

附表 1 漆树来源

Appendix table 1 Source of lacquer tree

ID	Sumac species	Latin name	Tree age	Sampling site	Sampling position	Geographical position	Longitude	Latitude	Altitude	Growing environment
1	Gaobachi	<i>Toxicodendron vernicifluum</i> cv. 'gaobachi'	7–8 years	Phloem	Trunk, 1.5 m off the ground	Dawan village, Linhe Town, Langao County, Shaanxi province	109.02°E	32.32°N	721 m	Sunny side of hillside

附表2 不同时期漆树差异代谢物

Appendix table 2 Differentially abundant metabolites of lacquers in different stages

附表 2-1 I VS II

Differential metabolites	Differential metabolite primary classification	Differential metabolite secondary classification	Tv-CK3-1 (I)	Tv-CK3-2 (I)	Tv-CK3-3 (I)	Tv-CK5-1 (II)	Tv-CK5-2 (II)	Tv-CK5-3 (II)	VIP	FC	Change trend
Isocitric Acid	Organic acid	Organic acid	12121	16831	16945	375960	400220	303980	1.16276	23.5344358	up
Citric Acid	Organic acid	Organic acid	177500	272530	244660	3721100	3690000	4477300	1.16662	17.11324476	up
Quinic Acid	Organic acid	Organic acid	7204.2	10424	6003.1	167540	127260	101200	1.13601	16.75743611	up
N-Acetyl-D-mannosamine	Other categories	Sugars and alcohols	365980	364990	391910	2295400	2550700	2534600	1.17133	6.573008692	up
L-Ornithine	Amino acids and their derivatives	Amino acids and their derivatives	37081	36706	40617	238390	235520	274260	1.16826	6.539718891	up
L-Asparagine	Amino acids and their derivatives	Amino acids and their derivatives	749970	761750	836510	4768400	4826600	5082400	1.17295	6.250409883	up
Nicotianamine	Amino acids and their derivatives	Amino acids and their derivatives	178250	236570	193230	1215700	1231700	1327400	1.17205	6.208042102	up
L-Glutamic acid-O-glycoside	Amino acids and their derivatives	Amino acids and their derivatives	9	2246.7	9	5364.6	3622.1	5029.2	1.06924	6.188855036	up
N-Acetyl-D-galactosamine	Other categories	Sugars and alcohols	190580	160350	207980	1063100	1135100	1113300	1.17215	5.924925301	up
Argininosuccinic acid	Organic acid	Organic acid	26658	32477	24560	155920	154640	179850	1.16834	5.859489814	up
L-Tyramine	Amino acids and their derivatives	Amino acids and their derivatives	14094	14468	21015	93639	74865	115970	1.13004	5.73802368	up

D-Mannose*	Other categories	Sugars and alcohols	642440	649010	627310	3244200	3410700	3715000	1.17044	5.404479977	up
D-Glucuronic acid*	Other categories	Sugars and alcohols	537870	465550	547830	2458600	2663700	3256300	1.1571	5.401192587	up
D-Sedoheptuose 7-phosphate	Other categories	Sugars and alcohols	18629	29969	19112	119670	104780	129240	1.16062	5.22360065	up
D-Galacturonic acid*	Organic acid	Organic acid	470450	500050	465440	2373300	2319600	2636300	1.16973	5.104112985	up
D-Galactose*	Other categories	Sugars and alcohols	545580	503710	483700	2568100	2501500	2730800	1.17163	5.088356741	up
3-Hydroxy-3-methylpentane-1,5-dioic acid	Amino acids and their derivatives	Amino acids and their derivatives	257760	218240	257420	1236400	1127100	1322000	1.16641	5.025087944	up
L-threo-3-Methylaspartate	Amino acids and their derivatives	Amino acids and their derivatives	195800	164990	187360	950270	744410	1047500	1.14146	5.002608775	up
D-Glucose*	Other categories	Sugars and alcohols	807750	711490	897250	3868600	4389900	3789200	1.16667	4.985619638	up
L-Glutamic acid	Amino acids and their derivatives	Amino acids and their derivatives	236970	241450	252030	1170700	1146600	1208800	1.17306	4.827298241	up
3-Ureidopropionic Acid	Organic acid	Organic acid	3755.6	5985.9	4988.4	26674	19165	24859	1.13705	4.799625252	up
LysoPC 18:1	Lipid	Lysophosphatidylcholine	5407.8	5587.9	4246.9	19945	30980	21023	1.10133	4.720192093	up
D-Sorbitol	Other categories	Sugars and alcohols	27698	24422	18206	110680	98789	117650	1.16228	4.65146603	up
D-Arabinose	Other categories	Sugars and alcohols	58361	53892	51712	217160	251890	244990	1.16729	4.354831824	up
N-Acetyl-L-glutamic acid	Amino acids and their derivatives	Amino acids and their derivatives	16312	21134	20336	78289	77468	95458	1.16125	4.347634211	up

D-Pinitol	Other categories	Sugars and alcohols	6284.2	8517.1	6429	32339	28351	29888	1.16541	4.266449367	up
D-Fructose*	Other categories	Sugars and alcohols	822710	1016100	961580	3575700	3894500	3584400	1.16998	3.947521595	up
Epicatechin	Flavone	Flavanols	141900	169170	201130	672860	620580	671800	1.16765	3.836860601	up
D-Saccharic acid*	Other categories	Sugars and alcohols	1409200	1341100	1225600	5512600	3412400	5809600	1.08361	3.705978521	up
Asperuloside	Other categories	Other	2774.2	4703.1	2976.7	12159	12968	12897	1.16439	3.637268031	up
D-Galactaric acid*	Other categories	Sugars and alcohols	1196100	1179700	1170600	4716800	3604800	4544700	1.1442	3.627988947	up
Ethyl 9-Hydroxy-10,12-octadecadienoic acid	Lipid	Free fatty acids	32004	31687	24538	90347	120050	92926	1.13417	3.437905904	up
N-Oleylethanolamine	Alkaloid	Alkaloid	293760	286510	233490	832890	1069700	856820	1.14322	3.39093836	up
3-(8Z,11Z)-8,11-Pentadecadienyl-1,2-benzenediol	Phenolic acids	Phenolic acids	11683	11403	7633.9	28566	44192	30586	1.08551	3.364073451	up
Sedoheptulose	Other categories	Sugars and alcohols	421040	421240	373370	1402900	1093600	1583700	1.12908	3.356393699	up
1-Aminocyclopropane-1-carboxylic acid	Organic acid	Organic acid	304140	314360	317970	999990	969470	1088300	1.1692	3.265198031	up
LysoPC 16:1	Lipid	Lysophosphatidylcholine	8721.2	9723.9	8231.8	24474	34895	26819	1.11975	3.230810177	up
N-Methyl-Trans-4-Hydroxy-L-Proline	Amino acids and their derivatives	Amino acids and their derivatives	113370	118270	113160	372400	326660	408630	1.1567	3.212558005	up

L-Aspartic Acid	Amino acids and their derivatives	Amino acids and their derivatives	1976300	2327000	2078100	6664400	6047700	7263300	1.16191	3.130253549	up
D-Glucono-1,5-lactone	Other categories	Sugars and alcohols	13143	7559.8	12103	25247	35532	39124	1.10319	3.045284675	up
Catechin	Flavone	Flavanols	59134	77031	94316	220480	173170	306970	1.07424	3.039816731	up
3-(8,11,14-Heptadecatrienyl)-, (Z,Z,Z)-1,2-benzenediol	Phenolic acids	Phenolic acids	70608	92163	72694	209390	278980	215550	1.12664	2.989488884	up
Glucose-1-phosphate*	Other categories	Sugars and alcohols	19334	30573	38888	81098	95633	78985	1.1326	2.879846838	up
LysoPC 18:2	Lipid	Lysophosphatidylcholine	11224	11617	7644.6	25156	35218	27359	1.11232	2.877850526	up
3-Isopropylmalic Acid	Organic acid	Organic acid	12165	9709.9	8598.6	22843	29674	33578	1.12391	2.825241603	up
N-Methyl-4-aminobutyric acid	Organic acid	Organic acid	2886.1	1921.2	2649.7	5764.8	5291.7	9185.2	1.05031	2.714456216	up
Cycloleucine*	Amino acids and their derivatives	Amino acids and their derivatives	2740700	2656800	3054700	7860000	7523200	7088600	1.16954	2.658692411	up
2-Isopropylmalic Acid	Organic acid	Organic acid	6607.3	10405	17743	33742	26825	31752	1.08798	2.656256744	up
Dulcitol*	Other categories	Sugars and alcohols	57018	45569	57934	138250	134380	141170	1.16722	2.577855857	up
L-Homocitrulline	Amino acids and their derivatives	Amino acids and their derivatives	12029	14814	11286	27877	37749	29951	1.11693	2.50667471	up
Fustin	Flavone	DihydroFlavonol	115930	119300	166320	306370	326730	351700	1.15021	2.452496576	up
LysoPC 16:0	Lipid	Lysophosphatidylcholine	16158	17420	17231	33362	51289	37714	1.07194	2.408333169	up
LysoPC 16:0(2n isomer)	Lipid	Lysophosphatidylcholine	18966	17571	14096	34661	48787	38062	1.09962	2.3998183	up

N-benzylformamide	Alkaloid	Alkaloid	1553000	1388500	1461400	3353500	3428500	3709500	1.1677	2.382861296	up
D-Mannitol*	Other categories	Sugars and alcohols	17946	14247	11516	24588	33774	45261	1.05602	2.370747443	up
Monopalmitin	Lipid	Glyceride	4793.6	4985.2	3469	10137	12454	7738.4	1.06465	2.289391446	up
Pipecolic acid*	Amino acids and their derivatives	Amino acids and their derivatives	922670	1021100	988710	2259400	2107100	2343700	1.16679	2.28823385	up
L-Cystine	Amino acids and their derivatives	Amino acids and their derivatives	210270	216430	245150	512700	502780	508640	1.17013	2.268542085	up
LysoPE 18:1	Lipid	Lysophosphatidyl ethanolamine	18543	19184	13730	35610	41225	39172	1.14952	2.2544445459	up
LysoPC 18:3	Lipid	Lysophosphatidylcholine	3164.1	2935.1	2772	6019.1	6832	7036.1	1.16011	2.241771125	up
D-Glucose 6-phosphate*	Other categories	Sugars and alcohols	54507	49238	50089	125280	104450	112290	1.15138	2.223305641	up
2-Hydroxycinnamic acid	Organic acid	Organic acid	79115	84805	68624	168780	158420	179740	1.15986	2.179974542	up
Choline Alfoscerate	Lipid	phosphatidylcholine	66199	67489	66779	143810	142220	147070	1.17311	2.160455337	up
L-Glycyl-L-isoleucine*	Amino acids and their derivatives	Amino acids and their derivatives	1324700	1396100	1523900	2979700	2782700	3249400	1.157	2.123071124	up
3-Hydroxycinnamic Acid	Phenolic acids	Phenolic acids	39507	55375	52631	97987	103080	109320	1.15452	2.104133195	up
Trans-4-Hydroxy-L-proline	Amino acids and their derivatives	Amino acids and their derivatives	1019400	1004700	1016500	2003900	1992400	2387700	1.15248	2.099585608	up
Oleamide (9-Octadecenamide)	Lipid	Free fatty acids	25802	22196	26557	57626	38585	58741	1.04994	2.078358259	up

DL-2-Aminoadipic acid	Alkaloid	Alkaloid	63006	80762	72860	169640	143540	133890	1.12821	2.063768303	up
Oxalic acid	Other categories	Sugars and alcohols	369760	495210	412950	970890	809410	845530	1.13174	2.054768687	up
β -Hydroxyisovaleric acid	Organic acid	Organic acid	24561	21454	33163	44025	55596	61970	1.08248	2.040857309	up
N-Glycyl-L-leucine*	Amino acids and their derivatives	Amino acids and their derivatives	1507100	1619600	1863300	3436800	3150700	3589700	1.15346	2.039519038	up
Trehalose 6-phosphate	Other categories	Sugars and alcohols	7714.2	14336	10981	25750	18368	22229	1.04216	2.008616096	up
5-Aminovaleric acid	Amino acids and their derivatives	Amino acids and their derivatives	22233	32275	26618	13397	13767	12800	1.08438	0.492616424	down
5,7-Dihydroxymenone	Other categories	Other	13619	11381	8616.3	5609.5	5499	5306.6	1.0485	0.488307755	down
5,6,15-Trihydroxy-7,9,11,13-eicosatetraenoic acid	Lipid	Free fatty acids	25693	28641	25955	14056	13018	10746	1.15431	0.471048338	down
Lyoniresinol	Lignan and coumarin	Lignan	31834	36206	28846	18908	14485	12083	1.11367	0.46937638	down
N-Acetyl-L-Glutamine	Amino acids and their derivatives	Amino acids and their derivatives	247980	280240	231420	109210	111050	135550	1.1494	0.468392923	down
N-Acetyl-L-Arginine	Amino acids and their derivatives	Amino acids and their derivatives	32484	49496	46961	13821	15593	30920	1.04985	0.467919436	down

Hypoxanthine	Nucleotides and their derivatives	Nucleotides and their derivatives	71816	57080	59610	31711	29853	25850	1.13601	0.463719988	down
O-Acetylserine	Amino acids and their derivatives	Amino acids and their derivatives	104360	118330	115930	51912	59922	45143	1.15041	0.463578643	down
D(+)-Melezitose O-rhamnoside	Other categories	Sugars and alcohols	28322	20645	22679	10432	11026	11546	1.1059	0.46065377	down
3-(4-Hydroxyphenyl)-propionic acid	Phenolic acids	Phenolic acids	136250	155110	135510	58054	45666	91750	1.12425	0.457914588	down
Syringetin-3-O-(6"-Acetyl)glucoside	Flavone	Flavone	13861	15481	11756	6130	5804	6159.4	1.13324	0.440250134	down
2-O-Salicyl-6-O-Galloyl-D-Glucose	Phenolic acids	Phenolic acids	14614	15419	17195	8560.1	6085.2	6027.8	1.14271	0.437729737	down
L-Prolyl-L-Leucine	Amino acids and their derivatives	Amino acids and their derivatives	1017000	1108700	1039700	490600	410860	461840	1.16643	0.430688065	down
Amentoflavone	Flavone	BiFlavone	5257.2	3475.5	4882.7	2468.5	1378.3	1819.7	1.07887	0.416183146	down
2,6-Dimethoxybenzaldehyde	Phenolic acids	Phenolic acids	92754	108290	126300	37164	41587	56776	1.11502	0.414020113	down
Verbascose	Other categories	Sugars and alcohols	77717	68277	82330	25423	38460	30272	1.13808	0.41237452	down
Guanine	Nucleotides and their derivatives	Nucleotides and their derivatives	123770	119540	123620	51653	48645	50861	1.17294	0.411955959	down
Stachyose	Other categories	Sugars and alcohols	244860	218840	234960	96577	102750	86676	1.16623	0.409359345	down

Phloretin-4'-O-glucoside (Trilobatin)	Flavone	Chalcone	18952	18332	14336	5589.8	10252	5099.8	1.07602	0.405687718	down
Cytidine	Nucleotides and their derivatives	Nucleotides and their derivatives	125120	111700	125140	52847	42888	50814	1.16254	0.404876229	down
Glutaric acid	Organic acid	Organic acid	121840	126480	136110	57339	44738	53524	1.1622	0.404757693	down
Eudesmic acid (3,4,5-trimethoxybenzoic acid)	Phenolic acids	Phenolic acids	135160	131490	152860	72209	46826	49347	1.14548	0.401377798	down
1,4-Dihydro-1-Methyl-4-oxo-3-pyridinecarboxamide	Alkaloid	Alkaloid	38722	38348	34100	20544	9108.2	14759	1.11924	0.399489071	down
Hesperetin-7-O-(6"-malonyl)glucoside	Flavone	DihydroFlavonol	56744	100730	78588	37205	25644	30076	1.03471	0.393646584	down
4,7,9,9'-Tetrahydroxy-3,3'-dimethoxy-8-O-4'-neolignan	Other categories	Other	4860000	4477200	4911900	1996300	1811300	1777600	1.16911	0.391968616	down
Riboflavin (Vitamin B2)	Other categories	Vitamin	133470	154000	141600	57493	58989	50272	1.16048	0.388640548	down
Isoferulic Acid*	Phenolic acids	Phenolic acids	41743	45051	60677	24624	14836	17751	1.08201	0.387947461	down
D-Maltotetraose	Other categories	Sugars and alcohols	481250	459910	452920	160220	186950	188290	1.16943	0.384095604	down
2-Picolinic acid	Organic acid	Organic acid	35842	22613	29652	11885	13577	8016.9	1.09053	0.379980024	down
4-Hydroxybenzaldehyde	Phenolic acids	Phenolic acids	68298	69768	63682	26276	29815	19784	1.15944	0.376087991	down

L-Cyclopentylglycine	Amino acids and their derivatives	Amino acids and their derivatives	249400	240810	248080	107930	94096	74185	1.16849	0.374122635	down
2-Hydroxyisocaproic acid	Organic acid	Organic acid	379320	360340	374040	135740	129530	150830	1.17106	0.373619467	down
Cupressuflavone	Flavone	BiFlavone	6709.8	5828.7	8072.8	2289.1	2064.7	3193.8	1.11274	0.36618748	down
LysoPE 15:0	Lipid	Lysophosphatidyl ethanolamine	11813	9573.8	8545.8	3921.5	3872.1	2602.6	1.12311	0.347320313	down
L-Prolyl-L-Phenylalanine	Amino acids and their derivatives	Amino acids and their derivatives	209180	207790	211410	86855	59124	68245	1.16709	0.340914733	down
2-Hydroxy-3-phenylpropanoic acid	Organic acid	Organic acid	52553	88594	72546	23551	26505	21948	1.0778	0.336950672	down
Coniferyl alcohol	Phenolic acids	Phenolic acids	46532	28126	54913	21972	11264	9674.5	1.04166	0.331173642	down
Ailanindole	Alkaloid	Alkaloid	133060	116710	115390	42767	33946	39524	1.16142	0.318317998	down
Betaine	Alkaloid	Alkaloid	2653100	2544200	2580700	799170	743290	799880	1.17302	0.301149396	down
Ribosyladenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	13318	14627	16191	5346.5	4131.8	3505.2	1.15497	0.294170292	down
Eriodictyol-7-O-(6"-malonyl)glucoside	Flavone	DihydroFlavone	10182	13270	12117	4513.7	9	5922.3	1.07841	0.293654587	down
L-Cystathionine	Amino acids and their derivatives	Amino acids and their derivatives	163560	145940	137930	41845	36681	46109	1.16082	0.27855754	down
Hinokiflavone	Flavone	BiFlavone	4277.1	6075.7	4384.1	984.71	882.5	2202.4	1.11844	0.276151022	down
δ-Tridecalactone	Lipid	Glyceride	24369	24796	18480	9297.2	9126.4	9	1.08977	0.272490206	down
Gluconic acid	Other categories	Sugars and alcohols	2031600	2324700	2235700	572500	460390	641550	1.1668	0.254010922	down

Thymine	Nucleotides and their derivatives	Nucleotides and their derivatives	58532	49402	50140	10763	14345	15007	1.15826	0.253773549	down
Abscisic acid	Organic acid	Organic acid	9409.3	11817	15261	2510.6	3018.4	3544.9	1.09857	0.248686529	down
N-Acetyl-L-leucine	Amino acids and their derivatives	Amino acids and their derivatives	63731	68787	70787	17145	15901	14372	1.16967	0.233235779	down
p-Hydroxyphenyl acetic acid	Phenolic acids	Phenolic acids	218500	292930	357120	74422	58936	65361	1.10536	0.228793967	down
5'-Deoxy-5'-(methylthio)adenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	47335	43037	50240	12658	8574.6	10230	1.1653	0.223754729	down
4-Methoxyphenylpropionic acid	Phenolic acids	Phenolic acids	9243	5620	10789	5615.2	9	9	1.01712	0.219600811	down
2-Hydroxybutyric Acid*	Organic acid	Organic acid	62230	62743	70916	12979	12719	13039	1.16729	0.197749746	down
2-Hydroxyisobutyric acid*	Organic acid	Organic acid	87048	91915	84059	15325	14914	18708	1.17169	0.186094699	down
4-Acetamidobutyric acid	Organic acid	Organic acid	1773000	1701700	1824800	323380	296070	313730	1.17265	0.17608831	down
D-Proline betaine	Amino acids and their derivatives	Amino acids and their derivatives	630510	683260	719620	97694	120040	128540	1.16866	0.170293943	down
Guanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	25332	20725	30827	6962.5	9	5515	1.11565	0.162407003	down

1-Methylpiperidine-2-carboxylic acid	Amino acids and their derivatives	Amino acids and their derivatives	1378100	1371300	1346800	220280	195310	204420	1.17373	0.151362238	down
Tyrosol	Phenolic acids	Phenolic acids	52203	55147	49659	7724.9	7283.2	7522.7	1.17123	0.143500054	down
2-(Dimethylamino)guanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	63343	74197	76083	7101.1	7971.6	6089.4	1.16486	0.099062835	down
2-Furoic acid	Organic acid	Organic acid	754390	903060	795100	53869	45335	77547	1.16704	0.072068255	down
Xanthine	Nucleotides and their derivatives	Nucleotides and their derivatives	288590	273030	278680	18862	21326	19765	1.1731	0.071347138	down
2'-O-Methyladenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	116820	116370	115780	7348.5	8078	7262.2	1.17383	0.065016191	down
Adenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	642650	707460	729410	41754	43491	48713	1.17034	0.06441775	down
L-Lysine-Butanoic Acid	Amino acids and their derivatives	Amino acids and their derivatives	430080	405640	285750	19230	17086	28301	1.13827	0.057618126	down
Xanthosine	Nucleotides and their derivatives	Nucleotides and their derivatives	7726.6	7958.8	10170	1417.3	9	9	1.14864	0.055512582	down
(-)-Jasmonoyl-L-Isoleucine	Organic acid	Organic acid	259140	257370	290300	15813	12848	14737	1.16991	0.053789616	down
4-Guanidinobutyric acid	Organic acid	Organic acid	192730	215570	201690	13121	9345.5	9192.2	1.1712	0.051900359	down
Prunetin (5,4'-Dihydroxy-7-methoxyisoflavone)	Flavone	IsoFlavone	98765	96924	108070	5258.2	4941.7	4644	1.17107	0.048867359	down

4',6-Dihydroxy-5,7-dimethoxyflavanone	Flavone	DihydroFlavone	242360	239770	231730	10843	10577	9112.1	1.17344	0.042770431	down
2'-Deoxyguanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	98318	98276	106440	4604	4695.3	3556.2	1.17229	0.042422632	down
6,7,8-Tetrahydroxy-5-methoxyflavone	Flavone	Flavone	5948700	5995200	6429900	227260	215680	186720	1.17239	0.034269449	down
Dihydroxy-dimethoxyflavone	Flavone	Flavone	14533000	14696000	14097000	534690	475790	449920	1.17352	0.033707243	down
Genkwanin (Apigenin 7-methyl ether)	Flavone	Flavone	20188	16465	24196	2009.5	9	9	1.14668	0.033320186	down
3',4'-Dihydroxy-7,5'-dimethoxyflavone	Flavone	Flavone	8865600	9646500	9051200	322300	294310	296640	1.17241	0.033132825	down
Hispidulin (5,7,4'-Trihydroxy-6-methoxyflavone)*	Flavone	Flavone	5726100	5975100	6138000	210730	200140	178450	1.17292	0.033035114	down
Cirsimaritin (4',5-dihydroxy-6,7-dimethoxyflavone)	Flavone	Flavone	360380	364310	334440	12289	11413	11187	1.17212	0.032941188	down
Chrysoeriol*	Flavone	Flavone	5945300	6584900	6252000	228790	196420	186260	1.17195	0.032555824	down
Diosmetin (5,7,3'-Trihydroxy-4'-methoxyflavone)*	Flavone	Flavone	5076200	5352400	5520700	169360	176260	168190	1.17249	0.032215207	down
Rhamnocitrin (7-Methylkaempferol)*	Flavone	Flavone	5801300	6094300	6381800	208480	195130	180520	1.17205	0.031959141	down

Pratensein	Flavone	IsoFlavone	5567200	5663500	5842700	189980	188980	166090	1.17342	0.031923928	down
Aracarpene 2	Flavone	IsoFlavone	4701800	4938800	5336400	179370	148710	145050	1.17048	0.031590439	down
Aracarpene 1	Flavone	IsoFlavone	4516600	4701700	4142300	156960	138030	109360	1.17051	0.030264359	down
2'-Deoxyadenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	189310	172300	225800	4969	3846.7	5398.7	1.15849	0.02419843	down
4',5,7-Trihydroxy-3',6-dimethoxyflavone (Jaceosidin)	Flavone	Flavone	210410	220390	225170	4450.5	6645.4	3363.7	1.17283	0.022043081	down
Eupatilin (5,7-Dihydroxy-3',4',6-Trimethoxyflavone)*	Flavone	Flavone	316840	325330	298330	7296.2	6583.8	5276.2	1.17231	0.020368102	down
Eupatorin (5,3'-Dihydroxy-6,7,4'-trimethoxyflavone)*	Flavone	Flavone	195490	213940	197670	3728.4	4152.5	4438.9	1.17205	0.020292868	down
7,8-Dihydroxy-5,6,4'-trimethoxyflavone	Flavone	Flavone	319540	330770	301800	6511.5	6242.5	5428.7	1.17221	0.019097268	down
5,7-Dihydroxy-3',4',5'-trimethoxyflavone	Flavone	Flavone	359860	362060	370860	6370.5	7402.2	7093.5	1.17368	0.019094603	down
Cirsilineol (4',5-Dihydroxy-3',6,7-trimethoxyflavone)	Flavone	Flavone	130560	140590	127220	2086.8	2416.5	2698	1.17172	0.018076913	down

7S,8S-DiHODE; (9Z,12Z)- (7S,8S)- Dihydroxyoctadeca-9,12- dienoic acid	Lipid	Free fatty acids	2054.9	1066	1836.1	9	9	9	1.10992	0.005446843	down
Isorhamnetin	Flavone	Flavonol	1987.2	1114.2	2029.8	9	9	9	1.11284	0.005261927	down
Nepetin (5,7,3',4'- Tetrahydroxy-6- methoxyflavone)	Flavone	Flavone	2955.1	6180.2	5818.6	9	9	9	1.0905	0.001805549	down
Wogonin (5,7-Dihydroxy- 8-Methoxyflavone)	Flavone	Flavone	12040	12891	11303	9	9	9	1.17066	0.000745156	down
Rhamnetin	Flavone	Flavonol	12330	12399	11763	9	9	9	1.17335	0.000739888	down
5,6,7,4'- Tetramethoxyflavanone	Flavone	Flavone	10520	15340	14041	9	9	9	1.14905	0.000676675	down
Apigenin	Flavone	Flavone	17181	17812	18949	9	9	9	1.17214	0.000500538	down
Sulfuretin	Flavone	Flavone	16495	15987	21931	9	9	9	1.14977	0.000496205	down
Acacetin	Flavone	Flavone	20724	17003	22278	9	9	9	1.16074	0.000449963	down
3,7-Di-O-methylquercetin	Flavone	Flavonol	22831	22312	25469	9	9	9	1.16987	0.000382371	down
Galangin (3,5,7- Trihydroxyflavone)	Flavone	Flavone	40679	34330	44420	9	9	9	1.16208	0.000226076	down
Jasmonic acid	Organic acid	Organic acid	530920	565970	597280	9	9	9	1.17129	1.5937E-05	down

附表 2-2 I VS III

Differential metabolites	Differential metabolite primary classification	Differential metabolite secondary classification	Tv-CK3-1 (I)	Tv-CK3-2 (I)	Tv-CK3-3 (I)	Tv-CK7-1 (III)	Tv-CK7-2 (III)	Tv-CK7-3 (III)	VIP	FC	Change trend
Choline Alfoscerate	Lipid	Phosphatidylcholine	66199	67489	66779	360180	387340	354200	1.18515	5.49576738	up
3-Hydroxy-3-methylpentane-1,5-dioic acid	Amino acids and their derivatives	Amino acids and their derivatives	257760	218240	257420	1166700	1450400	1319400	1.1754	5.36732023	up
L-Tyramine	Amino acids and their derivatives	Amino acids and their derivatives	14094	14468	21015	87412	79752	95564	1.17995	5.29939286	up
L-Ornithine	Amino acids and their derivatives	Amino acids and their derivatives	37081	36706	40617	196960	192650	199180	1.18685	5.14658578	up
3-Ureidopropionic Acid	Organic acid	Organic acid	3755.6	5985.9	4988.4	27801	25370	21236	1.1715	5.05142601	up
L-Asparagine	Amino acids and their derivatives	Amino acids and their derivatives	749970	761750	836510	3713600	3862700	3639800	1.18611	4.77640606	up
D-Glucuronic acid*	Other categories	Sugars and alcohols	537870	465550	547830	1890700	1962600	1990600	1.18558	3.76721998	up
S-(Methyl)glutathione	Amino acids and their derivatives	Amino acids and their derivatives	5404.9	4482.4	5680.6	28416	13395	14838	1.02174	3.63883375	up
Argininosuccinic acid	Organic acid	Organic acid	26658	32477	24560	81363	111900	100320	1.1558	3.50777227	up

D-Galacturonic acid*	Organic acid	Organic acid	470450	500050	465440	1543500	1504800	1784400	1.17883	3.36553059	up
D-Galactaric acid*	Other categories	Sugars and alcohols	1196100	1179700	1170600	3737200	4267700	3622300	1.17778	3.27859238	up
D-Sedoheptuose 7-phosphate	Other categories	Sugars and alcohols	18629	29969	19112	60890	72712	87689	1.14777	3.2682174	up
N-Oleoylethanolamine	Alkaloid	Alkaloid	293760	286510	233490	767350	768540	1111600	1.14303	3.25340395	up
Ethyl 9-Hydroxy-10,12-octadecadienoic acid	Lipid	Free fatty acids	32004	31687	24538	79851	80632	121230	1.13246	3.1929751	up
D-Saccharic acid*	Other categories	Sugars and alcohols	1409200	1341100	1225600	3265400	3898300	4193900	1.16873	2.85661108	up
Sedoheptulose	Other categories	Sugars and alcohols	421040	421240	373370	1206000	1251200	921750	1.16008	2.77954181	up
3-(8E,11E)-8,11-Pentadecadienyl-1,2-benzenediol	Phenolic acids	Phenolic acids	2281.7	2910.5	2493.3	6400.3	6940.6	7749.8	1.17308	2.74421963	up
Cycloleucine*	Amino acids and their derivatives	Amino acids and their derivatives	2740700	2656800	3054700	8503500	7770100	6848400	1.17341	2.73561913	up
Pipecolic acid*	Amino acids and their derivatives	Amino acids and their derivatives	922670	1021100	988710	2562400	2760400	2692100	1.18399	2.73314737	up

2-Hydroxycinnamic acid	Organic acid	Organic acid	79115	84805	68624	211550	212590	181830	1.17519	2.60582943	up
D-Melezitose	Other categories	Sugars and alcohols	15671	10847	11206	29402	31125	36902	1.15778	2.58267946	up
Urushiol II	Phenolic acids	Phenolic acids	32826	34556	35723	77678	79773	97600	1.16657	2.47370157	up
D-Arabinose	Other categories	Sugars and alcohols	58361	53892	51712	152560	128050	121690	1.1608	2.45357241	up
3-(8,10,12-Heptadecatrienyl)--1,2-benzenediol	Phenolic acids	Phenolic acids	134840	175860	129550	302760	328030	447760	1.12871	2.44985804	up
N-Methyl-4-aminobutyric acid	Organic acid	Organic acid	2886.1	1921.2	2649.7	7461.4	5038.1	5767.4	1.10445	2.44963122	up
Liquiritigenin	Flavone	Dihydroflavone	3135.3	3101.3	3342.9	8283.1	7153.5	7839.7	1.17708	2.42980323	up
3-(8Z,11Z)-8,11-Pentadecadienyl-1,2-benzenediol	Phenolic acids	Phenolic acids	11683	11403	7633.9	18874	18990	35814	1.04195	2.3983802	up
(S)-2-Hydroxy-3-(4-Hydroxyphenyl)Propanoic Acid	Phenolic acids	Phenolic acids	386170	418890	374090	898890	928190	991350	1.18274	2.39022177	up
Agmatine	Alkaloid	Phenolamine	37462	47724	39697	86691	107350	100980	1.1594	2.36237919	up

3-(8,11,14-Heptadecatrienyl)-, (Z,Z,Z)-1,2-benzenediol	Phenolic acids	Phenolic acids	70608	92163	72694	172650	137970	242110	1.08766	2.3473977	up
L-Cystine	Amino acids and their derivatives	Amino acids and their derivatives	210270	216430	245150	524860	576910	462270	1.16525	2.32796011	up
β -Hydroxyisovaleric acid	Organic acid	Organic acid	24561	21454	33163	63469	61264	54834	1.1616	2.26789007	up
LysoPC 16:1	Lipid	Lysophosphatidylcholine	8721.2	9723.9	8231.8	16781	15444	27922	1.06416	2.25464728	up
N-Acetylputrescine	Alkaloid	Phenolamine	30771	43600	51209	79712	104690	96907	1.11658	2.24007804	up
3-Hydroxycinnamic Acid	Phenolic acids	Phenolic acids	39507	55375	52631	115210	118110	96791	1.15657	2.23784344	up
Asperuloside	Other categories	Other	2774.2	4703.1	2976.7	8723.9	9251.6	5377.4	1.06149	2.2338722	up
Glucarate O-Phosphoric acid	Other categories	Sugars and alcohols	11543	22004	15119	44657	27585	33157	1.03387	2.16576254	up
D-Glucose*	Other categories	Sugars and alcohols	807750	711490	897250	1585300	1884600	1755000	1.16192	2.16218565	up
D-Pinitol	Other categories	Sugars and alcohols	6284.2	8517.1	6429	11361	16056	18258	1.09496	2.15140624	up
N-Methyl-Trans-4-Hydroxy-L-Proline	Amino acids and their derivatives	Amino acids and their derivatives	113370	118270	113160	250200	223000	236140	1.17814	2.05725058	up

2,5-Dihydroxybenzaldehyde*	Phenolic acids	Phenolic acids	217970	247370	257250	133250	132540	92589	1.15381	0.49596452	down
9(10)-EpOME;(9R,10S)-(12Z)-9,10-Epoxyoctadecenoic acid	Lipid	Free fatty acids	3350.8	2430.6	2133.6	1020.9	1505.3	1350.6	1.08154	0.48980417	down
Hesperetin-7-O-glucoside	Flavone	Flavone	15061	13468	12720	6312.1	7068.5	6768.2	1.17075	0.4884676	down
Protocatechualdehyde*	Phenolic acids	Phenolic acids	220500	223210	213540	100320	108750	111660	1.18479	0.48798783	down
1,4-Dihydro-1-Methyl-4-oxo-3-pyridinecarboxamide	Alkaloid	Alkaloid	38722	38348	34100	20470	21441	12143	1.14809	0.4862283	down
Isolariciresinol-9'-O-glucoside	Lignans and coumarins	Lignan	21798	14713	19025	10526	9117.9	7158.4	1.08499	0.48261128	down
Riboprine	Nucleotides and their derivatives	Nucleotides and their derivatives	53113	50091	42650	26966	23675	19456	1.14966	0.48059704	down
2,6-Dimethoxybenzaldehyde	Phenolic acids	Phenolic acids	92754	108290	126300	61288	50593	44827	1.13997	0.47872574	down
Adenine	Nucleotides and their derivatives	Nucleotides and their derivatives	887550	897700	918930	477790	404900	406530	1.18263	0.47675081	down
Methyl ferulate	Phenolic acids	Phenolic acids	491310	597110	578800	296570	284970	209430	1.14975	0.47442449	down

D-Mannitol*	Other categories	Sugars and alcohols	17946	14247	11516	6271.2	7058.8	7186.3	1.10572	0.46938388	down
Riboflavin (Vitamin B2)	Other categories	Vitamin	133470	154000	141600	80976	66082	53337	1.15655	0.467045	down
L-Saccharopine	Amino acids and their derivatives	Amino acids and their derivatives	149620	177150	156640	85188	65801	69844	1.1593	0.4568234	down
Stachyose	Other categories	Sugars and alcohols	244860	218840	234960	93955	130010	92009	1.16391	0.45225718	down
L-Glycyl-L-proline	Amino acids and their derivatives	Amino acids and their derivatives	25897	28937	29845	14597	12872	10819	1.17075	0.45215461	down
Aromadendrin (Dihydrokaempferol)	Flavone	DihydroFlavonols	42546	52955	48011	22317	22054	20505	1.15664	0.45205976	down
Acacetin-7-O-glucuronide	Flavone	Flavone	29482	23062	30806	13456	10638	13345	1.13171	0.44917816	down
5-Acetamidopentanoic Acid	Organic acid	Organic acid	11234	11909	14398	4894	5297.1	6470.1	1.14795	0.44381343	down
D-Glucurono-6,3-lactone	Other categories	Sugars and alcohols	53058	62257	45607	31974	28832	10078	1.07959	0.4404867	down
2-Picolinic acid	Organic acid	Organic acid	35842	22613	29652	11221	20837	6324.4	1.03384	0.43563395	down
Isonicotinic acid	Organic acid	Organic acid	118580	105330	144340	56137	56922	46784	1.1359	0.4340611	down
4-Hydroxybenzoic acid	Phenolic acids	Phenolic acids	368580	387270	425720	182210	170690	158690	1.17726	0.43297477	down

Coniferyl alcohol	Phenolic acids	Phenolic acids	46532	28126	54913	25091	22510	7881.9	1.0006	0.42820461	down
Procyanidin B3	Tannin	Proanthocyanidins	9439.7	11675	16248	4963.1	4953.7	6079.3	1.07972	0.42813019	down
Nicotinic acid (Vitamin B3)	Other categories	Vitamin	132470	116310	180060	62768	66095	52551	1.09499	0.42303423	down
Glutaric acid	Organic acid	Organic acid	121840	126480	136110	63921	49131	47601	1.17644	0.41789923	down
D-Maltotetraose	Other categories	Sugars and alcohols	481250	459910	452920	174090	187700	215930	1.18273	0.4144095	down
4,7,9,9'-Tetrahydroxy-3,3'-dimethoxy-8-O-4'-neolignan	Other categories	Other	4860000	4477200	4911900	2337100	2070300	1394300	1.16979	0.40716256	down
Hinokiflavone	Flavone	Biflavone	4277.1	6075.7	4384.1	2675.9	1373	1931.9	1.07426	0.40583841	down
Butein	Flavone	Chalcone	15734	11957	14291	6236.6	4694.8	5815.3	1.14389	0.39890191	down
2-Hydroxy-3-phenylpropanoic acid	Organic acid	Organic acid	52553	88594	72546	30432	26312	28197	1.07505	0.39749079	down
L-Prolyl-L-Phenylalanine	Amino acids and their derivatives	Amino acids and their derivatives	209180	207790	211410	101310	84472	60127	1.1751	0.39133804	down
13S-Hydroxy-9Z,11E,15Z-octadecatrienoic acid	Lipid	Free fatty acids	14413	14375	14386	5781.6	5803.5	5044.1	1.18604	0.385167	down

Nicotinate D-ribonucleoside	Other categories	Vitamin	35495	37814	41500	14527	11423	18010	1.17141	0.38289681	down
N-Acetyl-L-Aspartic Acid	Amino acids and their derivatives	Amino acids and their derivatives	31771	40854	35222	15909	10191	14797	1.14693	0.37921314	down
Schizandriside	Lignans and coumarins	Lignan	32450	18768	32325	10592	13738	7283	1.0464	0.37840394	down
Hypoxanthine	Nucleotides and their derivatives	Nucleotides and their derivatives	71816	57080	59610	26119	23941	21019	1.15835	0.37706492	down
2-Hydroxybutyric Acid*	Organic acid	Organic acid	62230	62743	70916	23954	24640	24412	1.17854	0.37269066	down
Abscisic acid	Organic acid	Organic acid	9409.3	11817	15261	6473.2	3850.6	3190.1	1.11032	0.37037271	down
4-Hydroxybenzaldehyde	Phenolic acids	Phenolic acids	68298	69768	63682	17666	20309	35626	1.16288	0.3648165	down
2-O-Salicyl-6-O-Galloyl-D-Glucose	Phenolic acids	Phenolic acids	14614	15419	17195	8138.6	6062.2	3010	1.15217	0.36441941	down
Syringetin-3-O-(6"-Acetyl)glucoside	Flavone	Flavone	13861	15481	11756	3270.9	5001.7	6217.8	1.15189	0.35258163	down
Isolariciresinol-9-O-glucoside	Lignans and coumarins	Lignan	96864	87041	96297	38534	31568	28277	1.1775	0.35110028	down
Betaine	Alkaloid	Alkaloid	2653100	2544200	2580700	891240	985510	820290	1.18526	0.34675238	down
Feruloyl syringic acid	Phenolic acids	Phenolic acids	67928	75899	81171	25626	30842	21174	1.16889	0.34507862	down

Histamine	Amino acids and their derivatives	Amino acids and their derivatives	25305	19214	23117	8872.2	8730.6	5494.7	1.1503	0.34149713	down
L-Cyclopentylglycine	Amino acids and their derivatives	Amino acids and their derivatives	249400	240810	248080	104980	64382	81457	1.17644	0.33972965	down
2-Hydroxy-4-methylpentanoic acid	Organic acid	Organic acid	38292	30220	40708	17531	12215	7306.8	1.13647	0.33924922	down
L-Prolyl-L-Leucine	Amino acids and their derivatives	Amino acids and their derivatives	1017000	1108700	1039700	402200	360460	307660	1.18108	0.33813104	down
O-Acetylserine	Amino acids and their derivatives	Amino acids and their derivatives	104360	118330	115930	42095	38470	33255	1.17856	0.33612899	down
Diosmetin-7-O-glucuronide	Flavone	Flavone	8299.7	12772	8142.6	2560.9	3066.1	4083.4	1.07652	0.33238517	down
Cupressuflavone	Flavone	Biflavone	6709.8	5828.7	8072.8	2250.1	1867.5	2611.5	1.14848	0.32647625	down
2-Hydroxyisobutyric acid*	Organic acid	Organic acid	87048	91915	84059	25177	33596	26386	1.18076	0.3237714	down
Isoguanine	Nucleotides and their derivatives	Nucleotides and their derivatives	62145	48392	39858	16498	16828	15357	1.13071	0.32370092	down
Procyanidin B1	Tannin	Proanthocyanidins	8186	10977	14929	4509.1	2679.3	3808.6	1.10426	0.32256834	down
5,7-Dihydroxychromone	Other categories	Other	13619	11381	8616.3	3054.2	2867.6	4724.5	1.12522	0.31670053	down
Quercetin	Flavone	Flavonol	1887000	2149700	2216800	717400	718240	533450	1.17514	0.31487807	down

4-Acetamidobutyric acid	Organic acid	Organic acid	1773000	1701700	1824800	562390	570330	499280	1.18497	0.30795358	down
Ribosyladenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	13318	14627	16191	5852.3	3428.4	4259.5	1.17177	0.30678358	down
Verbascose	Other categories	Sugars and alcohols	77717	68277	82330	19553	22602	26192	1.17133	0.29934216	down
Eudesmic acid (3,4,5-trimethoxybenzoic acid)	Phenolic acids	Phenolic acids	135160	131490	152860	43054	42490	39271	1.17832	0.29752568	down
Tyrosol	Phenolic acids	Phenolic acids	52203	55147	49659	14838	16621	15220	1.18325	0.29730143	down
L-Cystathionine	Amino acids and their derivatives	Amino acids and their derivatives	163560	145940	137930	41683	40553	44124	1.17781	0.28241289	down
LysoPE 15:0	Lipid	Lysophosphatidyl ethanolamine	11813	9573.8	8545.8	2023.3	3106.9	3174.1	1.15731	0.2774333	down
2-Hydroxyisocaproic acid	Organic acid	Organic acid	379320	360340	374040	95252	106040	104810	1.18576	0.2748514	down
Eriodictyol-7-O-(6"-malonyl)glucoside	Flavone	Dihydroflavone	10182	13270	12117	4512.3	5057.9	9	1.12029	0.26931317	down
Xanthosine	Nucleotides and their derivatives	Nucleotides and their derivatives	7726.6	7958.8	10170	2521.9	3845.8	9	1.12061	0.24662933	down
Thymine	Nucleotides and their derivatives	Nucleotides and their derivatives	58532	49402	50140	15820	10783	9349.1	1.17209	0.22743841	down

N-Acetyl-L-leucine	Amino acids and their derivatives	Amino acids and their derivatives	63731	68787	70787	15568	14119	14299	1.18434	0.21635474	down
Cytosine	Nucleotides and their derivatives	Nucleotides and their derivatives	26076	28704	26617	3208.4	7390.9	5869.4	1.1776	0.20232564	down
p-Hydroxyphenyl acetic acid	Phenolic acids	Phenolic acids	218500	292930	357120	68010	47975	58599	1.1428	0.20100627	down
Dulcitol*	Other categories	Sugars and alcohols	57018	45569	57934	8131.1	13894	9130.7	1.16426	0.19409174	down
3-Hydroxybenzoic Acid	Organic acid	Organic acid	1652300	1950100	2143300	349270	396860	340300	1.17145	0.18908575	down
5'-Deoxy-5'-(methylthio)adenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	47335	43037	50240	9652.9	9497.9	5678.5	1.17967	0.17658023	down
Cytidine	Nucleotides and their derivatives	Nucleotides and their derivatives	125120	111700	125140	18084	16965	19104	1.18294	0.14961045	down
δ-Tridecalactone	Lipid	Glyceride	24369	24796	18480	3860.3	9	6102.2	1.15042	0.14740927	down
Guanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	25332	20725	30827	4714	9	5618.7	1.14799	0.13451043	down
L-Lysine-Butanoic Acid	Amino acids and their derivatives	Amino acids and their derivatives	430080	405640	285750	60007	52820	24191	1.15544	0.12217714	down
Hydrocinnamic acid	Phenolic acids	Phenolic acids	16162	14719	12091	9	9	4971.1	1.15133	0.11610118	down

Gluconic acid	Other categories	Sugars and alcohols	2031600	2324700	2235700	184960	212380	230760	1.1829	0.09528216	down
2'-O-Methyladenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	116820	116370	115780	12568	11578	8158	1.1869	0.09256956	down
2-(Dimethylamino)guanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	63343	74197	76083	7360	5626.3	3958.7	1.18004	0.07932198	down
N-Acetyl-L-glutamic acid	Amino acids and their derivatives	Amino acids and their derivatives	16312	21134	20336	9	4493.7	9	1.1556	0.07808141	down
(-)-Jasmonoyl-L-Isoleucine	Organic acid	Organic acid	259140	257370	290300	21087	22599	17340	1.18366	0.07563863	down
Adenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	642650	707460	729410	50259	42847	43976	1.18426	0.06592002	down
2-Furoic acid	Organic acid	Organic acid	754390	903060	795100	48563	52972	58780	1.17921	0.06536666	down
4-Guanidinobutyric acid	Organic acid	Organic acid	192730	215570	201690	15508	15550	7806	1.18387	0.06371252	down
Guanine	Nucleotides and their derivatives	Nucleotides and their derivatives	123770	119540	123620	4259.3	9040.5	7582.7	1.18647	0.0569114	down
Secoisolariciresinol 4-O-glucoside	Lignans and coumarins	Lignan	23613	13290	16554	9	9	2562.8	1.11936	0.04827806	down
D-Proline betaine	Amino acids and their derivatives	Amino acids and their derivatives	630510	683260	719620	32773	29434	22978	1.18433	0.04189309	down

1-Methylpiperidine-2-carboxylic acid	Amino acids and their derivatives	Amino acids and their derivatives	1378100	1371300	1346800	58511	53811	46928	1.18706	0.0388775	down
2'-Deoxyguanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	98318	98276	106440	3397.9	2904.3	4021.2	1.18589	0.0340668	down
4',6-Dihydroxy-5,7-dimethoxyflavanone	Flavone	Dihydroflavone	242360	239770	231730	7970.4	7710.4	5108.3	1.18684	0.0291221	down
Xanthine	Nucleotides and their derivatives	Nucleotides and their derivatives	288590	273030	278680	10351	9	9	1.18622	0.01233964	down
2'-Deoxyadenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	189310	172300	225800	2455.2	9	2807.9	1.17439	0.00897516	down
Isorhamnetin	Flavone	Flavonol	1987.2	1114.2	2029.8	9	9	9	1.12084	0.00526193	down
Nepetin (5,7,3',4'-Tetrahydroxy-6-methoxyflavone)	Flavone	Flavone	2955.1	6180.2	5818.6	9	9	9	1.11112	0.00180555	down
3',4'-Dihydroxy-7,5'-dimethoxyflavone	Flavone	Flavone	8865600	9646500	9051200	10469	7880.2	6007.2	1.18556	0.00088365	down

Dihydroxy-dimethoxyflavone	Flavone	Flavone	14533000	14696000	14097000	17548	10437	8902.6	1.18686	0.0008514	down
Cirsimaritin (4',5-dihydroxy-6,7-dimethoxyflavone)	Flavone	Flavone	360380	364310	334440	879.84	9	9	1.18586	0.00084771	down
Hispidulin (5,7,4'-Trihydroxy-6-methoxyflavone)*	Flavone	Flavone	5726100	5975100	6138000	4486.7	6116.7	3488.3	1.18639	0.00078993	down
Aracarpene 1	Flavone	isoflavone	4516600	4701700	4142300	6186	2024.7	2292.3	1.1845	0.00078612	down
Diosmetin (5,7,3'-Trihydroxy-4'-methoxyflavone)*	Flavone	Flavone	5076200	5352400	5520700	3959.7	4718.7	3813.8	1.18607	0.00078324	down
Wogonin (5,7-Dihydroxy-8-Methoxyflavone)	Flavone	Flavone	12040	12891	11303	9	9	9	1.18403	0.00074516	down
Rhamnetin	Flavone	Flavonol	12330	12399	11763	9	9	9	1.18673	0.00073989	down

6,7,8-Tetrahydroxy-5-methoxyflavone	Flavone	Flavone	5948700	5995200	6429900	6224.5	3836.4	3528.5	1.18603	0.00073961	down
Aracarpene 2	Flavone	isoflavone	4701800	4938800	5336400	3757.4	3900.1	3095.6	1.1847	0.00071797	down
Rhamnocitrin (7-Methylkaempferol)*	Flavone	Flavone	5801300	6094300	6381800	6462.3	2213.8	4299.8	1.18579	0.00070994	down
5,6,7,4'-Tetramethoxyflavanone	Flavone	Flavone	10520	15340	14041	9	9	9	1.16273	0.00067667	down
Pratensein	Flavone	isoflavone	5567200	5663500	5842700	5627.5	2656.2	2893.5	1.18678	0.00065466	down
Chrysoeriol*	Flavone	Flavone	5945300	6584900	6252000	5518.6	2845.7	3302.9	1.18516	0.00062118	down
Apigenin	Flavone	Flavone	17181	17812	18949	9	9	9	1.18579	0.00050054	down
Sulfuretin	Flavone	Flavone	16495	15987	21931	9	9	9	1.16806	0.0004962	down
Acacetin	Flavone	Flavone	20724	17003	22278	9	9	9	1.17371	0.00044996	down
Genkwanin (Apigenin 7-methyl ether)	Flavone	Flavone	20188	16465	24196	9	9	9	1.16316	0.00044372	down
3,7-Di-O-methylquercetin	Flavone	Flavonol	22831	22312	25469	9	9	9	1.18382	0.00038237	down
Galangin (3,5,7-Trihydroxyflavone)	Flavone	Flavone	40679	34330	44420	9	9	9	1.17535	0.00022608	down

Prunetin (5,4'-Dihydroxy-7-methoxyisoflavone)	Flavone	isoflavone	98765	96924	108070	9	9	9	1.18498	8.8886E-05	down
Cirsilineol (4',5-Dihydroxy-3',6,7-trimethoxyflavone)	Flavone	Flavone	130560	140590	127220	9	9	9	1.18496	6.7776E-05	down
Eupatorin (5,3'-Dihydroxy-6,7,4'-trimethoxyflavone)*	Flavone	Flavone	195490	213940	197670	9	9	9	1.18512	4.4474E-05	down
4',5,7-Trihydroxy-3',6-dimethoxyflavone (Jaceosidin)	Flavone	Flavone	210410	220390	225170	9	9	9	1.18637	4.116E-05	down
Eupatilin (5,7-Dihydroxy-3',4',6-Trimethoxyflavone)*	Flavone	Flavone	316840	325330	298330	9	9	9	1.18591	2.8708E-05	down

7,8-Dihydroxy-5,6,4'-trimethoxyflavone	Flavone	Flavone	319540	330770	301800	9	9	9	1.18576	2.8358E-05	down
5,7-Dihydroxy-3',4',5'-trimethoxyflavone	Flavone	Flavone	359860	362060	370860	9	9	9	1.18697	2.4708E-05	down
Jasmonic acid	Organic acid	Organic acid	530920	565970	597280	9	9	9	1.18511	1.5937E-05	down

附表 2-3 I VS IV

Differential metabolites	Differential metabolite primary classification	Differential metabolite secondary classification	Tv-CK3-1 (I)	Tv-CK3-2 (I)	Tv-CK3-3 (I)	Tv-CK9-1 (IV)	Tv-CK9-2 (IV)	Tv-CK9-3 (IV)	VIP	FC	Change trend
O-Phosphocholine	Alkaloid	Alkaloid	9	9	9	33874	26269	27509	1.1893	3246.37037	up
Isocitric Acid	Organic acid	Organic acid	12121	16831	16945	532110	727800	835600	1.17589	45.6567967	up
Quinic Acid	Organic acid	Organic acid	7204.2	10424	6003.1	197550	306200	301820	1.17484	34.0891106	up
Citric Acid	Organic acid	Organic acid	177500	272530	244660	5500000	9206800	8381300	1.16808	33.2351121	up
L-Glutamic acid-O-glycoside	Amino acids and their derivatives	Amino acids and their derivatives	9	2246.7	9	11623	7853.8	11387	1.14914	13.6282068	up
D-Sedoheptuose 7-phosphate	Other categories	Sugars and alcohols	18629	29969	19112	232400	291550	323500	1.18295	12.5158765	up
Argininosuccinic acid	Organic acid	Organic acid	26658	32477	24560	280810	319120	355760	1.19005	11.4187227	up

L-Tyramine	Amino acids and their derivatives	Amino acids and their derivatives	14094	14468	21015	130980	189620	196830	1.17534	10.4368961	up
D-Gluconic acid*	Other categories	Sugars and alcohols	537870	465550	547830	5129400	4951800	5270200	1.19796	9.89614827	up
D-Galacturonic acid*	Organic acid	Organic acid	470450	500050	465440	4728300	4666400	4815400	1.19797	9.8960263	up
Nicotianamine	Amino acids and their derivatives	Amino acids and their derivatives	178250	236570	193230	1598500	2178800	2001200	1.18305	9.50333032	up
L-Glutamic acid	Amino acids and their derivatives	Amino acids and their derivatives	236970	241450	252030	1528800	1595300	1943300	1.18529	6.93736738	up
S-(Methyl)glutathione	Amino acids and their derivatives	Amino acids and their derivatives	5404.9	4482.4	5680.6	30924	23847	48600	1.07951	6.64000925	up
Glucose-1-phosphate*	Other categories	Sugars and alcohols	19334	30573	38888	150700	224550	193560	1.16747	6.40587871	up
D-Pinitol	Other categories	Sugars and alcohols	6284.2	8517.1	6429	42685	41231	50671	1.18466	6.33938286	up
L-threo-3-Methylaspartate	Amino acids and their derivatives	Amino acids and their derivatives	195800	164990	187360	1086100	1192600	1194400	1.19703	6.33603941	up
N-Methyl-Trans-4-Hydroxy-L-Proline	Amino acids and their derivatives	Amino acids and their derivatives	113370	118270	113160	598220	605940	598460	1.19771	5.22801624	up
3-Hydroxy-3-methylpentane-1,5-dioic acid	Amino acids and their derivatives	Amino acids and their derivatives	257760	218240	257420	1072600	1261700	1267500	1.19259	4.91096507	up

Trehalose 6-phosphate	Other categories	Sugars and alcohols	7714.2	14336	10981	47155	46511	56571	1.17729	4.54833612	up
D-Glucose 6-phosphate*	Other categories	Sugars and alcohols	54507	49238	50089	205880	236730	245280	1.19282	4.47163826	up
2-Hydroxyglutaric Acid*	Organic acid	Organic acid	98823	155540	110160	404460	608870	605140	1.16051	4.43996675	up
Glucarate O-Phosphoric acid	Other categories	Sugars and alcohols	11543	22004	15119	59583	70807	84695	1.16381	4.41961534	up
L-Ornithine	Amino acids and their derivatives	Amino acids and their derivatives	37081	36706	40617	176420	142430	167290	1.18712	4.24932695	up
D-Galactaric acid*	Other categories	Sugars and alcohols	1196100	1179700	1170600	4577600	4509500	4931700	1.19599	3.95296639	up
Epicatechin	Flavone	Flavanols	141900	169170	201130	655930	562220	797730	1.15685	3.93572823	up
L-Asparagine	Amino acids and their derivatives	Amino acids and their derivatives	749970	761750	836510	2928500	2956300	3132400	1.19709	3.83999864	up
1-Aminocyclopropane-1-carboxylic acid	Organic acid	Organic acid	304140	314360	317970	1099600	1231300	1261900	1.19421	3.83653507	up
D-Saccharic acid*	Other categories	Sugars and alcohols	1409200	1341100	1225600	4502600	5003800	5605300	1.18714	3.80082497	up
3-Methylmalic acid*	Organic acid	Organic acid	128370	184020	138510	557130	523830	625670	1.1817	3.78494123	up
Sedoheptulose	Other categories	Sugars and alcohols	421040	421240	373370	1352800	1455300	1656600	1.18691	3.67268539	up
Catechin	Flavone	Flavanols	59134	77031	94316	240950	245760	320670	1.15886	3.50302194	up

D-Sorbitol	Other categories	Sugars and alcohols	27698	24422	18206	85345	76154	83453	1.18832	3.48309302	up
DL-2-Aminoadipic acid	Alkaloid	Alkaloid	63006	80762	72860	206040	244780	257220	1.18308	3.26846022	up
β -Hydroxyisovaleric acid	Organic acid	Organic acid	24561	21454	33163	79201	89623	89003	1.18772	3.25629594	up
D-Arabinono-1,4-lactone	Other categories	Sugars and alcohols	46879	56738	46420	135710	170960	178570	1.17739	3.23413558	up
D-Threitol	Other categories	Sugars and alcohols	102170	9	72585	210510	181860	169000	1.08969	3.2121604	up
Acetylcholine	Alkaloid	Alkaloid	43585	22412	34596	103120	86207	131690	1.12193	3.19124591	up
Cycloleucine*	Amino acids and their derivatives	Amino acids and their derivatives	2740700	2656800	3054700	8397100	7955800	9453600	1.18647	3.05322875	up
Pipecolic acid*	Amino acids and their derivatives	Amino acids and their derivatives	922670	1021100	988710	3050000	2840100	3034600	1.19528	3.04339672	up
D-Threonic Acid	Other categories	Sugars and alcohols	51211	73087	58772	166340	181550	207510	1.1748	3.0338122	up
N-Oleylethanolamine	Alkaloid	Alkaloid	293760	286510	233490	568780	978890	914670	1.1342	3.02587987	up
Ethyl 9-Hydroxy-10,12-octadecadienoic acid	Lipid	Free fatty acids	32004	31687	24538	59836	102780	94375	1.13091	2.91277244	up
3-Ureidopropionic Acid	Organic acid	Organic acid	3755.6	5985.9	4988.4	14482	12815	14911	1.17346	2.86546412	up

D-Arabinose	Other categories	Sugars and alcohols	58361	53892	51712	148260	145580	173410	1.18393	2.84969353	up
3-Isopropylmalic Acid	Organic acid	Organic acid	12165	9709.9	8598.6	20055	31346	35332	1.12728	2.84617783	up
Choline Alfoscerate	Lipid	Phosphatidylcholine	66199	67489	66779	187420	169700	209820	1.17944	2.82809639	up
Fustin	Flavone	DihydroFlavonol	115930	119300	166320	310720	392520	386640	1.17033	2.71418254	up
D-Galactose*	Other categories	Sugars and alcohols	545580	503710	483700	1410200	1275200	1290600	1.19339	2.59362422	up
Fumaric acid	Organic acid	Organic acid	19057	15924	6394.3	31142	36189	39888	1.11916	2.59137698	up
D-Glucose*	Other categories	Sugars and alcohols	807750	711490	897250	2420500	1624300	2145200	1.14368	2.56156657	up
N-Methyl-4-aminobutyric acid	Organic acid	Organic acid	2886.1	1921.2	2649.7	6579.5	5531.8	6756.3	1.16991	2.5301864	up
D-Glucono-1,5-lactone	Other categories	Sugars and alcohols	13143	7559.8	12103	23131	23887	35021	1.09147	2.50074682	up
L-Homocystine	Amino acids and their derivatives	Amino acids and their derivatives	50919	88287	62284	163400	171650	163320	1.16021	2.473423	up
D-Mannose*	Other categories	Sugars and alcohols	642440	649010	627310	1561300	1583100	1577900	1.19766	2.46112072	up
N-Acetyl-D-galactosamine	Other categories	Sugars and alcohols	190580	160350	207980	400410	470830	483670	1.18168	2.42420068	up
D-Fructose 6-phosphate*	Other categories	Sugars and alcohols	54532	55922	60792	107900	159410	146030	1.15037	2.41372061	up
p-Coumaryl alcohol	Phenolic acids	Phenolic acids	21223	18310	19958	59126	43066	38929	1.13556	2.37214032	up
Putrescine	Alkaloid	Phenolamine	70045	65399	60957	137830	160230	162550	1.18669	2.34525282	up

2-Isopropylmalic Acid	Organic acid	Organic acid	6607.3	10405	17743	21280	28468	31375	1.06782	2.33411883	up
D-Pantothenic Acid	Other categories	Vitamin	76306	77018	82728	158580	182130	209910	1.16882	2.33262163	up
2-Hydroxycinnamic acid	Organic acid	Organic acid	79115	84805	68624	197390	170910	154370	1.16349	2.24761766	up
3-(3-Hydroxyphenyl)-propionic acid	Organic acid	Organic acid	24490	27935	19199	63816	48666	45750	1.12862	2.20920362	up
Oxalic acid	Phenolic acids	Phenolic acids	369760	495210	412950	884530	915150	1004500	1.17496	2.19433141	up
N-Acetyl-D-mannosamine	Other categories	Sugars and alcohols	365980	364990	391910	754730	792600	887600	1.18466	2.16846858	up
Inositol	Other categories	Sugars and alcohols	191940	158530	266500	437820	425570	461780	1.1594	2.14786781	up
D-Fructose*	Other categories	Sugars and alcohols	822710	1016100	961580	1802700	1921400	2243200	1.16355	2.13088177	up
Procyanidin B3	Tannin	Proanthocyanidins	9439.7	11675	16248	24727	29653	23524	1.10933	2.08507415	up
N-Acetyl-L-tyrosine	Amino acids and their derivatives	Amino acids and their derivatives	32809	37354	43563	69626	80209	83343	1.16933	2.05034908	up
2,6-Diaminooimelic acid	Amino acids and their derivatives	Amino acids and their derivatives	55137	51062	59712	110510	110260	116390	1.19431	2.03217388	up
3-Hydroxycinnamic Acid	Phenolic acids	Phenolic acids	39507	55375	52631	113350	92034	92037	1.14911	2.01623586	up
Methyl ferulate	Phenolic acids	Phenolic acids	491310	597110	578800	308050	227420	288410	1.15792	0.49416394	down

Quercetin	Flavone	Flavonol	1887000	2149700	2216800	1180000	912530	987170	1.17258	0.49247621	down
L-Arginine	Amino acids and their derivatives	Amino acids and their derivatives	1035100	983170	1065700	489030	518320	500160	1.18937	0.48882123	down
L-Phenylalanyl-L-phenylalanine	Amino acids and their derivatives	Amino acids and their derivatives	167120	180060	172430	85504	69907	93620	1.18074	0.47926522	down
N-Acetyl-L-Glutamine	Amino acids and their derivatives	Amino acids and their derivatives	247980	280240	231420	113160	113810	119590	1.17835	0.4562161	down
3-(4-Hydroxyphenyl)-propionic acid	Phenolic acids	Phenolic acids	136250	155110	135510	73833	64509	54836	1.18068	0.45254527	down
1-O-Feruloyl-3-O-p-Coumaroylglycerol	Phenolic acids	Phenolic acids	20703	25776	24219	10588	10733	10646	1.17238	0.45216272	down
N- α -Acetyl-L-ornithine	Amino acids and their derivatives	Amino acids and their derivatives	76643	75429	77896	38598	32081	33108	1.19355	0.45131062	down
2-Aminoisobutyric acid	Amino acids and their derivatives	Amino acids and their derivatives	91388	107870	116040	40938	56566	40628	1.1509	0.43809983	down
Docosanoic acid (Behenic acid)	Lipid	Free fatty acids	4490.7	4410	3948.9	2606.4	653.31	2367	1.07402	0.4378899	down
Hinokiflavone	Flavone	Biflavone	4277.1	6075.7	4384.1	1611.3	2110.8	2722.2	1.10108	0.43729007	down
L-Valyl-L-Phenylalanine	Amino acids and their derivatives	Amino acids and their derivatives	4758400	4809200	5416700	2445600	1995600	2060900	1.18064	0.43392751	down

5,7-Dihydroxychromone	Other categories	Other	13619	11381	8616.3	4377.9	7451.7	2544.2	1.02014	0.42758424	down
2-Hydroxy-3-phenylpropanoic acid	Organic acid	Organic acid	52553	88594	72546	32578	25091	33430	1.07202	0.42630783	down
Betaine	Alkaloid	Alkaloid	2653100	2544200	2580700	1214200	1093300	991610	1.19382	0.42415917	down
p-Hydroxyphenyl acetic acid	Phenolic acids	Phenolic acids	218500	292930	357120	112910	113980	140130	1.07633	0.42256635	down
Abscisic acid	Organic acid	Organic acid	9409.3	11817	15261	8725.6	3287.9	3295.7	1.04407	0.41957613	down
Stachyose	Other categories	Sugars and alcohols	244860	218840	234960	104860	96719	87299	1.18608	0.41347437	down
D-Maltotetraose	Other categories	Sugars and alcohols	481250	459910	452920	234750	173980	158530	1.1861	0.40690635	down
Anthranilate-1-O-Sophoroside	Phenolic acids	Phenolic acids	606510	529190	717400	271800	206720	270640	1.13526	0.40427392	down
Quercetin-3,4'-Dimethyl Ether	Flavone	Flavonol	7624.3	12622	9926.3	4555.4	2761.9	4860.6	1.07076	0.40360791	down
Hydrocinnamic acid	Phenolic acids	Phenolic acids	16162	14719	12091	10516	6716.3	9	1.01252	0.40122173	down
Pinoresinol-4-O-glucoside	Lignans and coumarins	Lignan	326810	381070	295390	170680	100730	125510	1.15386	0.3956263	down
Hesperetin-7-O-(6"-malonyl)glucoside	Flavone	DihydroFlavonol	56744	100730	78588	40081	33397	19564	1.05339	0.39414222	down
Isolariciresinol-9-O-glucoside	Lignans and coumarins	Lignan	96864	87041	96297	43438	28246	29458	1.18005	0.36096102	down

L-Aspartic acid-O-diglucoside	Amino acids and their derivatives	Amino acids and their derivatives	79671	98016	88979	34668	29108	27352	1.18241	0.34173085	down
Thymine	Nucleotides and their derivatives	Nucleotides and their derivatives	58532	49402	50140	17004	17349	17841	1.1789	0.33018713	down
Verbascose	Other categories	Sugars and alcohols	77717	68277	82330	29316	22274	22266	1.17668	0.32347016	down
Tyrosol	Phenolic acids	Phenolic acids	52203	55147	49659	17439	16155	17112	1.19558	0.32294964	down
L-Cyclopentylglycine	Amino acids and their derivatives	Amino acids and their derivatives	249400	240810	248080	106520	50007	81116	1.17997	0.321883	down
5-Acetamidopentanoic Acid	Organic acid	Organic acid	11234	11909	14398	4363.2	3173.7	4359.9	1.1618	0.31690152	down
Hesperetin-7-O-glucoside	Flavone	Flavone	15061	13468	12720	4787.7	3778.1	4395	1.18175	0.31420883	down
4,7,9,9'-Tetrahydroxy-3,3'-dimethoxy-8-O-4'-neolignan	Other categories	Other	4860000	4477200	4911900	1888600	1187000	1366200	1.18598	0.31172495	down
L-Prolyl-L-Phenylalanine	Amino acids and their derivatives	Amino acids and their derivatives	209180	207790	211410	93012	49852	48929	1.18525	0.30521818	down
4-Hydroxybenzaldehyde	Phenolic acids	Phenolic acids	68298	69768	63682	19872	21274	20332	1.19623	0.30472669	down
N-Acetyl-L-Aspartic Acid	Amino acids and their derivatives	Amino acids and their derivatives	31771	40854	35222	10272	10258	11044	1.1786	0.2927666	down

Histamine	Amino acids and their derivatives	Amino acids and their derivatives	25305	19214	23117	6935.4	5623.3	7120.5	1.16045	0.29095748	down
δ-Tridecalactone	Lipid	Glyceride	24369	24796	18480	8037.2	5126	6300.4	1.16039	0.28773154	down
Calycosin	Flavone	Isoflavone	9721.9	15532	10235	9	4399	4704.8	1.09334	0.25677888	down
Gluconic acid	Other categories	Sugars and alcohols	2031600	2324700	2235700	464400	588830	529170	1.19354	0.24004854	down
Adenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	642650	707460	729410	206830	144860	137840	1.19168	0.23540529	down
2-Hydroxyisobutyric acid*	Organic acid	Organic acid	87048	91915	84059	17727	20368	22200	1.19671	0.22923938	down
LysoPE 15:0	Lipid	Lysophosphatidyl ethanolamine	11813	9573.8	8545.8	2016.7	2537	2120.5	1.16123	0.22297428	down
L-Prolyl-L-Leucine	Amino acids and their derivatives	Amino acids and their derivatives	1017000	1108700	1039700	279890	206320	204070	1.19641	0.21807039	down
Cytosine	Nucleotides and their derivatives	Nucleotides and their derivatives	26076	28704	26617	3914.6	10104	3484.7	1.1781	0.21503618	down
4-Guanidinobutyric acid	Organic acid	Organic acid	192730	215570	201690	48320	38698	38763	1.19601	0.20620174	down
N-Acetyl-L-leucine	Amino acids and their derivatives	Amino acids and their derivatives	63731	68787	70787	18427	12540	10613	1.1932	0.2045203	down
Guanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	25332	20725	30827	7955	9	7544.2	1.1168	0.20170907	down

2-Hydroxybutyric Acid*	Organic acid	Organic acid	62230	62743	70916	10470	11856	15403	1.18763	0.19260397	down
L-Lysine-Butanoic Acid	Amino acids and their derivatives	Amino acids and their derivatives	430080	405640	285750	102590	48152	65019	1.14718	0.19239124	down
L-Homocitrulline	Amino acids and their derivatives	Amino acids and their derivatives	12029	14814	11286	7273.1	9	9	1.11787	0.1912219	down
2-(Dimethylamino)guanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	63343	74197	76083	15330	9478.6	8462.8	1.1883	0.15574821	down
L-Glycyl-L-proline	Amino acids and their derivatives	Amino acids and their derivatives	25897	28937	29845	4769.3	3835.9	4055.4	1.19323	0.14951287	down
2'-O-Methyladenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	116820	116370	115780	24347	13532	13875	1.19638	0.14830501	down
(-)-Jasmonoyl-L-Isoleucine	Organic acid	Organic acid	259140	257370	290300	38025	24504	25448	1.1917	0.10904302	down
1-Methylpiperidine-2-carboxylic acid	Amino acids and their derivatives	Amino acids and their derivatives	1378100	1371300	1346800	160030	113700	116390	1.19791	0.09523949	down
D-Proline betaine	Amino acids and their derivatives	Amino acids and their derivatives	630510	683260	719620	76266	61310	42944	1.19425	0.08877785	down
L-Cystathionine	Amino acids and their derivatives	Amino acids and their derivatives	163560	145940	137930	12746	12906	10354	1.18995	0.08047292	down

Xanthine	Nucleotides and their derivatives	Nucleotides and their derivatives	288590	273030	278680	21192	22340	17589	1.19652	0.07273712	down
2'-Deoxyguanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	98318	98276	106440	7541.3	7394	6488.3	1.19556	0.07069702	down
4-Acetamidobutyric acid	Organic acid	Organic acid	1773000	1701700	1824800	104780	95644	108830	1.1958	0.05835532	down
2-Furoic acid	Organic acid	Organic acid	754390	903060	795100	43582	56443	39313	1.19386	0.05681352	down
2'-Deoxyadenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	189310	172300	225800	13691	8909.1	9501.8	1.17693	0.0546499	down
4',6-Dihydroxy-5,7-dimethoxyflavanone	Flavone	Dihydroflavone	242360	239770	231730	8925.8	8545.2	8123.7	1.19799	0.03585395	down
Isorhamnetin	Flavone	Flavonol	1987.2	1114.2	2029.8	9	9	9	1.11934	0.00526193	down
Nepetin (5,7,3',4'-Tetrahydroxy-6-methoxyflavone)	Flavone	Flavone	2955.1	6180.2	5818.6	9	9	9	1.11613	0.00180555	down
Dihydroxy-dimethoxyflavone	Flavone	Flavone	14533000	14696000	14097000	21147	19777	19014	1.19836	0.00138342	down
3',4'-Dihydroxy-7,5'-dimethoxyflavone	Flavone	Flavone	8865600	9646500	9051200	12282	12772	11794	1.19816	0.00133685	down

Xanthosine	Nucleotides and their derivatives	Nucleotides and their derivatives	7726.6	7958.8	10170	9	9	9	1.17635	0.00104427	down
Diosmetin (5,7,3'-Trihydroxy-4'-methoxyflavone)*	Flavone	Flavone	5076200	5352400	5520700	4327.5	3819.7	7039.8	1.19696	0.0009522	down
Chrysoeriol*	Flavone	Flavone	5945300	6584900	6252000	5847.9	5649.6	5109.2	1.19775	0.00088417	down
6,7,8-Tetrahydroxy-5-methoxyflavone	Flavone	Flavone	5948700	5995200	6429900	5187.9	6050.5	4934.1	1.19602	0.00088019	down
Aracarpene 2	Flavone	Isoflavone	4701800	4938800	5336400	4773	4322	3916.7	1.1945	0.00086878	down
Pratensein	Flavone	Isoflavone	5567200	5663500	5842700	5309.8	4048.1	3903.2	1.19751	0.00077671	down
Aracarpene 1	Flavone	Isoflavone	4516600	4701700	4142300	4184.7	4027.5	1942.8	1.19662	0.00076007	down
Eriodictyol-7-O-(6'-malonyl)glucoside	Flavone	Dihydroflavone	10182	13270	12117	9	9	9	1.18834	0.00075909	down
Wogonin (5,7-Dihydroxy-8-Methoxyflavone)	Flavone	Flavone	12040	12891	11303	9	9	9	1.19682	0.00074516	down
Rhamnetin	Flavone	Flavonol	12330	12399	11763	9	9	9	1.19818	0.00073989	down
Rhamnocitrin (7-Methylkaempferol)*	Flavone	Flavone	5801300	6094300	6381800	4838.4	4082.2	3759.5	1.19635	0.00069376	down

5,6,7,4'- Tetramethoxyflavanone	Flavone	Flavone	10520	15340	14041	9	9	9	1.17592	0.00067667	down
Hispidulin (5,7,4'- Trihydroxy-6- methoxyflavone)*	Flavone	Flavone	5726100	5975100	6138000	4283.3	3562.1	4134.5	1.19735	0.00067155	down
Cirsimaritin (4',5- dihydroxy-6,7- dimethoxyflavone)	Flavone	Flavone	360380	364310	334440	9	9	520.43	1.19744	0.00050837	down
Apigenin	Flavone	Flavone	17181	17812	18949	9	9	9	1.19603	0.00050054	down
Sulfuretin	Flavone	Flavone	16495	15987	21931	9	9	9	1.16947	0.0004962	down
Acacetin	Flavone	Flavone	20724	17003	22278	9	9	9	1.17896	0.00044996	down
Genkwanin (Apigenin 7- methyl ether)	Flavone	Flavone	20188	16465	24196	9	9	9	1.1647	0.00044372	down
3,7-Di-O-methylquercetin	Flavone	Flavonol	22831	22312	25469	9	9	9	1.19226	0.00038237	down
Galangin (3,5,7- Trihydroxyflavone)	Flavone	Flavone	40679	34330	44420	9	9	9	1.18088	0.00022608	down
Prunetin (5,4'-Dihydroxy- 7-methoxyisoflavone)	Flavone	Isoflavone	98765	96924	108070	9	9	9	1.19406	8.8886E-05	down

Cirsilineol (4',5-Dihydroxy-3',6,7-trimethoxyflavone)	Flavone	Flavone	130560	140590	127220	9	9	9	1.19771	6.7776E-05	down
Eupatorin (5,3'-Dihydroxy-6,7,4'-trimethoxyflavone)*	Flavone	Flavone	195490	213940	197670	9	9	9	1.19795	4.4474E-05	down
4',5,7-Trihydroxy-3',6-dimethoxyflavone (Jaceosidin)	Flavone	Flavone	210410	220390	225170	9	9	9	1.19742	4.116E-05	down
Eupatilin (5,7-Dihydroxy-3',4',6-Trimethoxyflavone)*	Flavone	Flavone	316840	325330	298330	9	9	9	1.19775	2.8708E-05	down
7,8-Dihydroxy-5,6,4'-trimethoxyflavone	Flavone	Flavone	319540	330770	301800	9	9	9	1.19778	2.8358E-05	down
5,7-Dihydroxy-3',4',5'-trimethoxyflavone	Flavone	Flavone	359860	362060	370860	9	9	9	1.19773	2.4708E-05	down

Jasmonic acid	Organic acid	Organic acid	530920	565970	597280	9	9	9	1.19552	1.5937E-05	down
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附表 2-4 I VS V

Differential metabolites	Differential metabolite primary classification	Differential metabolite secondary classification	Tv-CK3-1 (I)	Tv-CK3-2 (I)	Tv-CK3-3 (I)	Tv-CK11-1 (V)	Tv-CK11-2 (V)	Tv-CK11-3 (V)	VIP	FC	Change trend
O-Phosphocholine	Alkaloid	Alkaloid	9	9	9	74088	79499	72207	1.18551	8362.74074	up
L-Glutamic acid-O-glycoside	Amino acids and their derivatives	Amino acids and their derivatives	9	2246.7	9	19012	12537	15051	1.14975	20.5766768	up
2-Aminoethanesulfonic acid	Organic acid	Organic acid	2371.8	893.55	9	20631	24863	19548	1.17288	19.8640952	up
Isocitric Acid	Organic acid	Organic acid	12121	16831	16945	263470	271980	225170	1.18042	16.572325	up
Citric Acid	Organic acid	Organic acid	177500	272530	244660	4081400	3265200	3534200	1.17639	15.6628136	up
D-Sedoheptuose 7-phosphate	Other categories	Sugars and alcohols	18629	29969	19112	294470	285430	362860	1.17564	13.9234973	up
Quinic Acid	Organic acid	Organic acid	7204.2	10424	6003.1	105270	98699	78265	1.16899	11.9432278	up
Argininosuccinic acid	Organic acid	Organic acid	26658	32477	24560	333900	334670	328000	1.18694	11.9071629	up
L-Tyramine	Amino acids and their derivatives	Amino acids and their derivatives	14094	14468	21015	196970	192970	175950	1.18442	11.4143655	up
L-threo-3-Methylaspartate	Amino acids and their derivatives	Amino acids and their derivatives	195800	164990	187360	1876400	1574600	1661100	1.17926	9.32609687	up

L-Glutamic acid	Amino acids and their derivatives	Amino acids and their derivatives	236970	241450	252030	1726100	1624900	1778300	1.18561	7.02210966	up
Glucose-1-phosphate*	Other categories	Sugars and alcohols	19334	30573	38888	238040	166070	202680	1.15453	6.8336055	up
Nicotianamine	Amino acids and their derivatives	Amino acids and their derivatives	178250	236570	193230	1394000	1143600	1320400	1.1781	6.34487295	up
S-(Methyl)glutathione	Amino acids and their derivatives	Amino acids and their derivatives	5404.9	4482.4	5680.6	19389	41554	31025	1.06528	5.90754052	up
3-Hydroxy-3-methylpentane-1,5-dioic acid	Amino acids and their derivatives	Amino acids and their derivatives	257760	218240	257420	1429500	1355000	1526500	1.18397	5.8779417	up
Trehalose 6-phosphate	Other categories	Sugars and alcohols	7714.2	14336	10981	54804	66643	65859	1.17061	5.67057812	up
D-Arabinose	Other categories	Sugars and alcohols	58361	53892	51712	309690	271030	327360	1.17988	5.53825512	up
5'-Deoxy-5'-(methylthio)adenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	47335	43037	50240	244260	340790	170550	1.10386	5.37365232	up
D-Galactaric acid*	Other categories	Sugars and alcohols	1196100	1179700	1170600	5602900	5773600	6827000	1.17569	5.13295173	up
2-Hydroxyglutaric Acid*	Organic acid	Organic acid	98823	155540	110160	728610	628730	500190	1.14688	5.09578271	up
D-Saccharic acid*	Other categories	Sugars and alcohols	1409200	1341100	1225600	6585800	6448100	6185900	1.18602	4.8340753	up
3-Methylmalic acid*	Organic acid	Organic acid	128370	184020	138510	741040	616680	758550	1.17623	4.69343535	up

Sedoheptulose	Other categories	Sugars and alcohols	421040	421240	373370	1819600	1981600	1851600	1.18429	4.65002262	up
L-Ornithine	Amino acids and their derivatives	Amino acids and their derivatives	37081	36706	40617	164370	170040	170610	1.18623	4.41435614	up
N-Methyl-Trans-4-Hydroxy-L-Proline	Amino acids and their derivatives	Amino acids and their derivatives	113370	118270	113160	576380	439620	487470	1.16426	4.36041183	up
β -Hydroxyisovaleric acid	Organic acid	Organic acid	24561	21454	33163	117040	121760	105220	1.1801	4.34489378	up
D-Glucuronic acid*	Other categories	Sugars and alcohols	537870	465550	547830	2287400	2256200	2185600	1.18658	4.33792103	up
3-Isopropylmalic Acid	Organic acid	Organic acid	12165	9709.9	8598.6	52241	35409	41863	1.13904	4.25002051	up
D-Glucose 6-phosphate*	Other categories	Sugars and alcohols	54507	49238	50089	237110	195140	212620	1.17532	4.19198617	up
3-Ureidopropionic Acid	Organic acid	Organic acid	3755.6	5985.9	4988.4	17651	22347	19618	1.16345	4.04727799	up
L-Asparagine	Amino acids and their derivatives	Amino acids and their derivatives	749970	761750	836510	3225600	3121500	3114500	1.18644	4.02924756	up
D-Galacturonic acid*	Organic acid	Organic acid	470450	500050	465440	1710200	1789300	2205400	1.16595	3.97293759	up
Glucarate O-Phosphoric acid	Other categories	Sugars and alcohols	11543	22004	15119	70299	86744	35787	1.03807	3.96231455	up
D-Pinitol	Other categories	Sugars and alcohols	6284.2	8517.1	6429	23153	26766	33156	1.14923	3.91303938	up

Inositol	Other categories	Sugars and alcohols	191940	158530	266500	685080	888880	772280	1.16014	3.80284293	up
1-Aminocyclopropane-1-carboxylic acid	Organic acid	Organic acid	304140	314360	317970	1184200	1065800	1287400	1.17861	3.77737674	up
Liquiritigenin	Flavone	Dihydroflavone	3135.3	3101.3	3342.9	11944	12690	11535	1.18425	3.77566679	up
D-Melezitose	Other categories	Sugars and alcohols	15671	10847	11206	43466	48560	46949	1.17813	3.68399427	up
p-Coumaryl alcohol	Phenolic acids	Phenolic acids	21223	18310	19958	71722	77456	68850	1.18317	3.66489049	up
D-Glucono-1,5-lactone	Other categories	Sugars and alcohols	13143	7559.8	12103	36742	45342	38066	1.16771	3.66246213	up
D-Arabinono-1,4-lactone	Other categories	Sugars and alcohols	46879	56738	46420	172350	192900	179490	1.17987	3.63070443	up
N-Oleoylethanolamine	Alkaloid	Alkaloid	293760	286510	233490	897980	715680	1255600	1.11101	3.52592902	up
Ethyl 9-Hydroxy-10,12-octadecadienoic acid	Lipid	Free fatty acids	32004	31687	24538	98238	75298	130810	1.11676	3.44950073	up
Epicatechin	Flavone	Flavanols	141900	169170	201130	595940	584170	548300	1.18061	3.37448262	up
2-Isopropylmalic Acid	Organic acid	Organic acid	6607.3	10405	17743	42960	31533	42502	1.12058	3.36624918	up
Fustin	Flavone	DihydroFlavonol	115930	119300	166320	471680	445770	421380	1.17749	3.33415515	up

3-Hydroxycinnamic Acid	Phenolic acids	Phenolic acids	39507	55375	52631	152290	193400	142320	1.14631	3.3082508	up
N-Methyl-4-aminobutyric acid	Organic acid	Organic acid	2886.1	1921.2	2649.7	7756.8	7693	8950.4	1.17008	3.27212016	up
Acetylcholine	Alkaloid	Alkaloid	43585	22412	34596	101210	118930	105720	1.16682	3.23939041	up
Pipecolic acid*	Amino acids and their derivatives	Amino acids and their derivatives	922670	1021100	988710	3039800	3057600	3247600	1.18514	3.1867225	up
7S,8S-DiHODE; (9Z,12Z)-(7S,8S)-Dihydroxyoctadeca-9,12-dienoic acid	Lipid	Free fatty acids	2054.9	1066	1836.1	4883	6010.9	4866.3	1.16078	3.17938269	up
Cycloleucine*	Amino acids and their derivatives	Amino acids and their derivatives	2740700	2656800	3054700	8820600	9834200	7269200	1.16126	3.06713045	up
Catechin	Flavone	Flavanols	59134	77031	94316	257960	235040	211950	1.16339	3.05860353	up
DL-2-Amino adipic acid	Alkaloid	Alkaloid	63006	80762	72860	240290	205290	206320	1.1701	3.00930628	up
2-Hydroxycinnamic acid	Organic acid	Organic acid	79115	84805	68624	176440	253980	231150	1.12572	2.84492397	up
3-(3-Hydroxyphenyl)-propionic acid	Organic acid	Organic acid	24490	27935	19199	73501	65330	64215	1.17003	2.83488775	up
D-Threonic Acid	Other categories	Sugars and alcohols	51211	73087	58772	177810	118800	187660	1.11808	2.6452723	up

D-Panose*	Other categories	Sugars and alcohols	421110	418290	432680	1071700	1106700	1156000	1.1839	2.62121879	up
D-Mannose*	Other categories	Sugars and alcohols	642440	649010	627310	1477200	1720300	1658400	1.17385	2.53074903	up
D-Galactose*	Other categories	Sugars and alcohols	545580	503710	483700	1331000	1382100	1161900	1.17362	2.52773991	up
D-Glucose*	Other categories	Sugars and alcohols	807750	711490	897250	2070000	2131200	1868600	1.17899	2.511825	up
L-Homocystine	Amino acids and their derivatives	Amino acids and their derivatives	50919	88287	62284	174490	162450	156870	1.15344	2.4507916	up
Raffinose*	Other categories	Sugars and alcohols	556560	499360	508970	1145800	1304600	1261000	1.17655	2.3716683	up
Choline Alfoscerate	Lipid	Phosphatidylcholine	66199	67489	66779	169030	164890	138180	1.16573	2.35500107	up
D-Fructose*	Other categories	Sugars and alcohols	822710	1016100	961580	2050100	2200500	2321100	1.17435	2.34670885	up
D(+)-Melezitose O-rhamnoside	Other categories	Sugars and alcohols	28322	20645	22679	49866	65938	45602	1.11637	2.2528264	up
2,6-Diaminooimelic acid	Amino acids and their derivatives	Amino acids and their derivatives	55137	51062	59712	122520	123410	125940	1.18389	2.24138243	up
Oleamide (9-Octadecenamide)	Lipid	Free fatty acids	25802	22196	26557	61855	39589	63268	1.07528	2.20926833	up
Procyanidin B3	Tannin	Proanthocyanidins	9439.7	11675	16248	21395	31834	28335	1.06575	2.18303281	up
D-Fructose 6-phosphate*	Other categories	Sugars and alcohols	54532	55922	60792	128270	118030	125930	1.18106	2.17365661	up
D-Pantothenic Acid	Other categories	Vitamin	76306	77018	82728	168820	163120	180700	1.18007	2.17172487	up

Dihydroquercetin(Taxifolin)	Flavone	DihydroFlavonol	531480	508530	477600	1236400	1058600	878990	1.11713	2.09143983	up
Isolariciresinol-9'-O-glucoside	Lignans and coumarins	Lignan	21798	14713	19025	34796	37997	40881	1.14439	2.04685249	up
3-Methylxanthine	Nucleotides and their derivatives	Nucleotides and their derivatives	3531.8	3508.6	2720.3	6068	6980.9	6762.7	1.15744	2.02973147	up
Putrescine	Alkaloid	Phenolamine	70045	65399	60957	142150	131270	121250	1.16628	2.00951115	up
13S-Hydroxy-9Z,11E,15Z-octadecatrienoic acid	Lipid	Free fatty acids	14413	14375	14386	28747	28670	29115	1.18712	2.00426182	up
Quercetin-3,4'-Dimethyl Ether	Flavone	Flavonol	7624.3	12622	9926.3	4722.8	5180.2	4826.9	1.05298	0.48818796	down
Quercetin-3-O-xyloside (Reynoutrin)	Flavone	Flavonol	11974	8250.4	7472.8	4559.6	3428.1	5410.1	1.00236	0.48372399	down
Methyl ferulate	Phenolic acids	Phenolic acids	491310	597110	578800	248970	258350	297070	1.15823	0.48247382	down
Isopentenyladenine-7-N-glucoside	Nucleotides and their derivatives	Nucleotides and their derivatives	135940	231420	233240	107650	87989	91176	1.0136	0.47754745	down
L-Valyl-L-Phenylalanine	Amino acids and their derivatives	Amino acids and their derivatives	4758400	4809200	5416700	2424100	2469700	2244800	1.17336	0.4764053	down
Betaine	Alkaloid	Alkaloid	2653100	2544200	2580700	1200600	1247800	1231300	1.18568	0.47309077	down
N-Acetyl-L-Arginine	Amino acids and their derivatives	Amino acids and their derivatives	32484	49496	46961	18840	11951	28557	1.06009	0.46027253	down

3-(8,11,13-Pentadecatrienyl)-1,2-benzenediol	Phenolic acids	Phenolic acids	444000	642360	365670	173590	169220	324500	1.04876	0.45957039	down
Quercetin	Flavone	Flavonol	1887000	2149700	2216800	929520	1027700	892580	1.16772	0.4557128	down
L-Phenylalanyl-L-phenylalanine	Amino acids and their derivatives	Amino acids and their derivatives	167120	180060	172430	64580	96984	75149	1.16211	0.45555898	down
4,7,9,9'-Tetrahydroxy-3,3'-dimethoxy-8-O-4'-neolignan	Other categories	Other	4860000	4477200	4911900	1952200	2414000	2120100	1.17798	0.4552077	down
Thymine	Nucleotides and their derivatives	Nucleotides and their derivatives	58532	49402	50140	22185	22762	22977	1.16475	0.42969748	down
N- α -Acetyl-L-ornithine	Amino acids and their derivatives	Amino acids and their derivatives	76643	75429	77896	28871	34679	34379	1.18269	0.42583751	down
N-Acetyl-L-Glutamine	Amino acids and their derivatives	Amino acids and their derivatives	247980	280240	231420	117470	102270	99301	1.16524	0.41998973	down
L-Arginine	Amino acids and their derivatives	Amino acids and their derivatives	1035100	983170	1065700	395030	446000	452130	1.18141	0.41931666	down
D-Mannitol*	Other categories	Sugars and alcohols	17946	14247	11516	9006.4	4598.2	3905.7	1.03204	0.40061086	down
Guanine	Nucleotides and their derivatives	Nucleotides and their derivatives	123770	119540	123620	39102	56625	49869	1.17678	0.39679503	down

2-Hydroxy-3-phenylpropanoic acid	Organic acid	Organic acid	52553	88594	72546	21451	22115	41194	1.07728	0.39664378	down
2-Aminoisobutyric acid	Amino acids and their derivatives	Amino acids and their derivatives	91388	107870	116040	47117	34824	42304	1.15212	0.39405578	down
Hesperetin-7-O-glucoside	Flavone	Flavone	15061	13468	12720	5828.6	4009.5	6232.1	1.15787	0.38959005	down
L-Cyclopentylglycine	Amino acids and their derivatives	Amino acids and their derivatives	249400	240810	248080	77274	104000	100720	1.17982	0.3819556	down
2-Hydroxybutyric Acid*	Organic acid	Organic acid	62230	62743	70916	26420	21527	24846	1.17334	0.37160331	down
2-Hydroxy-4-methylpentanoic acid	Organic acid	Organic acid	38292	30220	40708	21097	4810	14388	1.06093	0.36893426	down
2-Hydroxyisobutyric acid*	Organic acid	Organic acid	87048	91915	84059	31838	34097	30720	1.18299	0.36747877	down
Calycosin	Flavone	Isoflavone	9721.9	15532	10235	3720.5	6220.9	2943.2	1.0421	0.36306	down
3-(4-Hydroxyphenyl)-propionic acid	Phenolic acids	Phenolic acids	136250	155110	135510	50039	49872	52902	1.17905	0.35798487	down
Isolariciresinol-9-O-glucoside	Lignans and coumarins	Lignan	96864	87041	96297	31352	33096	35808	1.17958	0.35779902	down
Dulcitol*	Other categories	Sugars and alcohols	57018	45569	57934	19891	16321	21081	1.15378	0.35691903	down
2,6-Dimethoxybenzaldehyde	Phenolic acids	Phenolic acids	92754	108290	126300	39365	41170	35702	1.14649	0.35509128	down

Stachyose	Other categories	Sugars and alcohols	244860	218840	234960	86336	74171	86425	1.17894	0.35343658	down
Hydrocinnamic acid	Phenolic acids	Phenolic acids	16162	14719	12091	9	7469.6	6876	1.03734	0.33404542	down
Nicotinate D-ribonucleoside	Other categories	Vitamin	35495	37814	41500	11351	12732	12135	1.17726	0.31546307	down
L-Lysine-Butanoic Acid	Amino acids and their derivatives	Amino acids and their derivatives	430080	405640	285750	110470	134210	99370	1.11991	0.30678484	down
Cytidine	Nucleotides and their derivatives	Nucleotides and their derivatives	125120	111700	125140	32658	40025	37954	1.18058	0.30566085	down
δ-Tridecalactone	Lipid	Glyceride	24369	24796	18480	4950.8	10154	5018.4	1.1257	0.29748245	down
Histamine	Amino acids and their derivatives	Amino acids and their derivatives	25305	19214	23117	6364.7	7643.8	5676.8	1.16314	0.29104767	down
4-Hydroxybenzaldehyde	Phenolic acids	Phenolic acids	68298	69768	63682	19776	19867	18820	1.18384	0.2897823	down
L-Prolyl-L-Phenylalanine	Amino acids and their derivatives	Amino acids and their derivatives	209180	207790	211410	61752	72865	45101	1.18279	0.2860021	down
p-Hydroxyphenyl acetic acid	Phenolic acids	Phenolic acids	218500	292930	357120	69879	78419	82764	1.11273	0.26603189	down
D-Maltotetraose	Other categories	Sugars and alcohols	481250	459910	452920	139960	107200	111220	1.18319	0.25707276	down
Adenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	642650	707460	729410	172780	187020	166320	1.18171	0.25300069	down

4-Guanidinobutyric acid	Organic acid	Organic acid	192730	215570	201690	48009	52446	44807	1.18313	0.23813833	down
Tyrosol	Phenolic acids	Phenolic acids	52203	55147	49659	10561	15470	10804	1.18045	0.23460439	down
Cytosine	Nucleotides and their derivatives	Nucleotides and their derivatives	26076	28704	26617	7489.9	7635.1	3479.7	1.17508	0.22856739	down
L-Prolyl-L-Leucine	Amino acids and their derivatives	Amino acids and their derivatives	1017000	1108700	1039700	227430	246830	215230	1.18492	0.21782081	down
2-(Dimethylamino)guanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	63343	74197	76083	16345	14905	10830	1.17474	0.19698253	down
LysoPE 15:0	Lipid	Lysophosphatidyl ethanolamine	11813	9573.8	8545.8	1930.5	1943.4	2005.8	1.15343	0.19643132	down
L-Glycyl-L-proline	Amino acids and their derivatives	Amino acids and their derivatives	25897	28937	29845	6881	4580.8	5129.4	1.17904	0.19593051	down
N-Acetyl-L-Aspartic Acid	Amino acids and their derivatives	Amino acids and their derivatives	31771	40854	35222	8457.9	5595.9	6045.6	1.1695	0.18636958	down
2-Hydroxyisocaproic acid	Organic acid	Organic acid	379320	360340	374040	60297	71380	73065	1.186	0.18383945	down
Verbascose	Other categories	Sugars and alcohols	77717	68277	82330	13582	8718.6	15645	1.17469	0.1661919	down
2'-O-Methyladenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	116820	116370	115780	20975	20613	15083	1.18652	0.16239505	down

Eriodictyol-7-O-(6''-malonyl)glucoside	Flavone	Dihydroflavone	10182	13270	12117	9	5330.7	9	1.11233	0.15037533	down
Xanthine	Nucleotides and their derivatives	Nucleotides and their derivatives	288590	273030	278680	42384	34474	48245	1.18538	0.14887897	down
Gluconic acid	Other categories	Sugars and alcohols	2031600	2324700	2235700	329160	293940	346500	1.18315	0.14708738	down
(-)-Jasmonoyl-L-Isoleucine	Organic acid	Organic acid	259140	257370	290300	29938	38724	29711	1.18308	0.12192834	down
N-Acetyl-L-leucine	Amino acids and their derivatives	Amino acids and their derivatives	63731	68787	70787	9363.6	5606.5	5631.7	1.18361	0.10133445	down
D-Proline betaine	Amino acids and their derivatives	Amino acids and their derivatives	630510	683260	719620	61403	48308	54840	1.18344	0.08092447	down
5-Acetamidopentanoic Acid	Organic acid	Organic acid	11234	11909	14398	2779.2	9	9	1.1573	0.07451054	down
1-Methylpiperidine-2-carboxylic acid	Amino acids and their derivatives	Amino acids and their derivatives	1378100	1371300	1346800	106710	97263	74354	1.18696	0.06794761	down
L-Cystathionine	Amino acids and their derivatives	Amino acids and their derivatives	163560	145940	137930	8449.9	4581.4	6959.3	1.17966	0.04467872	down
2'-Deoxyadenosine	Nucleotides and their derivatives	Nucleotides and their derivatives	189310	172300	225800	8600.9	10514	7086.4	1.17282	0.04460479	down

4',6-Dihydroxy-5,7-dimethoxyflavanone	Flavone	Dihydroflavone	242360	239770	231730	8018.4	10624	9969.2	1.18679	0.04008013	down
2'-Deoxyguanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	98318	98276	106440	4545.3	3110.2	4239.8	1.18566	0.03925401	down
2-Furoic acid	Organic acid	Organic acid	754390	903060	795100	26063	23651	36033	1.18168	0.03496239	down
4-Acetamidobutyric acid	Organic acid	Organic acid	1773000	1701700	1824800	57653	56944	55390	1.18637	0.03207604	down
Jasmonic acid	Organic acid	Organic acid	530920	565970	597280	2992.8	4738.5	3017.2	1.18485	0.0063444	down
Isorhamnetin	Flavone	Flavonol	1987.2	1114.2	2029.8	9	9	9	1.13053	0.00526193	down
Dihydroxy-dimethoxyflavone	Flavone	Flavone	14533000	14696000	14097000	37008	33910	36957	1.18696	0.00248984	down
3',4'-Dihydroxy-7,5'-dimethoxyflavone	Flavone	Flavone	8865600	9646500	9051200	22191	20807	25487	1.1862	0.00248464	down
Cirsimaritin (4',5-dihydroxy-6,7-dimethoxyflavone)	Flavone	Flavone	360380	364310	334440	924.47	9	1232.2	1.18569	0.00204476	down

Nepetin (5,7,3',4'-Tetrahydroxy-6-methoxyflavone)	Flavone	Flavone	2955.1	6180.2	5818.6	9	9	9	1.10446	0.00180555	down
6,7,8-Tetrahydroxy-5-methoxyflavone	Flavone	Flavone	5948700	5995200	6429900	9161.2	8207.2	7584.5	1.18598	0.00135807	down
Aracarpene 2	Flavone	Isoflavone	4701800	4938800	5336400	6808.2	6140	5712.9	1.18427	0.00124598	down
Rhamnocitrin (7-Methylkaempferol)*	Flavone	Flavone	5801300	6094300	6381800	6812.7	8615.2	6999.4	1.18571	0.00122705	down
Diosmetin (5,7,3'-Trihydroxy-4'-methoxyflavone)*	Flavone	Flavone	5076200	5352400	5520700	5689.7	7427.8	5618.2	1.18611	0.0011747	down
Chrysoeriol*	Flavone	Flavone	5945300	6584900	6252000	7757.1	7873	6041.4	1.18581	0.00115383	down
Pratensein	Flavone	Isoflavone	5567200	5663500	5842700	7454	5791.6	5912.8	1.1869	0.00112212	down
Aracarpene 1	Flavone	Isoflavone	4516600	4701700	4142300	4298.4	4926	5186.1	1.18444	0.00107858	down
Hispidulin (5,7,4'-Trihydroxy-6-methoxyflavone)*	Flavone	Flavone	5726100	5975100	6138000	8098.6	5803	4991.3	1.1865	0.00105907	down
Xanthosine	Nucleotides and their derivatives	Nucleotides and their derivatives	7726.6	7958.8	10170	9	9	9	1.16937	0.00104427	down

Wogonin (5,7-Dihydroxy-8-Methoxyflavone)	Flavone	Flavone	12040	12891	11303	9	9	9	1.18449	0.00074516	down
Rhamnetin	Flavone	Flavonol	12330	12399	11763	9	9	9	1.18674	0.00073989	down
5,6,7,4'-Tetramethoxyflavanone	Flavone	Flavone	10520	15340	14041	9	9	9	1.16342	0.00067667	down
Apigenin	Flavone	Flavone	17181	17812	18949	9	9	9	1.18567	0.00050054	down
Sulfuretin	Flavone	Flavone	16495	15987	21931	9	9	9	1.16462	0.0004962	down
Acacetin	Flavone	Flavone	20724	17003	22278	9	9	9	1.17501	0.00044996	down
Genkwanin (Apigenin 7-methyl ether)	Flavone	Flavone	20188	16465	24196	9	9	9	1.1637	0.00044372	down
3,7-Di-O-methylquercetin	Flavone	Flavonol	22831	22312	25469	9	9	9	1.18352	0.00038237	down
Guanosine	Nucleotides and their derivatives	Nucleotides and their derivatives	25332	20725	30827	9	9	9	1.16173	0.00035118	down
Galangin (3,5,7-Trihydroxyflavone)	Flavone	Flavone	40679	34330	44420	9	9	9	1.17629	0.00022608	down
Prunetin (5,4'-Dihydroxy-7-methoxyisoflavone)	Flavone	Isoflavone	98765	96924	108070	9	9	9	1.18486	8.8886E-05	down

Cirsilineol (4',5-Dihydroxy-3',6,7-trimethoxyflavone)	Flavone	Flavone	130560	140590	127220	9	9	9	1.18552	6.7776E-05	down
Eupatorin (5,3'-Dihydroxy-6,7,4'-trimethoxyflavone)*	Flavone	Flavone	195490	213940	197670	9	9	9	1.18585	4.4474E-05	down
4',5,7-Trihydroxy-3',6-dimethoxyflavone (Jaceosidin)	Flavone	Flavone	210410	220390	225170	9	9	9	1.1865	4.116E-05	down
Eupatilin (5,7-Dihydroxy-3',4',6-Trimethoxyflavone)*	Flavone	Flavone	316840	325330	298330	9	9	9	1.18591	2.8708E-05	down
7,8-Dihydroxy-5,6,4'-trimethoxyflavone	Flavone	Flavone	319540	330770	301800	9	9	9	1.18585	2.8358E-05	down
5,7-Dihydroxy-3',4',5'-trimethoxyflavone	Flavone	Flavone	359860	362060	370860	9	9	9	1.18712	2.4708E-05	down

