

Table S1. Main components of wood vinegar.

| Retention Time (min) | Compounds | Relative Content (%) | Formula | Molar Mass (g mol ⁻¹) |
|----------------------|--|----------------------|--|-----------------------------------|
| | Organic acids | 26.97 | | |
| 1.93 | Formic acid | 0.39 | CH ₂ O ₂ | 46 |
| 3.16 | Acetic acid | 22.99 | C ₂ H ₄ O ₂ | 60 |
| 4.76 | Propanoic acid | 0.38 | C ₃ H ₆ O ₂ | 74 |
| 5.59 | 2-Hydroxy-2-met-propanoic acid | 0.11 | C ₅ H ₁₀ O ₃ | 118 |
| 9.93 | Butyric acid | 2.55 | C ₄ H ₈ O ₂ | 88 |
| 7.21 | 2-Oxo-n-valericacid | 0.55 | C ₅ H ₈ O ₃ | 116 |
| | Ketones | 10.53 | | |
| 2.24 | 2-Butanone | 0.37 | C ₄ H ₈ O | 72 |
| 3.58 | Acetoin | 0.3 | C ₄ H ₈ O ₂ | 88 |
| 4.80 | 1-Hydroxy-2-butanone | 0.28 | C ₄ H ₈ O ₂ | 88 |
| 5.31 | Cyclopentanone | 0.62 | C ₅ H ₈ O | 84 |
| 6.15 | 1-Hydroxy-3-methyl-2-butanone | 0.21 | C ₅ H ₁₀ O ₂ | 102 |
| 6.50 | 2-Cyclopenten | 1.61 | C ₅ H ₆ O | 82 |
| 8.81 | 2-Methyl-2-cyclopenten-1-one | 1.44 | C ₆ H ₈ O | 96 |
| 12.47 | 2,5-Dihydro-3,5-dimeth-2-furanone | 0.66 | C ₆ H ₈ O ₂ | 112 |
| 13.80 | 2,3-Dimeth-2-cyclopenten-1-one | 1.25 | C ₇ H ₁₀ O | 110 |
| 13.96 | 3-Methyl-1,2-cyclopentanedione | 1.14 | C ₆ H ₈ O ₂ | 112 |
| 15.85 | 3-Ethyl-2-methyl-2-cyclopenten-1-one | 0.22 | C ₇ H ₁₀ O ₂ | 126 |
| 20.48 | 2-Hydroxy-3-propyl-2-cyclopenten-1-one | 0.38 | C ₈ H ₁₂ O ₂ | 140 |
| 29.38 | 1-(4-Hydroxy-3-methoxyphenyl)-ethanone | 0.48 | C ₉ H ₁₀ O ₃ | 166 |
| 30.66 | 1-(4-Hydroxy-3-methoxyphenyl)-2-propanone | 1.29 | C ₁₀ H ₁₂ O ₃ | 180 |
| 36.34 | 1-(4-Hydroxy-3,5-dimethoxyphenyl)-ethanone | 0.28 | C ₁₀ H ₁₂ O ₄ | 196 |
| | Esters | 3.85 | | |
| 2.37 | Ethylacetate | 0.67 | C ₄ H ₈ O ₂ | 88 |
| 9.24 | Gamma-butyrolactone | 2.34 | C ₄ H ₆ O ₂ | 86 |
| 11.32 | Methyl2-furoate | 0.09 | C ₆ H ₆ O ₃ | 126 |
| 14.73 | 2,6-Dimethyl-1-cyclohexen-1-ylacetate | 0.75 | C ₁₀ H ₁₆ O ₂ | 168 |
| | Furan derivatives | 1.48 | | |
| 5.51 | Tetrahydro-2-furanol | 0.41 | C ₄ H ₈ O ₂ | 88 |
| 4.33 | 2-Methoxytetrahydrofuran | 0.19 | C ₅ H ₁₀ O ₂ | 102 |
| 8.98 | 1-(2-Furanyl)-ethanone | 0.88 | C ₆ H ₆ O ₂ | 110 |
| | Alkanes compounds | 3.36 | | |
| 5.79 | Methoxymethyl-oxirane | 0.07 | C ₄ H ₈ O ₂ | 88 |
| 9.17 | 3-Bromo-pentane | 0.59 | C ₅ H ₁₁ Br | 150 |
| 15.63 | Bicyclo [2.2.2] octane | 2.7 | C ₈ H ₁₄ | 110 |
| | Aldehydes | 1.72 | | |
| 10.85 | 5-Methyl-2-furancarboxaldehyde | 0.19 | C ₆ H ₆ O ₂ | 110 |
| 26.77 | Vanillin | 1.53 | C ₈ H ₈ O ₃ | 152 |
| | Phenols and derivatives | 43.19 | | |
| 11.95 | Phenol | 5.91 | C ₆ H ₆ O | 94 |
| 14.64 | O-cresol | 2.41 | C ₇ H ₈ O | 108 |
| 15.48 | 3-Methylphenol | 3.74 | C ₇ H ₈ O | 108 |
| 15.73 | Guaiacol | 2.75 | C ₇ H ₈ O ₂ | 124 |
| 18.03 | 2,4-Dimethylphenol | 0.89 | C ₈ H ₁₀ O | 122 |
| 18.11 | 2,5-Dimethylphenol | 0.39 | C ₈ H ₁₀ O | 122 |
| 18.65 | 4-Ethyl-phenol | 0.47 | C ₈ H ₁₀ O | 122 |
| 18.82 | 3,5-Dimethylphenol | 0.37 | C ₈ H ₁₀ O | 122 |
| 19.03 | 2,3-Dimethylphenol | 0.22 | C ₈ H ₁₀ O | 122 |
| 19.50 | 2-Methoxy-4-methylphenol | 2.04 | C ₈ H ₁₀ O ₂ | 138 |
| 19.60 | 3,4-Dimethylphenol | 0.27 | C ₈ H ₁₀ O | 122 |
| 20.01 | Catechol | 8.95 | C ₆ H ₆ O ₂ | 110 |
| 22.07 | 4-Methyl-1,2-benzenediol | 4.81 | C ₇ H ₈ O ₂ | 124 |
| 22.51 | 4-Ethyl-2-methoxyphenol | 1.32 | C ₉ H ₁₂ O ₂ | 152 |
| 25.14 | 2,6-Dimethoxy-phenol | 3.56 | C ₈ H ₁₀ O ₃ | 154 |
| 25.23 | 2,5-Dimethyl-1,4-benzenediol | 0.9 | C ₈ H ₁₀ O ₂ | 138 |
| 25.37 | 3,4-Dimethoxy-phenol | 0.29 | C ₈ H ₁₀ O ₃ | 154 |
| 26.29 | 4-Ethylcatechol | 1.8 | C ₈ H ₁₀ O ₂ | 138 |
| 28.13 | 1,2,4-Trimethoxybenzene | 1.65 | C ₉ H ₁₂ O ₃ | 168 |
| 30.44 | 1,2,3-Trimethoxy-5-methyl-benzene | 0.45 | C ₁₀ H ₁₄ O ₃ | 182 |
| | Nitrogen compounds | 1.46 | | |
| 21.93 | Pyridine | 1.46 | C ₅ H ₅ N | 79 |

Table S2. Primer sequences for fluorescence quantitative PCR.

| Gene | Forward Primer Sequence | Reverse Primer Sequence |
|------------------|------------------------------|------------------------------|
| BnaA01G0007100ZS | CCTTCAGACCCACCCTCTGTCT | GGGTCTCCAACAGTGGCGT |
| BnaA01G0008900ZS | TTGGAAGCTCATCATGTGTGCTC | ACGAGAATGTGTATTACGGGACTGT |
| BnaA01G0329500ZS | TGCACCTCCGTGGCTTCT | TGCTTGGGCCACGACCAT |
| BnaA02G0103500ZS | GAGGAAAGGGAGGAAAGGGTTTGG | TAGCGTGCTCAGTGTATGTCACAG |
| BnaA02G0317700ZS | ATTCATGGCGCTTTTCATAATATCCCAA | GATTAAAACATCCAGGAGGAACAGGAGT |
| BnaA04G0140100ZS | GCATGGGCCACCGACGA | GCCGCTTCCACGGGACT |
| BnaA10G0113800ZS | TGGTTGTAAACCGCCGCGA | GCCACAATTGGTCCCTAGAGC |
| BnaC03G0034400ZS | TGGATACACCCAAGGGTTCCT | TCCCTGATCTGTATTGGGTTCCT |
| BnaA01G0023100ZS | ACCCTCAAGGTTGCTCCCTC | TGGTGGAGGCTTGGACCATC |
| BnaA01G0122600ZS | ACCATGAGAACGTCATTGACCAC | TGGCAACAGATGAAGAGGCGA |
| BnaA01G0298400ZS | TGCAGTCAGTCTTCGCTG | TGGAGGAGGTGGTGGCG |
| BnaA10G0199800ZS | GCCGCGCAGGGCTTATC | TGGCTTGTTACTCAAATCCACCA |
| BnaC01G0367700ZS | CACCTCCTCCACCTCCTACTAAAC | CAAGATCGCAGTCGTACCAAGGAA |
| BnaA01G0004300ZS | AGTGAGCAAGGGGAAGCA | AGTGAGCAGCGACCATCCT |
| BnaA01G0009500ZS | GGCAAGGACAGAACTAGCGG | TGCTTCTCCGCTTCACTTGGT |
| BnaA04G0030300ZS | TCTCAGCCTTCTAATGGCTTCCA | TCGCCATTGGGAACGTCG |
| BnaA04G0253700ZS | TGCTAACAAACCCATGATCCTTCA | AGGCTCTCCAGAACCATCAATCAA |
| BnaC03G0546100ZS | TGGTCTCTTCCCTTTGGCGT | TCCGACCTTGTGCTGATGCT |
| BnaA01G0003600ZS | GCCTTCCTTCTCCCTTCTCCTCC | TCGCCCTCAGATTGGCTTTGAA |
| BnaA01G0011500ZS | ACGGTGAAGGCAACGACGA | AGTGGAACCGTCGGCCT |
| BnaA01G0019000ZS | AGCTCCTTATCGAGTTCGTGCT | AGAAACAAGGCCAAAGCTGCAA |
| BnaA03G0002200ZS | TGGCCTCCAAGGCGCTC | TGGCCAGATCGGCTTTCTTCA |
| BnaA03G0517000ZS | AGCTTGTTCTTGGCAACTCAG | GGAAGTTCGCTGTTGGGTGCG |
| BnaA04G0006100ZS | ACGAAAATGAGCTAGTGGAGTCAGT | ATACTCGCTCACACTGCCTAGCAA |
| BnaA08G0288400ZS | GGCGTTGGCTGGAATCGC | TGCTTAAGCGCACTCTCCGT |
| BnaA09G0006300ZS | TACCACGACAAGGAGTTGAGATCC | GTGCTTTGAGGAACCATTTGCCT |
| BnaC03G0004200ZS | TCTGAGCTTCTCAAGGCACACT | TTGCTCGTTAATGGCAGCCT |
| Actin7_141 | GGAAGCTCCTGGAATCCATGAGA | TCTTTGCTCATACGGTCAGCAATTCC |

Table S3. Sequencing Data Statistics.

| Sample | Clean Reads Pairs | Clean Base (bp) | Q20 (%) | Q30 (%) | GC (%) |
|---------|-------------------|-----------------|-------------|-------------|-------------|
| CK12h-1 | 25,515,031 | 7,388,056,111 | 98.10;95.16 | 93.92;87.39 | 48.50;48.47 |
| CK12h-2 | 25,281,863 | 7,429,036,971 | 97.97;97.13 | 93.67;91.57 | 48.44;48.47 |
| CK12h-3 | 21,299,057 | 6,214,976,134 | 97.95;97.19 | 93.63;91.78 | 48.53;48.47 |
| CK24h-1 | 24,291,452 | 7,060,458,224 | 98.04;97.50 | 93.82;92.45 | 48.84;48.82 |
| CK24h-2 | 20,614,680 | 5,933,766,708 | 98.09;97.46 | 93.98;92.39 | 48.74;48.81 |
| CK24h-3 | 23,061,799 | 6,710,906,806 | 98.10;97.32 | 93.99;92.06 | 49.01;49.00 |
| CK6h-1 | 21,783,825 | 6,423,459,853 | 97.94;97.33 | 93.60;92.08 | 48.72;48.71 |
| CK6h-2 | 24,743,021 | 7,246,528,162 | 98.00;96.97 | 93.74;91.24 | 48.68;48.61 |
| CK6h-3 | 24,769,942 | 7,240,424,855 | 97.99;97.49 | 93.71;92.40 | 48.77;48.66 |
| CK72h-1 | 22,441,339 | 6,573,237,335 | 98.10;97.54 | 93.98;92.55 | 48.88;48.89 |
| CK72h-2 | 22,501,514 | 6,601,117,487 | 98.09;97.51 | 93.97;92.45 | 48.91;48.80 |
| CK72h-3 | 23,980,181 | 7,024,608,706 | 98.07;97.53 | 93.90;92.49 | 48.70;48.65 |
| D12h-1 | 24,741,354 | 7,177,305,378 | 97.96;97.47 | 93.63;92.37 | 48.38;48.35 |
| D12h-2 | 25,242,426 | 7,370,930,899 | 97.97;97.46 | 93.67;92.33 | 48.45;48.39 |
| D12h-3 | 23,274,042 | 6,780,570,634 | 98.00;97.41 | 93.71;92.22 | 48.31;48.27 |
| D24h-1 | 23,457,823 | 6,855,153,268 | 98.00;96.92 | 93.74;91.15 | 48.73;48.63 |
| D24h-2 | 23,576,227 | 6,866,673,015 | 98.06;97.17 | 93.89;91.68 | 48.68;48.64 |
| D24h-3 | 24,038,056 | 6,992,125,545 | 98.05;97.65 | 93.87;92.80 | 49.01;48.89 |
| D6h-1 | 27,369,800 | 7,944,630,568 | 99.22;98.24 | 97.35;94.97 | 48.53;48.44 |
| D6h-2 | 21,128,104 | 6,138,078,826 | 99.20;98.20 | 97.27;94.86 | 48.70;48.49 |
| D6h-3 | 21,666,419 | 6,326,980,872 | 97.92;96.63 | 93.52;90.55 | 48.08;48.06 |
| D72h-1 | 24,651,246 | 7,142,484,020 | 98.10;97.31 | 93.98;91.99 | 48.63;48.68 |
| D72h-2 | 22,599,790 | 6,565,217,652 | 98.09;97.23 | 93.97;91.85 | 49.01;48.96 |
| D72h-3 | 23,631,945 | 6,970,922,594 | 98.08;96.94 | 93.92;91.19 | 48.71;48.83 |
| M12h-2 | 21,278,167 | 6,203,467,801 | 97.95;96.97 | 93.64;91.27 | 48.43;48.43 |
| M12h-3 | 25,299,029 | 7,348,590,355 | 97.97;97.35 | 93.66;92.10 | 48.51;48.45 |
| M24h-1 | 20,319,026 | 5,938,512,580 | 98.02;97.48 | 93.78;92.41 | 48.57;48.60 |
| M24h-2 | 23,747,852 | 6,945,398,437 | 98.07;97.32 | 93.91;92.01 | 48.67;48.57 |
| M24h-3 | 24,508,264 | 7,158,932,516 | 98.07;97.43 | 93.90;92.27 | 48.57;48.34 |
| M6h-1 | 21,006,066 | 6,162,190,431 | 97.95;97.10 | 93.62;91.57 | 48.63;48.56 |
| M6h-2 | 24,560,922 | 7,184,490,361 | 97.99;97.13 | 93.70;91.58 | 48.59;48.56 |
| M6h-3 | 24,940,258 | 7,261,083,934 | 97.99;97.03 | 93.69;91.34 | 48.52;48.47 |
| M72h-1 | 23,715,688 | 6,916,415,892 | 98.10;97.43 | 93.97;92.26 | 48.84;48.81 |
| M72h-2 | 23,766,292 | 6,891,002,976 | 98.10;97.34 | 93.97;92.07 | 48.76;48.74 |
| M72h-3 | 24,367,056 | 7,133,338,846 | 98.08;97.46 | 93.92;92.35 | 48.72;48.80 |

Note: CK, Control. M, Wood vinegar. D, Butyrolactone.

Table S4. Comparison of sequencing data and reference genome results statistics.

| Sample | Total Reads | Total mapped reads | Uniq mapped reads | Multiple mapped reads |
|---------|-------------|--------------------|--------------------|-----------------------|
| CK12h-1 | 25,515,031 | 22,448,256(87.98%) | 20,662,620(80.98%) | 1,785,636(7.00%) |
| CK12h-2 | 25,281,863 | 22,666,773(89.66%) | 20,898,019(82.66%) | 1,768,754(7.00%) |
| CK12h-3 | 21,299,057 | 19,121,903(89.78%) | 17,641,400(82.83%) | 1,480,503(6.95%) |
| CK24h-1 | 24,291,452 | 21,695,569(89.31%) | 19,797,955(81.50%) | 1,897,614(7.81%) |
| CK24h-2 | 20,614,680 | 18,630,355(90.37%) | 17,027,011(82.60%) | 1,603,344(7.78%) |
| CK24h-3 | 23,061,799 | 20,885,123(90.56%) | 19,182,632(83.18%) | 1,702,491(7.38%) |
| CK6h-1 | 21,783,825 | 19,620,079(90.07%) | 18,114,554(83.16%) | 1,505,525(6.91%) |
| CK6h-2 | 24,743,021 | 22,159,761(89.56%) | 20,455,984(82.67%) | 1,703,777(6.89%) |
| CK6h-3 | 24,769,942 | 22,413,551(90.49%) | 20,642,628(83.34%) | 1,770,923(7.15%) |
| CK72h-1 | 22,441,339 | 20,401,177(90.91%) | 18,745,928(83.53%) | 1,655,249(7.38%) |
| CK72h-2 | 22,501,514 | 20,444,383(90.86%) | 18,799,069(83.55%) | 1,645,314(7.31%) |
| CK72h-3 | 23,980,181 | 21,616,054(90.14%) | 19,837,962(82.73%) | 1,778,092(7.41%) |
| D12h-1 | 24,741,354 | 22,052,448(89.13%) | 20,100,923(81.24%) | 1,951,525(7.89%) |
| D12h-2 | 25,242,426 | 22,553,084(89.35%) | 20,560,694(81.45%) | 1,992,390(7.89%) |
| D12h-3 | 23,274,042 | 20,869,165(89.67%) | 19,181,392(82.42%) | 1,687,773(7.25%) |
| D24h-1 | 23,457,823 | 21,187,699(90.32%) | 19,502,660(83.14%) | 1,685,039(7.18%) |
| D24h-2 | 23,576,227 | 21,208,809(89.96%) | 19,497,760(82.70%) | 1,711,049(7.26%) |
| D24h-3 | 24,038,056 | 21,877,447(91.01%) | 19,933,809(82.93%) | 1,943,638(8.09%) |
| D6h-1 | 27,369,800 | 24,501,689(89.52%) | 22,564,656(82.44%) | 1,937,033(7.08%) |
| D6h-2 | 21,128,104 | 18,873,887(89.33%) | 17,373,635(82.23%) | 1,500,252(7.10%) |
| D6h-3 | 21,666,419 | 19,292,480(89.04%) | 17,912,487(82.67%) | 1,379,993(6.37%) |
| D72h-1 | 24,651,246 | 22,341,956(90.63%) | 20,434,479(82.89%) | 1,907,477(7.74%) |
| D72h-2 | 22,599,790 | 20,172,142(89.26%) | 18,170,237(80.40%) | 2,001,905(8.86%) |
| D72h-3 | 23,631,945 | 21,268,042(90.00%) | 19,755,058(83.59%) | 1,512,984(6.40%) |
| M12h-1 | 23,207,516 | 20,777,234(89.53%) | 19,168,627(82.60%) | 1,608,607(6.93%) |
| M12h-2 | 21,278,167 | 19,036,394(89.46%) | 17,528,730(82.38%) | 1,507,664(7.09%) |
| M12h-3 | 25,299,029 | 22,867,853(90.39%) | 20,971,814(82.90%) | 1,896,039(7.49%) |
| M24h-1 | 20,319,026 | 18,270,971(89.92%) | 16,828,449(82.82%) | 1,442,522(7.10%) |
| M24h-2 | 23,747,852 | 21,549,730(90.74%) | 19,937,525(83.96%) | 1,612,205(6.79%) |
| M24h-3 | 24,508,264 | 21,610,949(88.18%) | 19,964,802(81.46%) | 1,646,147(6.72%) |
| M6h-1 | 21,006,066 | 18,753,069(89.27%) | 17,320,736(82.46%) | 1,432,333(6.82%) |
| M6h-2 | 24,560,922 | 22,081,359(89.90%) | 20,378,261(82.97%) | 1,703,098(6.93%) |
| M6h-3 | 24,940,258 | 22,301,629(89.42%) | 20,520,333(82.28%) | 1,781,296(7.14%) |
| M72h-1 | 23,715,688 | 21,309,933(89.86%) | 19,455,577(82.04%) | 1,854,356(7.82%) |
| M72h-2 | 23,766,292 | 21,614,270(90.95%) | 19,750,534(83.10%) | 1,863,736(7.84%) |
| M72h-3 | 24,367,056 | 22,087,235(90.64%) | 20,286,284(83.25%) | 1,800,951(7.39%) |

Note: CK, Control. M, Wood vinegar. D, Butyrolactone.

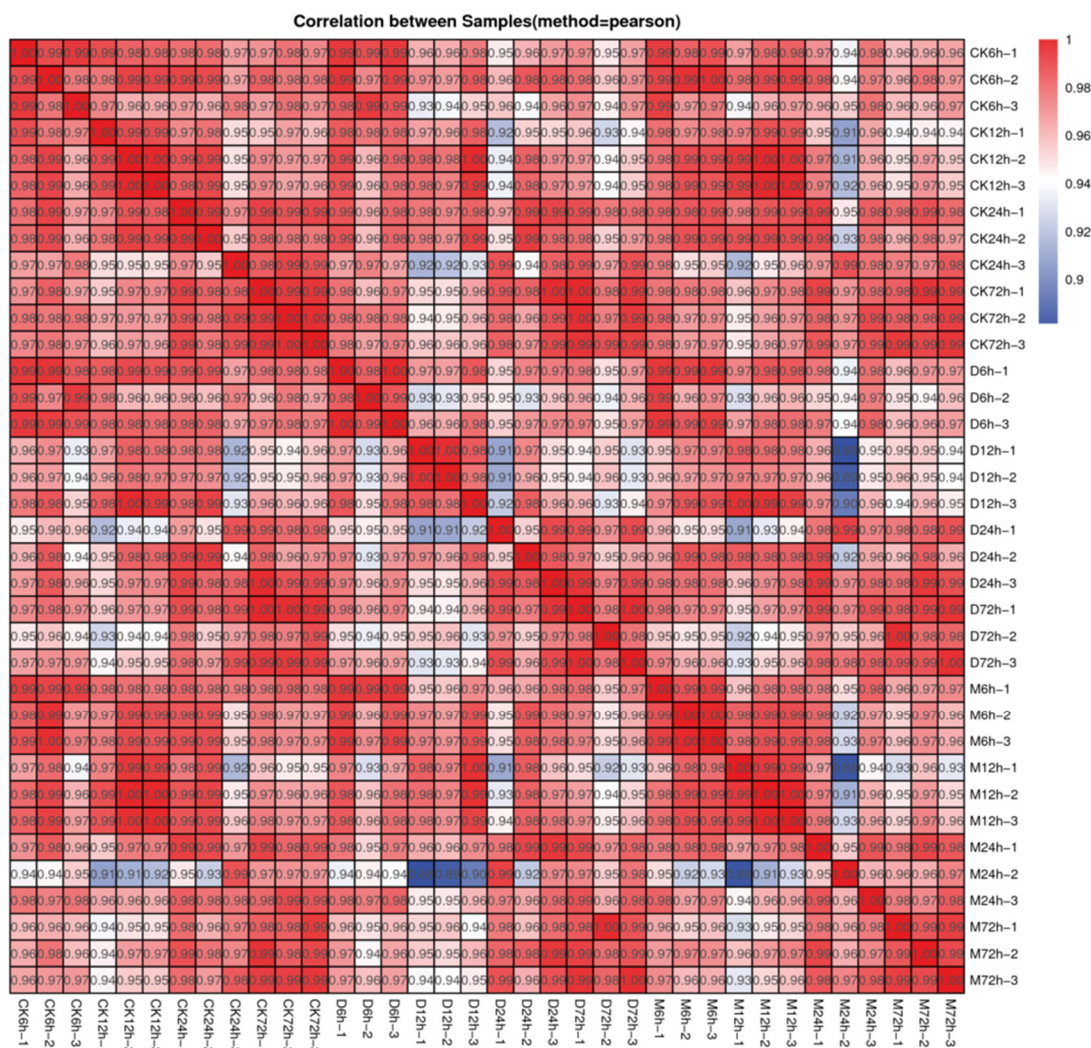


Figure S1. Heat map of correlation between samples. CK, Control. M, Wood vinegar. D, Butyrolactone.

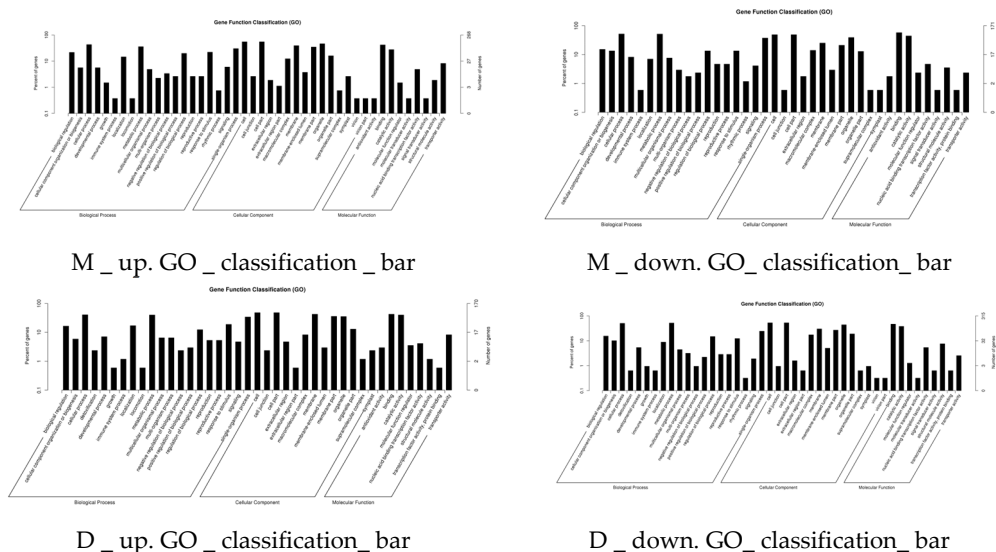


Figure S2. GO classification of differentially expressed genes. CK, Control. M, Wood vinegar. D, Butyrolactone.

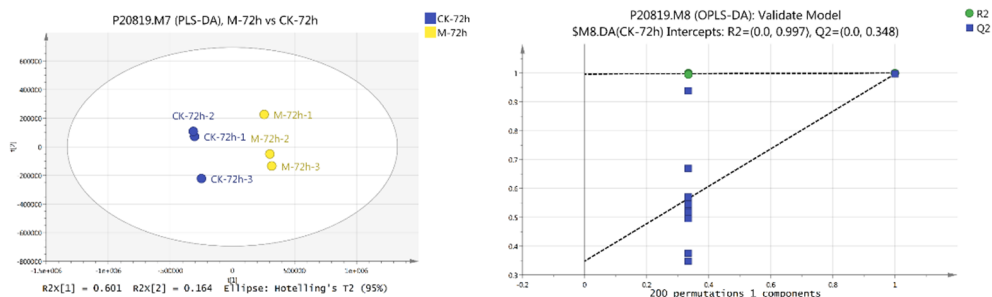


Figure S3. Partial least squares discriminant analysis and orthogonal partial least squares discriminant analysis of metabolites treated with wood vinegar solution. CK, Control. M, Wood vinegar. D, Butyrolactone.

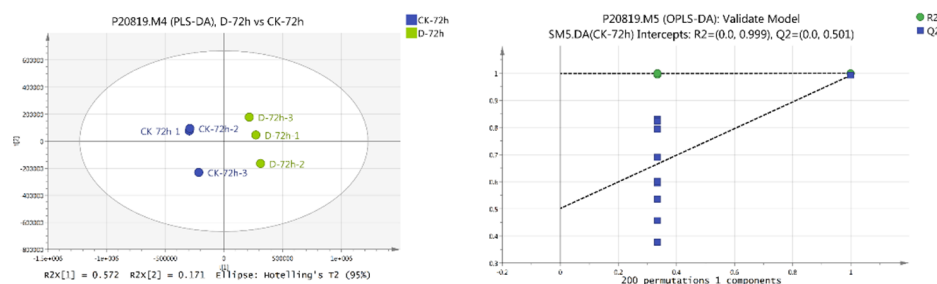


Figure S4. Partial least squares discriminant analysis and orthogonal partial least squares discriminant analysis of metabolites treated with butyrolactone. CK, Control. M, Wood vinegar. D, Butyrolactone.