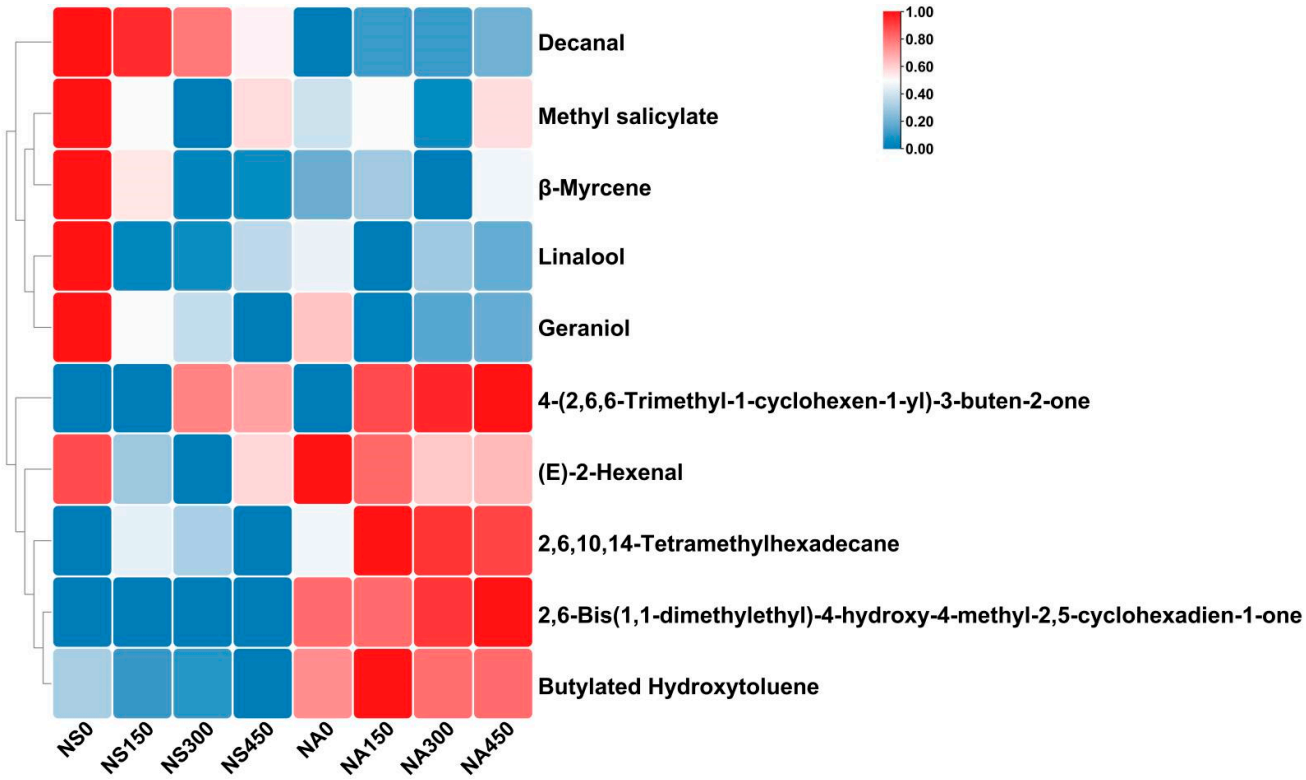


Figure S2. Heat map of the top 10 volatile organic compounds in fresh Jin Xuan leaves.

Table S1. The content of identified volatile compounds.

Compound name	Aroma description	CAS	RI[a]/RI[b]	Identification[c]	Mean content ± Standard deviation							
					NS0	NS150	NS300	NS450	NA0	NA150	NA300	NA450
Alcohols												
Linalool	floral, sweet	00007 8-70-6	1102/1104	MS, RI	963.54± 281.71	405.40± 56.64	416.42± 169.01	541.30± 62.17	591.05± 95.62	391.28± 337.03	510.89± 56.03	461.74± 401.83
(E)-2,6-Dimethylocta-3,7-diene-2,6-diol	woody	05127 6-34-7	1191/1191	MS, RI	72.96±9.49	44.23±7.58	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
(Z)-2,6-Octadien-1-ol, 3,7-dimethyl-	fresh, citrus, floral, green, lemon-like	00010 6-25-2	1229/1229	MS, RI	16.70±8.94	11.12±2.91	6.87±2.88	0.00±0.00	9.40±3.81	39.04±53.82	6.65±1.87	9.02±2.82
Geraniol	Rose-like, sweet, honey-like	00010 6-24-1	1256/1267	MS, RI	277.19± 171.13	154.02± 91.15	134.66± 49.60	87.36±14.04	181.10± 76.97	88.99±70.15	105.25± 29.77	108.36± 13.61
τ-Muurolol		01991 2-62-0	1646/1640	MS, RI	25.56±2.86	7.91±1.03	9.35±2.14	6.86±0.50	8.59±2.95	0.00±0.00	0.00±0.00	0.00±0.00
α-Cadinol	woody, herb-like, flowery	00048 1-34-5	1659/1650	MS, RI	19.70±2.23	4.53±1.25	5.29±1.23	4.80±0.17	3.37±0.65	7.22±9.78	1.41±0.30	2.45±0.63
(3R,6S)-2,2,6-Trimethyl-6-vinyltetrahydro-2H-pyran-3-ol	woody	03902 8-58-5	1175/1183	MS, RI	0.00±0.00	42.20±7.17	29.67±15.36	22.64±4.20	13.91±1.89	0.00±0.00	0.00±0.00	0.00±0.00
Cedrol	Woody	00007	1607/1607	MS, RI	0.00±0.0	1.34±0.1	0.00±0.0	0.00±0.0	1.20±0.3	0.00±0.0	1.60±0.7	0.00±0.0

		7-53-2			0	7	0	0	8	0	8	0
α,2,6,6-Tetramethyl-1-cyclohexene-1-propanol	woody,flowery，camphoric	00329 3-47-8	1448/1449	MS, RI	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	3.00±0.85	2.30±0.28	2.46±0.78	2.45±0.26
(E)-1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl-	floral, green, citrus, woody, waxy	04071 6-66-3	1565/1565	MS, RI	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	8.44±4.63	0.00±0.00	0.00±0.00	7.96±1.70
Aldehydes												
(E)-2-Hexenal	green, fresh, fruity	00672 8-26-3	862/855	MS, RI	1741.48 ±474.66	1153.67 ±437.81	945.79± 126.67	1416.79 ±87.87	1885.15 ±1031.74	1669.86 ±376.03	1450.49 ±288.94	1481.29 ±459.85
4-Ethylbenzaldehyde	bitter-like, sweet	00474 8-78-1	1165/1206	MS, RI	6.12±0.24	3.96±1.54	0.00±0.00	0.00±0.00	6.74±0.44	0.00±0.00	0.00±0.00	0.00±0.00
Decanal	citrus, fatty, green	00011 2-31-2	1206/1200	MS, RI	79.97±18.02	73.64±20.11	57.24±23.01	36.92±9.79	15.67±0.36	18.98±12.24	18.94±5.14	22.02±8.66
3-Ethylbenzaldehyde	fruity, sweet, cherry	03424 6-54-3	1165/1168	MS, RI	0.00±0.00	0.00±0.00	0.00±0.00	2.81±0.46	0.00±0.00	0.00±0.00	8.29±1.77	10.16±0.48
2,6,6-Trimethyl-1-cyclohexene-1-carboxaldehyde	herbal, clean, rose-like, fruity	00043 2-25-7	1222/1214	MS, RI	0.00±0.00	0.00±0.00	11.50±3.40	0.00±0.00	17.28±3.54	0.00±0.00	15.49±3.15	9.39±2.70
Ketones												
Precocene I		01759 8-02-6	1465/1471	MS, RI	9.88±0.75	5.87±0.83	4.60±1.57	3.29±1.34	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00

trans-β-Ionone	violet	00007 9-77-6	1488/1490	MS, RI	28.38±1. 16	13.80±2. 98	0.00±0.0 0	0.00±0.0 0	37.72±5. 10	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0
2-Pentadecanone, 6,10,14-trimethyl-	jasmine-like, oily, herbal	00050 2-69-2	1839/1847	MS, RI	17.86±1 2.71	23.57±3. 81	14.63±3. 92	7.22±3.7 6	7.14±8.5 0	9.51±4.0 0	8.85±3.8 4	9.88±3.3 4
4-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-3-buten-2-one	floral, violet, fruity,woody	01490 1-07-6	1488/1488	MS, RI	0.00±0.0 0	0.00±0.0 0	19.57±2. 80	14.77±3. 63	0.00±0.0 0	31.86±1. 92	42.76±6. 85	50.31±1 5.74
(E)-5,9-Undecadien-2-one, 6,10-dimethyl-	magnolia, green	00379 6-70-1	1454/1458	MS, RI	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	2.59±0.0 9	0.00±0.0 0	3.67±0.2 5	0.00±0.0 0	0.00±0.0 0
(R)-5,6,7,7a-Tetrahydro-4,4,7a-trimethyl-2(4H)-benzofuranone	musky or coumarin-like	01709 2-92-1	1534/1525	MS, RI	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	3.90±0.4 1	4.54±0.6 3	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0
7,9-Di-tert-butyl-1-oxaspiro(4,5)deca-6,9-diene-2,8-dione		08230 4-66-3	1921/1929	MS, RI	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	1.62±0.0 5	1.47±0.2 7	3.89±2.9 1	3.75±2.5 5	2.52±0.0 4
α-Ionone	floral, violet-like, powdery, berry-like	00012 7-41-3	1430/1427	MS, RI	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	7.69±2.3 4	3.22±0.2 9	6.05±1.5 0	7.21±3.4 7

2,6-Bis(1,1-dimethylethyl)-2,5-cyclohexadiene-1,4-dione		000719-22-2	1469/1472	MS, RI	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	2.94±0.50	2.00±0.70	2.44±0.75	2.92±0.68
2,6-Bis(1,1-dimethylethyl)-4-hydroxy-4-methyl-2,5-cyclohexadien-1-one		1000401-12-0	1473/1470	MS, RI	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	37.68±8.47	37.75±7.90	61.53±26.36	85.15±45.33
Hydrocarbon												
2,6,10-Trimethyltridecane		003891-99-4	1461/1461	MS, RI	2.80±0.30	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	1.84±0.04	1.99±0.26	1.61±0.31
2,6,10,14-Tetramethylpentadecane		001921-70-6	1704/1704	MS, RI	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	9.01±5.71	22.52±25.89	13.55±6.12	15.34±1.13
2,6,10,14-Tetramethylhexadecane		000638-36-8	1798/1811	MS, RI	0.00±0.00	6.51±5.97	3.20±2.44	0.00±0.00	7.48±1.91	88.08±104.36	64.75±40.50	55.41±38.63
Alkene												
β-Myrcene	sweet orange-like	000123-35-3	938/955	MS, RI	34.09±13.28	22.84±4.42	14.27±2.24	14.59±3.90	16.41±8.65	18.20±6.25	13.81±5.30	21.26±3.81
β-Ocimene	sweet floral	013877-91-3	1048/1027	MS, RI	15.83±1.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	7.42±1.10	0.00±0.00
α-Cubebene	herbal waxy	017699-14-8	1352/1354	MS, RI	18.29±3.17	0.00±0.00	9.32±2.76	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Caryophyllene	woody, green, spicy, terpenic	000087-44-5	1423/1417	MS, RI	9.36±0.71	4.15±1.03	0.00±0.00	4.11±1.42	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00

γ-Muurolene	woody	03002 1-74-0	1480/1474	MS, RI	3.71±0.9 1	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	1.48±0.0 6	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0
Bicyclosesquiphellandrene	spicy, pungent, pepper-like	05432 4-03-7	1496/1498	MS, RI	7.30±1.0 0	3.45±0.4 1	3.50±0.9 4	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0
α-Muurolene	woody	03198 3-22-9	1503/1517	MS, RI	7.77±1.4 8	2.26±0.4 2	2.94±0.8 3	0.00±0.0 0	2.02±0.5 2	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0
cis-Calamenene		07293 7-55-4	1527/1531	MS, RI	58.31±4. 45	18.74±2. 76	23.49±5. 56	6.65±4.4 9	14.51±1. 80	9.40±1.2 1	8.17±1.7 9	0.00±0.0 0
α-Calacorene	woody	02139 1-99-1	1547/1542	MS, RI	5.39±0.5 2	2.09±0.3 5	2.17±0.4 5	1.64±0.7 3	2.15±0.4 1	1.58±0.2 3	0.00±0.0 0	2.06±0.7 5
(Z)-3,7-Dimethyl-1,3,6-octatriene		00333 8-55-4	1049/1039	MS, RI	0.00±0.0 0	11.98±0. 97	0.00±0.0 0	0.00±0.0 0	5.61±4.3 3	0.00±0.0 0	0.00±0.0 0	22.17±2 3.06
(E,Z)-2,6-Dimethyl-2,4,6-octatriene		00721 6-56-0	1131/1131	MS, RI	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	6.97±1.5 2	8.99±6.3 0	3.41±1.0 4	0.00±0.0 0
Heterocyclic												
[(3as,3bR,4bS,7S,7aS*)]-7-Methyl-4-(propan-2-yl)-octahydro-3-methylene-1H-cyclopenta[1,3]cyclopropa[1,2]benzene		01374 4-15-5	1392/1388	MS, RI	4.39±0.6 6	1.77±0.4 1	2.68±1.0 3	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0
1-Isopropyl-4,7-dimethyldecahydronaphthalene		01672 9-00-3	1477/1481	MS, RI	2.46±0.5 6	0.00±0.0 0	1.82±0.0 8	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0

Esters												
Methyl salicylate	peppermint, minty, fresh, sweet	00011 9-36-8	1197/1187	MS, RI	61.87±4 7.52	23.48±8. 26	8.70±2.6 0	27.39±1 0.59	19.11±6. 62	23.95±1 4.46	9.81±3.5 8	27.14±1 3.37
Dibutyl phthalate		00008 4-74-2	1964/1967	MS, RI	4.22±0.5 3	6.07±0.6 3	3.62±1.0 4	5.42±1.7 9	0.00±0.0 0	4.64±4.0 3	5.69±2.4 7	9.32±5.6 0
2,2,4-Trimethyl-1, 3-pentanediol diisobutyrate		00684 6-50-0	1599/1587	MS, RI	0.00±0.0 0	7.30±1.9 1	0.00±0.0 0	7.69±0.8 3	4.50±0.4 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0
(Z)-3-Hexenyl hexanoate	green, waxy,winey, grassy	03150 1-11-8	1382/1380	MS, RI	6.97±0.6 1	0.00±0.0 0	5.50±0.7 9	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0
Others												
Benzyl nitrile	bitter almond like	00014 0-29-4	1144/1143	MS, RI	12.99±4. 85	0.00±0.0 0	6.39±4.4 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0	0.00±0.0 0
Butylated Hydroxytoluene		00012 8-37-0	1514/1517	MS, RI	11.93±1. 02	7.89±2.8 5	7.79±2.7 7	6.39±1.7 2	27.02±4. 64	43.17±2 0.40	30.55±1 0.24	30.92±1 1.52
1,6-Dimethyl-4-isopropyl-naphthalene		00048 3-78-3	1679/1674	MS, RI	7.40±0.7 8	5.26±0.4 9	4.32±0.8 4	3.83±0.1 3	0.00±0.0 0	2.05±0.3 0	0.00±0.0 0	1.11±0.8 5
2,6-Di-tert-butyl-4 -(1-oxopropyl)phenol		01403 5-34-8	1639/1635	MS, RI	0.00±0.0 0	1.50±0.2 5	1.56±0.1 5	1.61±0.0 8	1.62±0.3 8	0.00±0.0 0	0.00±0.0 0	1.60±0.2 4

[a] Retention index of compounds on HP-5MS.

[b] Retention index of compounds in reference.

[c] "MS" mass spetrum comparison using NIST17 library. "RI" retention index in agreement with literature value. "STD" confirmed by authenic standards.