**Supplementary Data**

# Variations in physicochemical characteristics, antioxidant activity, phenolic and volatile profiles, and sensory attributes of tea-flavored Chardonnay wine during bottle aging

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**Table S1** HPLC-DAD-ESI-QTOF-MS/MS identification of phenolic compounds from tea-macerated Chardonnay wines, tea-macerated model wines and tea ethanolic extracts

| Class/subclass | Compound name | Peak No. | Compound No. | Molecular formula | Retention time (min) | UV $\lambda_{max}$ (nm) | Theoretical mass (m/z) | Experimental mass (m/z) | Error (ppm) | Major fragment ion MS/MS (m/z, abundance %) | Wine type [a] | ID [b] | Literature [c] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Negative mode [M-H]$^-$* | | | | | | | | | | | | | |
| Phenolic acids | | | | | | | | | | | | | |
| Hydroxybenzoic acid | Quinic acid 1 | 1 | 1 | $C_7H_{12}O_6$ | 6.171 | 208, 234, 282 | 191.0561 | 191.0560 | -0.52 | 85 (100), 87 (23), 127 (22) | BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6 | D, L | (2) |
| | Quinic acid 2 | 16 | 35 | $C_7H_{12}O_6$ | 13.807 | 194, 282 | 191.0561 | 191.0550 | -5.76 | 191 (100), 93 (14) | BC-9 | D, L | (2) |
| | Gallic acid | 17 | 37 | $C_7H_6O_5$ | 14.146 | 218, 274 | 169.0143 | 169.0156 | 7.69 | 125 (100) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D, L | (6), (10), (14), (17) |
| | Galloylquinic acid | 18 | 39 | $C_{14}H_{16}O_{10}$ | 14.341 | 216, 276 | 343.0671 | 343.0684 | 3.79 | 191 (100), 192 (56), 193 (11) | GE, BE, GC-1, GM-1, GC-3, BC-3, GM-3, BM-3, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, | D, L | (6), (17) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3,4-Dihydroxybenzoic acid | 30 | 66 | $C_7H_6O_4$ | 20.024 | 210, 268, 293 | 153.0193 | 153.0205 | 7.91 | 108 (100), 110 (69), 87 (15) | GM-9, BM-9 GE, BE, C-1, BC-1, C-3, BC-3, C-6, BC-6, C-9, GC-9, BC-9 | S, D, L | (14) |
| | 2,6-Bis-*O*-(3,4,5-trihydroxybenzoyl)-D-glucopyranose 1 | 34 | 76 | $C_{20}H_{20}O_{14}$ | 21.375 | 196, 226, 281, 328sh | 483.0780 | 483.0818 | 7.87 | 97 (100), 387 (66), 438 (58) | GC-1, BC-1, GC-3, BM-3, GC-6, GC-9, GM-9, BM-9 | D | |
| | 2,6-Bis-*O*-(3,4,5-trihydroxybenzoyl)-D-glucopyranose 2 | 35 | 81 | $C_{20}H_{20}O_{14}$ | 21.850 | 220, 282 | 483.0780 | 483.0745 | -7.25 | 305 (100) | GC-9, BM-9 | D | |
| | 3-*O*-Methylgallic acid | 43 | 106 | $C_8H_8O_5$ | 24.428 | 194, 238, 272 | 183.0299 | 183.0290 | -4.90 | 183 (100) | GC-9 | D | |
| | Syringic acid | 64 | 152 | $C_9H_{10}O_5$ | 34.439 | 218, 275 | 197.0455 | 197.0470 | 7.61 | 124 (100), 125 (32), 79 (6) | C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D | |
| | Gallic acid 1 | 85 | 196 | $C_7H_6O_5$ | 44.887 | 194, 270 | 169.0143 | 169.0161 | 10.65 | 83 (100), 107 (72) | BC-1, BC-3, GC-6, GC-9 | D, L | (6), (10), (14), (17) |
| Hydroxycinnamic acid | Tartaric acid 1 | 1 | 2 | $C_4H_6O_6$ | 6.171 | 208, 234, 282 | 149.0092 | 149.0089 | -1.48 | 74 (100), 88 (40), 85 (21) | C-1, GM-1, BM-1, C-3, GM-3, BM-3, C-6, GM-6, BM-6 | D | |
| | Caffeic acid 3-sulfate | 24 | 52 | $C_9H_8O_7S$ | 16.471 | 206, 275 | 258.9918 | 258.9880 | -14.66 | 136 (100), 134 (64) | C-9, BC-9 | D | |
| | Glutathionyl caftaric acid | 27 | 62 | $C_{23}H_{27}N_3O_{15}S$ | 18.638 | 212, 272 | 616.1090 | 616.1133 | 6.98 | 273 (100), 211 (41), 467 (31) | C-1, GC-1, BC-1, C-3, GC-3, BC-3, C-6, GC-6, BC-6, C-9, GC- | D, L | (14), (17) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 9, BC-9 | | |
| Chlorogenic acid 1 | 31 | 68 | $C_{16}H_{18}O_9$ | 20.153 | 327 | 353.0878 | 353.0894 | 4.53 | 192 (100), 180 (70), 135 (57) | GE, GC-1, GM-1, GC-3, GM-3, BM-3, GC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D, L | (6), (10) |
| *p*-Coumaroylquinic acid 1 | 41 | 100 | $C_{16}H_{18}O_8$ | 23.825 | 312 | 337.0929 | 337.0933 | 1.19 | 163 (100), 93 (8) | GE, BE, GC-1, BC-1, BM-1, GC-3, BC-3, BM-3, GC-6, BC-6, BM-6, BC-9, GM-9, BM-9 | D, L | (6), (9) |
| Tartaric acid 2 | 42 | 103 | $C_4H_6O_6$ | 24.075 | 194, 210, 298 | 149.0092 | 149.0110 | 12.54 | 73 (100) | C-1, BC-1, C-3, BC-3, C-6, C-9, BC-9 | D | |
| Chlorogenic acid | 44 | 108 | $C_{16}H_{18}O_9$ | 24.894 | 242, 327 | 353.0878 | 353.0881 | 0.85 | 173 (100) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D, L | (6), (10) |
| Subaphyllin | 47 | 118 | $C_{14}H_{20}N_2O_3$ | 25.832 | 216, 246, 344 | 263.1401 | 263.1434 | 12.59 | 97 (100), 92 (37), 190 (34) | C-1, GM-3 | D | |
| *p*-Coumaroylquinic acid 2 | 53 | 129 | $C_{16}H_{18}O_8$ | 27.791 | 211, 278 | 337.0929 | 337.0948 | 5.64 | 173 (100), 155 (14), 164 (11) | GE, BE, GC-1, BC-1, BM-1, GC-3, BC-3, | D, L | (6), (9) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Caffeic acid | 56 | 133 | $C_9H_8O_4$ | 29.502 | 208, 290, 326 | 179.0350 | 179.0368 | 10.05 | 134 (100), 136 (95), 107 (22) | BM-3, BC-6, BM-6, BC-9, 3BM-9 GE, BE, C-1, C-3, C-6, C-9, BC-9 | S, D, L | (14) |
| | *p*-Coumaroylquinic acid 3 | 56 | 134 | $C_{16}H_{18}O_8$ | 29.502 | 216, 276 | 337.0929 | 337.0953 | 7.12 | 173 (100), 174 (50) | GE, BE, GC-1, BC-1, BM-1, GC-3, BC-3, BM-3, GC-6, BC-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D, L | (6), (9) |
| | *p*-Coumaroylquinic acid 4 | 59 | 141 | $C_{16}H_{18}O_8$ | 31.447 | 208, 238, 298 | 337.0929 | 337.0967 | 11.33 | 191 (100), 173 (27) | BE, BC-1, BC-3, BM-3, GC-6, BC-6, BC-9, 3BM-9 | D, L | (6), (9) |
| | Hydrocaffeic acid | 96 | 216 | $C_9H_{10}O_4$ | 49.100 | 195, 226, 264, 300 | 181.0506 | 181.0519 | 6.73 | 109 (100) | C-1, C-6, C-9, BC-9 | D | |
| | 3,4-Dimethoxycinnamic acid | 120 | 259 | $C_{11}H_{12}O_4$ | 60.747 | 224, 327 | 207.0663 | 207.0665 | 0.97 | 135 (100), 134 (64), 179 (53), 136 (18) | C-1, GC-1, BC-1, C-3, GC-3, BC-3, C-6, GC-6, BC-6, C-9, GC-9, BC-9 | D, L | (14) |
| Flavonoids | | | | | | | | | | | | | |
| 3-Deoxyanthocyanidin | Unknown 3-deaoxyanthocyanidin | 128 | 271 | $C_{17}H_{26}O_3$ | 66.719 | 200, 222, 254, 486 | 277.1809 | 277.1797 | -4.32 | 277 (100) | GE, BE | D | |
| Flavan-3-ol | Theasinensin C 1 | 24 | 51 | $C_{30}H_{26}O_{14}$ | 16.471 | 206, 275 | 609.1250 | 609.1273 | 3.78 | 423 (100), 484 (86), 187 (48), 177 (38) | GM-1, GM-3, GM-6, GM-9 | D, L | (4) |
| | Theasinensin C 2 | 25 | 54 | $C_{30}H_{26}O_{14}$ | 17.180 | 206, 275 | 609.1250 | 609.1271 | 3.45 | 406 (100) | GM-1, GM-3 | D, L | (4) |
| | Gallocatechin | 28 | 63 | $C_{15}H_{14}O_7$ | 19.054 | 200, 216, 273 | 305.0667 | 305.0716 | 16.06 | 126 (100), 165 (78), 139 (67), 219 (49), 177 (36) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, | S, D, L | (2), (6), (17) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | | |
| Theasinensin C 3 | 32 | 70 | $C_{30}H_{26}O_{14}$ | 20.509 | 206, 276 | 609.1250 | 609.1258 | 1.31 | 424 (100), 305 (72), 441 (37), 125 (32), 592 (10) | GC-1, GM-1, GC-3, GM-3, GC-6, GM-6 | D, L | (4) |
| Theacitrin A | 34 | 77 | $C_{37}H_{28}O_{18}$ | 21.375 | 206, 274 | 759.1203 | 759.1171 | -4.16 | 759 (100), 742 (52), 607 (36), 425 (16) | BE | D, L | (4) |
| Theasinensin B 1 | 37 | 84 | $C_{37}H_{30}O_{18}$ | 22.193 | 230, 298 | 761.1359 | 761.1305 | -7.09 | 591 (100), 594 (24), 467 (19), 753 (14) | BE, BC-1, GM-1, BM-1, BC-3, GM-3, BM-3, BC-6, GM-6, BM-6, GM-9, BM-9 | D, L | (4) |
| Epigallocatechin | 40 | 97 | $C_{15}H_{14}O_{7}$ | 23.385 | 196, 236, 272 | 305.0667 | 305.0657 | -3.28 | 125 (100), 179 (28), 167 (23), 221 (11) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D, L | (2), (17) |
| Unknown (epi)gallocatechin conjugate | 40 | 98 | $C_{30}H_{28}O_{14}$ | 23.385 | 196, 236, 272 | 611.1406 | 611.1393 | -2.13 | 306 (100), 305 (95), 307 (18) | GE, GC-1, GM-1, GC-3, GM-3, GC-6, BC-6, GM-6, GC-9, GM-9 | D | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Theasinensin B 2 | 43 | 104 | $C_{37}H_{30}O_{18}$ | 24.428 | 212, 276 | 761.1359 | 761.1411 | 6.83 | 305 (100), 169 (83), 161 (47), 593 (40) | GE, BE, GC-1, GM-1, GC-3, GM-3, GC-6, GM-6, GC-9, GM-9 | D, L | (4) |
| Catechin | 46 | 112 | $C_{15}H_{14}O_6$ | 25.502 | 206, 224sh, 285 | 289.0718 | 289.0664 | -18.68 | 289 (100), 245 (65), 232 (50), 165 (42), 137 (38), 93 (37) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D, L | (4), (6), (14) |
| (Epi)gallocatechin-(epi)catechin gallate 1 | 51 | 127 | $C_{37}H_{30}O_{17}$ | 27.305 | 208, 281 | 745.1410 | 745.1456 | 6.17 | 424 (100), 560 (44), 407 (38), 593 (29), 575 (25) | BE, GC-1, GM-1, GC-3, GM-3, GC-6, GM-6, GC-9, GM-9 | D, L | (9) |
| Theasinensin A | 52 | 128 | $C_{44}H_{34}O_{22}$ | 27.498 | 210, 282 | 913.1469 | 913.1527 | 6.35 | 744 (100), 425 (65), 733 (54), 763 (46) | GE, BE, GC-1, BC-1, BM-1, GC-3, BC-3, BM-3, GM-9 | D, L | (4) |
| (Epi)gallocatechin-(epi)catechin gallate 2 | 54 | 131 | $C_{37}H_{30}O_{17}$ | 28.239 | 204, 280 | 745.1410 | 745.1453 | 5.77 | 576 (100), 728 (42), 550 (28), 348 (20), 273 (17) | GC-1, GM-1, GC-3, GM-3, GC-6, GM-6, GC-9, GM-9 | D, L | (9) |
| Epicatechin | 56 | 135 | $C_{15}H_{14}O_6$ | 29.502 | 216, 276 | 289.0720 | 289.0747 | 9.34 | 109 (100), 123 (82), 97 (28), 125 (29) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, | S, D, L | (4), (6), (14) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Epigallocatechin gallate | 58 | 137 | $C_{22}H_{18}O_{11}$ | 30.555 | 196, 232, 276 | 457.0776 | 457.0795 | 4.16 | 169 (100), 170 (45) | BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, GM-9 | S, D, L | (4), (6) |
| (Epi)gallocatechin-cyanidin-3,5-diglucoside | 58 | 138 | $C_{42}H_{44}O_{23}$ | 30.555 | 196, 234, 277 | 915.2201 | 915.1880 | -35.04 | 169 (100), 170 (32), 458 (18), 459 (15), 457 (12), 305 (12) | BE, GC-9, GM-9 | D, L | (10) |
| Gallocatechin gallate dimer | 58 | 140 | $C_{44}H_{36}O_{22}$ | 30.555 | 196, 232, 276 | 915.1625 | 915.1680 | 6.01 | 170 (100), 458 (79), 459 (63), 171 (49) | GC-1, GM-1, GC-3, GM-3, GC-6, GM-6 | D, L | (7) |
| Gallocatechin gallate | 63 | 149 | $C_{22}H_{18}O_{11}$ | 33.413 | 210, 275, 334 | 457.0776 | 457.0808 | 7.00 | 170 (100) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GM-9 | S, D | |
| Theasinensin B 3 | 65 | 155 | $C_{37}H_{30}O_{18}$ | 35.315 | 208, 281 | 761.1359 | 761.1315 | -5.78 | 761 (100), 591 (39), 743 (28) | GM-9 | D, L | (4) |
| Epigallocatechin 3,3'-di-gallate | 74 | 171 | $C_{29}H_{22}O_{15}$ | 38.451 | 228, 310 | 609.0886 | 609.0902 | 2.63 | 457 (100), 306 (71), 573 (39) | GE, GC-1, GC-3 | D, L | (9) |
| (Epi)catechin gallate dimer | 76 | 174 | $C_{44}H_{36}O_{20}$ | 39.622 | 196, 232, 280 | 883.1727 | 883.1759 | 3.62 | 442 (100), 441 (81), 443 (77), 289 (9) | GE, BE, GC-1, BC-1, GM-1, | D, L | (20) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Epicatechin gallate | 76 | 176 | $C_{22}H_{18}O_{10}$ | 39.622 | 196, 232, 280 | 441.0827 | 441.0844 | 3.85 | 169 (100), 290 (61), 170 (51) | GC-3, BC-3, GM-3, GC-6, GM-6, GC-9, GM-9 GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, GM-9, BM-9 | S, D, L | (2), (6), (9) |
| Epicatechin gallate 1 | 79 | 182 | $C_{22}H_{18}O_{10}$ | 41.522 | 208, 276 | 441.0827 | 441.0844 | 3.85 | 290 (100), 246 (14), 272 (13) | GE, GC-1, GM-1, GC-3, GM-3, GC-6, GM-6, GC-9 | D, L | (2), (6), (9) |
| Theacitrin C | 89 | 203 | $C_{44}H_{32}O_{22}$ | 46.401 | 194, 277 | 911.1312 | 911.1406 | 10.22 | 875 (100), 396 (95), 850 (75) | BE | D, L | (13) |
| Methyl epicatechin gallate | 90 | 204 | $C_{23}H_{20}O_{10}$ | 46.533 | 194, 280 | 455.0984 | 455.1007 | 5.05 | 79 (100), 181 (50), 283 (31) | GE, BE, GM-1, GC-3, GM-3 | D, L | (2) |
| Epiafzelechin 3-gallate | 92 | 209 | $C_{22}H_{18}O_{9}$ | 47.594 | 194, 206sh, 275 | 425.0878 | 425.0884 | 1.41 | 274 (100), 169 (10), 255 (9) | GE, BE, GC-1, GM-1, GC-3, GM-3, GM-6 | D, L | (11) |
| Epicatechin-3,5-digallate | 96 | 217 | $C_{29}H_{22}O_{14}$ | 49.100 | 208, 282 | 593.0937 | 593.0977 | 6.74 | 563 (100), 443 (36), 476 (27), 523 (27) | GE, GM-1, GM-3, GC-9, GM-9, BM-9 | D, L | (18) |
| Epigallocatechin gallate-4',4"-*O*-β-D-gluco-pyranoside | 98 | 219 | $C_{34}H_{38}O_{21}$ | 50.154 | 248, 364 | 781.1833 | 781.2199 | 46.85 | 607 (100) | GE, GC-1, GM-1, 4GM-9 | D, L | (22) |
| Unknown (epi)catechin glucoside | 100 | 222 | $C_{21}H_{24}O_{11}$ | 50.678 | 210, 226sh, 316 | 451.1246 | 451.1080 | -36.70 | 161 (100), 417 (55), 286 (54) | GE | D, L | (21) |
| Unknown di(epi)catechin-dimethylglyoxal adduct | 102 | 226 | $C_{36}H_{36}O_{16}$ | 51.259 | 214, 316 | 723.1931 | 723.5140 | 443.76 | 678 (100), 679 (17) | BE | D, L | (3) |
| Epigallocatechin 3-*O*-gallate-7-*O*-glucoside- | 106 | 231 | $C_{22}H_{18}O_{11}$ | 54.599 | 210, 276 | 795.1625 | 795.1700 | 9.43 | 463 (100), 490 (61), 305 (48), 331 (39) | GC-9 | D, L | (15) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4"-*O*-glucuronide | | | | | | | | | | | |
| | Theasinensin F | 109 | 235 | $C_{44}H_{34}O_{21}$ | 55.721 | 228, 380 | 897.1520 | 897.1536 | 1.80 | 441 (100), 285 (47), 855 (37) | GM-9 | D |
| | Epiphyllocoumarin-[4β→8]-(-)-epicatechin-[4β→8]-(-)-epicatechin | 113 | 242 | $C_{48}H_{38}O_{19}$ | 58.117 | 320 | 917.1935 | 917.2600 | 67.85 | 887 (100) | BE | D |
| | Epitheaflavic acid 3'-gallate | 114 | 244 | $C_{28}H_{20}O_{14}$ | 58.315 | 208, 282, 398 | 579.0780 | 579.0900 | 22.19 | 150 (100), 505 (47), 193 (38), 339 (35) | BE | D |
| | Theaflavic acid | 115 | 246 | $C_{21}H_{16}O_{10}$ | 58.863 | 282, 396 | 427.0671 | 427.0727 | 13.16 | 227 (100), 137 (66) | BE | D |
| | Theaflavin | 115 | 247 | $C_{29}H_{24}O_{12}$ | 58.863 | 210, 268, 298, 365sh | 563.1195 | 563.1227 | 5.68 | 546 (100), 523 (91), 138 (81), 231 (77), 486 (53) | GE, BE, BC-1, BC-3 | D, L (6) |
| | Theaflavin 3-gallate | 118 | 255 | $C_{36}H_{28}O_{16}$ | 59.832 | 210, 270 | 715.1305 | 715.1359 | 7.55 | 564 (100) | GE, BE, BC-1, BC-3 | D, L (6) |
| | Epitheaflagallin 3-*O*-gallate | 119 | 256 | $C_{27}H_{20}O_{13}$ | 60.230 | 214, 314 | 551.0831 | 551.0922 | 16.52 | 125 (100), 234 (31), 295 (30), 187 (25) | BE | D, L (8) |
| | Theaflavin-3,3'-gallate | 119 | 257 | $C_{43}H_{32}O_{20}$ | 60.230 | 208, 277, 378 | 867.1414 | 867.1475 | 7.03 | 715 (100) | GE, BE, BC-1, BC-3 | D, L (6) |
| Flavanonol | Katuranin 2 | 102 | 225 | $C_{15}H_{12}O_6$ | 51.259 | 204, 268, 316 | 287.0561 | 287.0549 | -4.15 | 125 (100), 260 (17) | GE, BE, C-9 | D |
| Flavone | Apigenin 6,8-di-*C*-glucoside | 55 | 132 | $C_{27}H_{30}O_{15}$ | 29.077 | 272, 352 | 593.1512 | 593.1541 | 4.89 | 391 (100) | BE, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, BC-6, GM-6, BM-6 | D, L (4) |
| Flavonoid-*O*-glucuronide | 6-[6-({6-[(6-Aminopyridin-3-yl)methyl]-2-(3,4-dihydroxyphenyl)-5-hydroxy-4-oxo-4*H*-chromen-7-yl}oxy)-3,4,5-trihydroxyoxane-2-carbonyloxy]-3,4,5-trihydroxyoxane-2-carboxylic acid | 104 | 229 | $C_{33}H_{32}N_2O_{18}$ | 52.761 | 195, 280, 330 | 743.1577 | 743.1546 | -4.22 | 439 (100), 302 (94), 147 (83), 573 (47) | GC-9 | D |
| Flavonoid-*O*-glycoside | Tiliroside 1 | 29 | 65 | $C_{30}H_{26}O_{13}$ | 19.574 | 204, 274 | 593.1301 | 593.1334 | 5.56 | 426 (100), 289 (34), 409 (30), 304 (17) | GC-1, GM-1, GC-3, GM-3, GM-6, GC-9, GM-9 | D |
| | Tiliroside 2 | 33 | 74 | $C_{30}H_{26}O_{13}$ | 20.888 | 200, 268sh, 334 | 593.1301 | 593.1351 | 8.43 | 426 (100), 177 (17), 468 (23), 380 (10) | GC-1, GC-9, GM-9 | D |
| | Tiliroside 3 | 39 | 94 | $C_{30}H_{26}O_{13}$ | 22.905 | 216, 260, 294sh | 593.1301 | 593.1345 | 7.42 | 424 (100), 287 (11), 177 (10) | GC-1, GM-1 | D |
| | Miscanthoside | 81 | 190 | $C_{21}H_{22}O_{11}$ | 42.668 | 204, 230sh, 295 | 449.1089 | 449.1124 | 7.65 | 286 (100), 355 (50), 381 (24), 324 (22), 284 (19) | C-1, C-6, C-9 | D |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unknown flavonoid-7-*O*-glycoside 1 (myriophylloside B or myriophylloside type) | 114 | 243 | $C_{41}H_{44}O_{22}$ | 58.315 | 210, 285 | 887.2251 | 887.2325 | 8.34 | 840 (100) | BC-1, GM-1, GC-3, GM-3, BM-3, GC-6, GM-6, BM-6, GC-9, BC-9 | D | |
| | Unknown flavonoid-7-*O*-glycoside 2 (myriophylloside D or myriophylloside type) | 118 | 254 | $C_{41}H_{44}O_{21}$ | 59.832 | 266, 318 | 871.2302 | 871.2324 | 2.53 | 828 (100), 585 (78) | BC-1, GM-1, GM-3, BM-3, BM-6, GC-9, BC-9, GM-9, BM-9 | D | |
| | Tiliroside 4 | 120 | 258 | $C_{30}H_{26}O_{13}$ | 60.747 | 206, 268, 372 | 593.1301 | 593.1290 | -1.85 | 563 (100), 483 (33), 413 (66), 284 (22), 531 (18) | GC-1, GM-1, GC-3, GM-3, BM-3, BM-6, GM-9, BM-9 | D | |
| Flavonol | Quercetin 3-*O*-di-galacoside/glucoside | 65 | 154 | $C_{27}H_{30}O_{17}$ | 35.315 | 208, 281 | 625.1410 | 625.1448 | 6.08 | 317 (100) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, GM-9 | D, L | (5) |
| | Myricetin 3-*O*-glucoside | 67 | 158 | $C_{21}H_{20}O_{13}$ | 36.197 | 254, 343 | 479.0831 | 479.0810 | -4.43 | 316 (100), 271 (14) | BE | D, L | (10) |
| | Myricetin-3-*O*-galactoside 1 | 68 | 159 | $C_{21}H_{20}O_{13}$ | 36.379 | 212, 270, 350 | 479.0831 | 479.0858 | 5.64 | 318 (100), 328 (19), 152 (17) | GE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, | D, L | (10) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Myricetin-3-*O*-galactoside 2 | 69 | 160 | $C_{21}H_{20}O_{13}$ | 36.799 | 210, 264, 360 | 479.0831 | 479.0862 | 6.47 | 318 (100), 289 (13) | GC-9, GM-9 GE, BE, GC-1, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, GC-6, GM-6, GC-9, BC-9, GM-9 | D, L | (10) |
| Quercetin 3-*O*-glucosylrutinoside 1 | 70 | 161 | $C_{33}H_{40}O_{21}$ | 37.066 | 206, 268, 350 | 771.1989 | 771.2065 | 9.85 | 675 (100) | GE, BE, BC-1, BM-1, GC-3, BC-3, GM-3, BM-3, BC-6, BM-6, BC-9, BM-9 | D, L | (4), (9) |
| Kaempferol 3-*O*-rutinoside 1 | 72 | 164 | $C_{27}H_{30}O_{15}$ | 37.274 | 216, 271, 347 | 593.1512 | 593.1553 | 6.91 | 440 (100), 294 (92) | GE, BE, GC-1, BC-1, GM-1, BM-1, BC-3, BM-3, GC-6, GM-6, GC-9, GM-9, BM-9 | D, L | (6) |
| Quercetin 3-*O*-glucosylrutinoside 2 | 73 | 167 | $C_{33}H_{40}O_{21}$ | 38.075 | 208, 260, 360 | 771.1989 | 771.2077 | 11.41 | 302 (100), 730 (52) | GE, BE, GC-1, BC-1, GM-1, BM-1, BC-3, BM-3, GC-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D, L | (4), (9) |
| Kaempferol 3-*O*-glucosylrhamnosyl-galactoside 1 | 77 | 177 | $C_{33}H_{40}O_{20}$ | 40.518 | 200, 264, 350 | 755.2040 | 755.2013 | -3.61 | 285 (100), 755 (69), 286 (18), 284 (15) | BE | D | |
| Rutin | 77 | 178 | $C_{27}H_{30}O_{16}$ | 40.518 | 204, 258, 357 | 609.1461 | 609.1490 | 4.76 | 301 (100), 458 (27), 179 (10) | GE, BE, C-1, GC- | S, D, L | (2), (4) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 | | |
| Quercetin-3-*O*-glucoside 2 | 80 | 186 | $C_{21}H_{20}O_{12}$ | 42.306 | 208, 258, 356 | 463.0882 | 463.0890 | 1.73 | 301 (100) | GE, BE, GC-1, GM-1, GC-3, GM-3, GC-6, BC-6, GM-6, GC-9, GM-9, BM-9 | D, L | (9) |
| Kaempferol 3-*O*-glucosylrhamnosyl-galactoside 2 | 80 | 187 | $C_{33}H_{40}O_{20}$ | 42.306 | 200, 268, 350 | 755.2040 | 755.2166 | 16.68 | 285 (100), 415 (9) | GE, BE, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, BC-6, BM-6, BC-9, BM-9 | D | |
| Quercetin 3-*O*-galactoside | 82 | 192 | $C_{21}H_{20}O_{12}$ | 42.886 | 208, 258, 357 | 463.0882 | 463.0892 | 2.16 | 179 (100), 389 (77) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9 | S, D, L | (6), (17) |
| Kaempferol 3-*O*-rutinoside 2 | 83 | 193 | $C_{27}H_{30}O_{15}$ | 43.739 | 206, 254, 342 | 593.1512 | 593.1516 | 0.67 | 498 (100) | GE, BE, C-1, GC- | D, L | (6) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6 | | |
| Kaempferol 3-*O*-(6-*O*-rhamnosyl-hexoside)7-*O*-rhamnoside | 84 | 194 | $C_{33}H_{40}O_{19}$ | 44.325 | 212, 240, 268, 342 | 739.2091 | 739.2080 | -1.49 | 593 (100) | GE, BE, GC-1, GM-1, GC-3, GM-3, GC-9, GM-9 | D | |
| Kaempferol 3-*O*-rutinoside 3 | 87 | 198 | $C_{27}H_{30}O_{15}$ | 45.751 | 198, 268, 349 | 593.1512 | 593.1510 | -0.34 | 483 (100), 563 (48), 286 (44) | GE, BE, GC-1, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, GC-6, GM-6, GC-9, BC-9, GM-9, BM-9 | D, L | (6) |
| Kaempferol 3-*O*-glucoside 1 | 89 | 201 | $C_{21}H_{20}O_{11}$ | 46.401 | 194, 280 | 447.0933 | 447.0955 | 4.92 | 285 (100) | GE, BE, BC-1, BC-3, GC-6, BC-6, BM-6 | D, L | (9) |
| Kaempferol 7-(6"-galloylglucoside) | 89 | 202 | $C_{28}H_{24}O_{15}$ | 46.401 | 194, 210sh, 280 | 599.1042 | 599.1044 | 0.26 | 301 (100) | BE, GC-1, GM-9 | D | |
| Kaempferol 3-*O*-glucoside | 94 | 212 | $C_{21}H_{20}O_{11}$ | 48.399 | 198, 266, 350 | 447.0933 | 447.0942 | 2.01 | 284 (100), 447 (58) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9 | S, D, L | (9) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kaempferol 3-*O*-glucoside 3 | 101 | 223 | $C_{21}H_{20}O_{11}$ | 51.044 | 198, 266, 350 | 447.0933 | 447.0904 | -6.49 | 300 (100), 258 (38), 374 (36), 179 (32) | GC-9, BC-9, GM-9, BM-9 | D, L | (9) |
| Quercetagetin | 108 | 234 | $C_{15}H_{10}O_8$ | 55.294 | 228, 380 | 317.0303 | 317.0279 | -7.57 | 151 (100), 137 (92), 255 (29) | GC-9 | D | |
| Quercetin 1 | 109 | 236 | $C_{15}H_{10}O_7$ | 55.721 | 228, 380 | 301.0354 | 301.0351 | -1.00 | 301 (100) | GC-1, GM-1, GM-3, GC-9, GM-9 | D, L | (17) |
| Unknown quercetin conjugate 1 | 113 | 241 | $C_{42}H_{46}O_{22}$ | 58.117 | 210, 270, 318 | 901.2408 | 901.2466 | 6.44 | 757 (100), 302 (17) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9 | D, L | (6) |
| Kaempferol 3-(2G-xylosylrutinoside)-7-glucoside | 114 | 245 | $C_{38}H_{48}O_{24}$ | 58.315 | 208, 282, 398 | 887.2463 | 887.2400 | -4.54 | 858 (100) | BE, GM-9, BM-9 | D | |
| Unknown kaempferol conjugate | 115 | 248 | $C_{42}H_{46}O_{21}$ | 58.863 | 212, 270, 315 | 885.2459 | 885.2456 | -0.34 | 740 (100), 787 (72), 792 (69) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9. BM-9 | D, L | (6) |
| Unknown quercetin conjugate 2 | 116 | 249 | $C_{42}H_{46}O_{22}$ | 59.059 | 206, 316 | 901.2408 | 901.2262 | -16.20 | 755 (100) | GC-9, GM-9, BM-9 | D, L | (6) |
| Kaempferol 3-*O*-glucosylrhamnosyl-galactoside 3 | 116 | 250 | $C_{33}H_{40}O_{20}$ | 59.059 | 206, 316 | 755.2040 | 755.1815 | -29.79 | 289 (100), 745 (59) | GE, GM-1, GC-3, GM-3, GC-9, GM-9 | D | |
| Quercetin | 121 | 261 | $C_{15}H_{10}O_7$ | 61.100 | 206, 258, 374 | 301.0354 | 301.0385 | 10.30 | 151 (100), 179 (51), 107 (13) | GE, BE, GC-1, | S, D, L | L data 9, 10 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Kaempferol | 124 | 266 | $C_{15}H_{10}O_6$ | 63.686 | 228, 370 | 285.0405 | 285.0392 | -4.56 | 257 (100), 227 (74), 210 (47), 151 (45) | GM-1, BM-1, GC-3, GM-3, BM-3, GC-6, GM-6, BM-6, GC-9, GM-9 GE, BE, GC-1, GM-1, GC-3, GM-3, GM-6, GC-9, GM-9, BM-9 | S, D, L | (17) |
| Isoflavonoid | 3-Oxo-3-{[3,4,5-trihydroxy-6-({3-hydroxy-14-methoxy-8,17-dioxatetracyclo[8.7.0.0$^{2}$,$^{7}$.0$^{11}$,$^{16}$]heptadeca-2,4,6,11,13,15-hexaen-5-yl}oxy)oxan-2-yl]methoxy}propanoic acid | 75 | 173 | $C_{25}H_{26}O_{13}$ | 39.040 | 220, 274, 338 | 533.1301 | 533.1362 | 11.44 | 441 (100), 97 (20) | BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, BC-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D | |
| | Dihydrogenistin | 103 | 228 | $C_{21}H_{22}O_{10}$ | 52.494 | 195, 280, 330 | 433.1140 | 433.1099 | -9.51 | 180 (100), 259 (62), 126 (12) | C-9 | D | |
| Neoflavone | 8-Methyl-2-oxo-4-phenyl-2*H*-chromen-7-yl 2-(4-methylbenzenesulfonamido)-3-phenylpropanoate | 99 | 220 | $C_{32}H_{27}NO_6S$ | 50.467 | 224, 280 | 552.1486 | 552.1455 | -5.67 | 401 (100), 382 (60), 236 (24), 508 (10) | GC-9, GM-9 | D | |
| Proanthocyanidin | Procyanidin B3 | 38 | 89 | $C_{30}H_{26}O_{12}$ | 22.477 | 204, 213sh, 282 | 577.1351 | 577.1394 | 7.45 | 484 (100), 370 (18), 543 (14), 481 (12) | C-1, GC-1, BC-1, GM-1, C-3, GC-3, BC-3, GM-3, GM-6, GC-9, GM-9 | D, L | (17) |
| | Procyanidin B1 | 49 | 123 | $C_{30}H_{26}O_{12}$ | 26.435 | 204, 282 | 577.1351 | 577.1390 | 6.76 | 290 (100), 426 (34), 560 (19) | GE, BE, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C- | S, D, L | (17) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | | | |
| | Procyanidin B2 | 50 | 124 | $C_{30}H_{26}O_{12}$ | 27.127 | 204, 325 | 577.1351 | 577.1393 | 7.28 | 408 (100), 261 (18), 485 (17), 287 (15) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6 | S, D, L | (17) |
| | Procyanidin B1 3-*O*-gallate | 59 | 142 | $C_{37}H_{30}O_{16}$ | 31.447 | 208, 282, 310 | 729.1461 | 729.1497 | 4.94 | 635 (100), 636 (40) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, GM-9 | D | |
| | Procyanidin B2 3-*O*-gallate | 61 | 147 | $C_{37}H_{30}O_{16}$ | 32.412 | 204, 280 | 729.1461 | 729.1530 | 9.46 | 636 (100) | GC-1, BC-1, GM-1, BC-3, GM-3, GC-6, GC-9, BM-9 | D | |
| Pyranoflavonoid | Unknown pyranoflavonoid | 90 | 205 | $C_{45}H_{50}N_4O_7$ | 46.533 | 194, 280 | 757.3607 | 757.3591 | -2.08 | 271 (100), 485 (82) | GC-3 | D | |
| Others: phenolic compounds | | | | | | | | | | | | | |
| Anthraquinone | Unknown anthraquinone | 16 | 36 | $C_{28}H_{33}O_{18}P$ | 13.807 | 194, 282 | 687.1332 | 687.1348 | 2.32 | 343 (100) | GC-9, BM-9 | D | |
| Benzenediol | 2-(3,4-Dihydroxyphenyl)-3,5,7-trihydroxy-4a,8a-dihydro-4*H*-chromen-4-one | 79 | 183 | $C_{15}H_{12}O_7$ | 41.522 | 205, 290 | 303.0510 | 303.0522 | 3.71 | 217 (100) | C-1, C-6, C-9 | D | |
| Benzenetriol | Pyrogallol | 17 | 38 | $C_6H_6O_3$ | 14.146 | 214, 271 | 125.0244 | 125.0243 | -1.02 | 125 (100), 81 (13), 97 (11) | BE | D | |
| Benzopyran | 7,8-Dihydroxy-3-propyl- | 124 | 265 | $C_{12}H_{16}O_5$ | 63.686 | 228, 370 | 239.0925 | 239.0897 | -11.70 | 124 (100), 168 (29) | GC-9, | D | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3,4,5,6,7,8-hexahydro-1*H*-2-benzopyran-1,5-dione | | | | | | | | | | BC-9 | | |
| | 8-Hydroxycannabinol | 128 | 270 | $C_{21}H_{26}O_3$ | 66.719 | 200, 222, 254, 486 | 325.1809 | 325.1828 | 5.79 | 325 (100) | C-9, GC-9, BC-9, GM-9, BM-9 | D | |
| *C*-Glycosyl compound | Unknown C-glycosyl compound (5-ethyl-2-(hydroxymethyl)-1*H*-indol-3-yl 3,4,5-trihydroxy-5-(hydroxymethyl)oxolane-2-carboxylate or *C*-glycosyl compound type) | 60 | 143 | $C_{17}H_{21}NO_8$ | 32.078 | 202, 224, 282 | 366.1194 | 366.1219 | 6.69 | 142 (100), 322 (79), 300 (48) | C-1, C-9 | D | |
| Coumarin glycoside | Aspergillazine C 1 | 86 | 197 | $C_{20}H_{22}N_2O_8S$ | 45.255 | 194, 270 | 449.1024 | 449.1039 | 3.21 | 286 (100), 199 (30) | C-9 | D | |
| | Aspergillazine C 2 | 94 | 213 | $C_{20}H_{22}N_2O_8S$ | 48.399 | 198, 266, 350 | 449.1024 | 449.1057 | 7.37 | 217 (100), 147 (55), 156 (54) | C-9 | D | |
| Gallotannin | Trigalloyl glucopyranose | 60 | 145 | $C_{27}H_{24}O_{18}$ | 32.078 | 224, 282 | 635.0890 | 635.0940 | 7.87 | 565 (100), 424 (67) | BE, GC-1, BC-1, GM-1, GM-3, GM-6, GM-9 | D, L | (4) |
| Galloyl ester | (3,4,5,6-Tetrahydroxyoxan-2-yl)methyl 3,4,5-trihydroxybenzoate | 8 | 20 | $C_{13}H_{16}O_{10}$ | 10.415 | 196, 226sh, 275 | 331.0671 | 331.0636 | -10.48 | 169 (100), 211 (44), 271 (25) | GC-9, GM-9, BM-9 | D | |
| | 2,3-Dihydroxypropyl 3,4,5-trihydroxybenzoate | 26 | 57 | $C_{10}H_{12}O_7$ | 17.301 | 212, 270, 308 | 243.0510 | 243.0519 | 3.72 | 107 (100), 106 (20), 71 (20) | GC-1, BC-1, GC-3, BC-3, GC-6, BC-6, GC-9, BC-9 | D | |
| Hydrolyzable tannin | Strictinin | 45 | 109 | $C_{27}H_{22}O_{18}$ | 25.141 | 196, 222, 288, 326sh | 633.0733 | 633.0790 | 9.00 | 302 (100), 631 (4) | BE, GC-1, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, GC-6, GM-6, BM-6, GM-9 | D, L | (16) |
| Hydroxycoumarin | Esculetin | 66 | 157 | $C_9H_6O_4$ | 35.542 | 334 | 177.0193 | 177.0197 | 2.08 | 109 (100), 91 (96), 152 (39) | BC-1, BM-1, BC-3, BM-3, BM-6, BC-9 | D | |
| *O*-Benzoquinone | 5,6-Dioxocyclohexa-1,3-diene-1-carboxylic acid | 107 | 232 | $C_7H_4O_4$ | 55.163 | 192, 262, 300sh | 151.0037 | 151.0022 | -9.81 | 65 (100), 83 (23), 107 (20) | GE, BE, BC-1, | D | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phenol ether | Unknown phenol ether (4-[3-(4-amidinophenoxy)propoxy]benzamidine or other phenol ether type) | 62 | 148 | $C_{21}H_{32}N_4O_{10}S_2$ | 33.214 | 202, 236, 272sh, 336 | 563.1487 | 563.1472 | -2.75 | 504 (100), 387 (83), 147 (76) | GC-3, BC-3, GC-6, GC-9, BC-9 BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D |
| Phenolic glycoside | Turgorin | 21 | 43 | $C_{13}H_{16}O_{13}S$ | 15.458 | 194, 340 | 411.0239 | 411.0237 | -0.45 | 97 (100), 242 (32), 139 (11) | GC-1, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D |
| Styrene | 4-Vinylphenol | 73 | 168 | $C_8H_8O$ | 38.075 | 230, 313 | 119.0502 | 119.0515 | 10.92 | 119 (100), 93 (6) | C-1, BC-1, C-6, C-9 | D |
| Tetracenequinone | Maggiemycin | 97 | 218 | $C_{22}H_{18}O_9$ | 49.699 | 208, 282 | 425.0878 | 425.0829 | -11.54 | 255 (100), 133 (31), 205 (24) | GC-9, GM-9 | D |
| Others: non-phenolic compounds | | | | | | | | | | | | |
| Alpha amino acid | Pyroglutamic acid | 4 | 9 | $C_5H_7NO_3$ | 8.277 | 196, 262 | 128.0353 | 128.0336 | -13.25 | 88 (100) | C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, | D |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Beta hydroxy acid | *L*-Malic acid | 2 | 3 | $C_4H_6O_5$ | 6.849 | 194, 210sh, 266 | 133.0142 | 133.0130 | -9.75 | 73 (100), 89 (9) | GM-9, BM-9 BC-1, GM-1, BM-1, GM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9 | D |
| | 3-Hydroxyglutaric acid | 7 | 15 | $C_5H_8O_5$ | 9.797 | 194, 205sh, 263 | 147.0299 | 147.0301 | 1.24 | 87 (100) | C-1, GC-1, BC-1, C-3, GC-3, BC-3, C-6, GC-6, BC-6, C-9, GC-9, BC-9 | D |
| Dicarboxylic acid | Succinic acid | 6 | 13 | $C_4H_6O_4$ | 9.325 | 198, 270 | 117.0193 | 117.0169 | -20.70 | 73 (100), 99 (6) | C-9, GC-9 | D |
| Dipeptide | gamma-Glutamylleucine | 10 | 23 | $C_{11}H_{20}N_2O_5$ | 11.194 | 194, 280 | 259.1299 | 259.1303 | 1.52 | 215 (100), 171 (39), 102 (24) | C-1, BC-1, C-3, C-9, BC-9 | D |
| | 2-(2-Amino-4-methylpentanamido)-3-methylbutanoic acid 3 | 33 | 72 | $C_{11}H_{22}N_2O_3$ | 20.888 | 194, 222, 285, 333 | 229.1558 | 229.1574 | 7.31 | 130 (100), 115 (13) | C-1, BC-1, C-3, BC-3, C-6, BC-6, C-9, GC-9, BC-9 | D |
| | 2-(2-Amino-4-methylpentanamido)-3-phenylpropanoic acid 1 | 61 | 146 | $C_{15}H_{22}N_2O_3$ | 32.412 | 204, 280 | 277.1558 | 277.1543 | -5.29 | 164 (100), 153 (11) | C-1, BC-1, C-3, C-9, GC-9, BC-9 | D |
| Estrogen | Estradiol | 112 | 240 | $C_{18}H_{24}O_2$ | 57.697 | 317 | 271.1704 | 271.1678 | -9.42 | 209 (100), 128 (71), 84 (47) | BC-1, C-9, BC-9 | D |
| Fatty aldehyde | Triptophenolide | 127 | 269 | $C_{20}H_{24}O_3$ | 66.239 | 208, 280, 325 | 311.1653 | 311.1671 | 5.89 | 311 (100) | C-9, GC-9, BC-9, GM-9, BM-9 | D |
| Furoic acid | 2-Furoic acid | 26 | 60 | $C_5H_4O_3$ | 17.301 | 250, 308 | 111.0088 | 111.0072 | -14.40 | 111 (100) | GC-9, BC-9, BM-9 | D |
| Gamma butyrolactone | Parvistemoamide | 47 | 117 | $C_{12}H_{19}NO_4$ | 25.832 | 270, 315 | 240.1241 | 240.1245 | 1.53 | 160 (100), 99 (19) | C-3, GM-3, C-6, C-9 | D |
| Gamma-keto acid | 4,5-Dioxopentanoic acid | 34 | 75 | $C_5H_6O_4$ | 21.375 | 206, 274 | 129.0193 | 129.0190 | -2.57 | 85 (100), 101 (33) | C-9, GC-9, BC-9 | D |
| Gluconolactone | Gluconolactone | 13 | 30 | $C_6H_{10}O_6$ | 12.689 | 204, 297 | 177.0405 | 177.0405 | 0.44 | 73 (100), 87 (9), 135 (5) | GC-1, BC-1, BM-1, C-3, BC-3, C-6, GC-6, BC-6, | D |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | GM-6, BM-6, C-9, GC-9, BC-9 | |
| Glutamic acid | Saccharopine | 2 | 4 | $C_{11}H_{20}N_2O_6$ | 6.849 | 194, 210sh, 266 | 275.1249 | 275.1202 | -16.79 | 115 (100) | C-3, GC-3, BC-3, GM-3 | D |
| Glutamine | Theanine | 3 | 6 | $C_7H_{14}N_2O_3$ | 7.270 | 200, 248, 280sh | 173.0932 | 173.0926 | -3.154371 | 155 (100), 84 (49) | BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D |
| Hippuric acid | Herdmanine H | 36 | 83 | $C_{13}H_{18}N_4O_4$ | 22.002 | 220, 282 | 293.1255 | 293.1253 | -0.64 | 89 (100), 129 (51), 119 (39), 175 (23), 188 (16) | C-9 | D |
| Histrionicotoxin | Histrionicotoxin | 12 | 26 | $C_{19}H_{25}NO$ | 12.358 | 204, 256 | 282.1863 | 282.1879 | 5.54 | 150 (100) | BM-3, GM-6, BM-6 | D |
| Hydroxy fatty acid | Mevalonic acid | 9 | 22 | $C_6H_{12}O_4$ | 10.823 | 194, 280 | 147.0663 | 147.0645 | -12.12 | 85 (100) | GC-9 | D |
| Iridoid *O*-glycoside | Caryoptosidic acid 1 | 13 | 29 | $C_{16}H_{24}O_{11}$ | 12.689 | 208, 327 | 391.1246 | 391.1226 | -5.02 | 243 (100), 242 (87), 168 (34) | C-3, BC-3, C-6, BC-6, C-9 | D |
| | Caryoptosidic acid 2 | 22 | 47 | $C_{16}H_{24}O_{11}$ | 15.965 | 264, 338 | 391.1246 | 391.1231 | -3.69 | 277 (100), 242 (81), 263 (47), 228 (43), 358 (39) | C-3, BC-3, C-6, C-9 | D |
| Lineolic acid | Corchorifatty acid F | 122 | 262 | $C_{18}H_{32}O_5$ | 63.212 | 210, 305 | 327.2177 | 327.2167 | -3.05 | 222 (100), 311 (96), 165 (89), 209 (64) | BC-9, BM-9 | D |
| Long-chain fatty acid | Myristic acid | 29 | 64 | $C_{14}H_{28}O_2$ | 19.574 | 206, 275 | 227.2017 | 227.2007 | -4.20 | 112 (100), 184 (54), 107 (49), 159 (35) | BC-3 | D |
| Methyl-branched fatty acid | 3-Methylpent-2-enedioic acid | 23 | 50 | $C_6H_8O_4$ | 16.276 | 195, 205sh, 280, 320 | 143.0350 | 143.0350 | 4.74 | 72 (100), 98 (55) | C-1, GC-1, BC-1, C-3, GC-3, BC-3, C-6, GC-6, BC-6, C-9, GC-9, BC-9 | D |
| Phenylalanine | L-Phenylalanine | 20 | 40 | $C_9H_{11}NO_2$ | 14.758 | 236, 296 | 164.0717 | 164.0691 | -15.86 | 103 (100), 147 (47), 72 (21) | C-9 | D |
| Purine 2'-deoxyribonucleoside | 9-[4-Hydroxy-5-(hydroxymethyl)oxolan-2-yl]-2-imino-3,9-dihydro-2*H*-purine-6,8-diol | 11 | 24 | $C_{10}H_{13}N_5O_5$ | 11.528 | 210, 260 | 282.0844 | 282.0846 | 0.84 | 151 (100), 133 (27) | GM-9, BM-9 | D |
| Purine nucleoside | 2-({9-[3,4-dihydroxy-5-(hydroxymethyl)oxolan- | 26 | 58 | $C_{14}H_{17}N_5O_8$ | 17.301 | 196, 266, 328 | 382.1004 | 382.1054 | 12.94 | 74 (100) | C-1, GC-1, BC-1, | D |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2-yl]-9*H*-purin-6-yl}amino)butanedioic acid | | | | | | | | | C-3, BC-6, C-9, GC-9, BC-9 | |
| Pyranone | 4-Methoxy-6-(3-phenyloxiran-2-yl)-2*H*-pyran-2-one | 5 | 11 | $C_{14}H_{12}O_4$ | 8.902 | 198, 270 | 243.0663 | 243.0623 | -16.51 | 139 (100), 85 (64) | BM-9 | D |
| Pyrazine | 2-(1-Hydroxy-1-methylpropyl)-3-methoxypyrazine | 123 | 263 | $C_9H_{14}N_2O_2$ | 63.570 | 210, 305 | 181.0983 | 181.0959 | -12.98 | 153 (100), 79 (50) | BC-3, GM-3, BM-3 | D |
| Pyrimidone | 5-Ethyl-5-(4-hydroxypentan-2-yl)-1,3-diazinane-2,4,6-trione | 48 | 121 | $C_{11}H_{18}N_2O_4$ | 26.298 | 258 | 241.1194 | 241.1201 | 2.86 | 130 (100), 168 (66) | C-1, C-3, GM-3, C-6, C-9, BC-9 | D |
| Pyrrole | 2-Heptyl-1*H*-pyrrole | 21 | 44 | $C_{11}H_{19}N$ | 15.458 | 194, 210sh, 289 | 164.1445 | 164.1443 | -1.05 | 120 (100) | C-3, C-6 | D |
| Stilbene | 3,5-Dihydroxy-4-(2,3-epoxy-3-methylbutyl)bibenzyl | 126 | 268 | $C_{19}H_{22}O_3$ | 65.720 | 208, 280, 325 | 297.1496 | 297.1531 | 11.72 | 297 (100) | C-9, GC-9, BC-9, GM-9, BM-9 | D |
| Sugar acid | 1,3-Diethyl 2-hydroxypropanedioate | 35 | 80 | $C_7H_{12}O_5$ | 21.850 | 220, 282 | 175.0612 | 175.0622 | 5.67 | 115 (100), 85 (60) | C-1, BC-1, GM-1, C-3, GC-3, BC-3, C-6, GC-6, BC-6, C-9, GC-9, BC-9 | D |
| Terpene glycoside | Rhodioloside C | 117 | 251 | $C_{22}H_{38}O_{12}$ | 59.227 | 206, 316 | 493.2291 | 493.2305 | 2.94 | 293 (100), 89 (81), 119 (62), 404 (61) | GM-9 | D |
| Terpene lactone | Heritol | 45 | 110 | $C_{15}H_{16}O_3$ | 25.141 | 316 | 243.1027 | 243.1062 | 14.49 | 63 (100), 83 (68) | C-6, C-9 | D |
| | Amberboin | 110 | 238 | $C_{15}H_{20}O_4$ | 56.333 | 192, 260 | 263.1289 | 263.1294 | 1.96 | 147 (100), 71 (83) | BC-1, BM-6, BC-9, BM-9 | D |
| Tricarboxylic acid | Citric acid | 4 | 7 | $C_6H_8O_7$ | 8.277 | 198, 265 | 191.0197 | 191.0201 | 1.85 | 111 (100), 87 (47) | C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | D |
| | 3-Hydroxy-3-carboxymethyl-adipic acid | 27 | 61 | $C_8H_{12}O_7$ | 18.638 | 212, 272 | 219.0510 | 219.0485 | -11.58 | 112 (100), 95 (19), 155 (13) | C-9, GC-9, BC-9 | D |
| Tropone | *N*-{9-hydroxy-3,4,5,14-tetramethoxy-13- | 75 | 172 | $C_{21}H_{23}NO_7$ | 39.040 | 340 | 400.1402 | 400.1398 | -0.94 | 357 (100), 204 (39), 342 (39) | GC-1, BC-3, | D |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | oxotricyclo[9.5.0.0²,⁷]hexadeca-1(16),2(7),3,5,11,14-hexaen-10-yl}formamide | | | | | | | | | | BC-9 | | |
| Tyrosine | *L*-Tyrosine | 7 | 14 | $C_9H_{11}NO_3$ | 9.797 | 194, 205sh, 263 | 180.0666 | 180.0644 | -12.42 | 93 (100) | GC-9, BC-9, GM-9, BM-9 | D | |
| Vinylogous acid | 3,4-Dihydroxy-5-(3-methylbut-2-en-1-yl)-2-(3-methylbutanoyl)cyclopent-2-en-1-one | 125 | 267 | $C_{15}H_{22}O_4$ | 65.555 | 208, 280, 325 | 265.1445 | 265.1476 | 11.69 | 265 (100), 97 (42) | C-9, GC-9, BC-9, BM-9 | D | |
| *Positive mode* $[M+H]^+$ | | | | | | | | | | | | | |
| Phenolic acids | | | | | | | | | | | | | |
| Hydroxybenzoic acid | Gallic acid | 17 | 37 | $C_7H_6O_5$ | 14.146 | 218, 274 | 171.0288 | 171.0289 | 0.70 | 79 (100) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D, L | (6), (10), (14), (17) |
| | Galloylquinic acid | 18 | 39 | $C_{14}H_{16}O_{10}$ | 14.341 | 216, 276 | 345.0816 | 345.0841 | 7.18 | 154 (100), 155 (18), 111 (13), | GE, BE, GC-1, GM-1, GC-3, BC-3, GM-3, BM-3, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D, L | (6), (17) |
| | Syringic acid 1 | 37 | 85 | $C_9H_{10}O_5$ | 22.193 | 230, 298 | 199.0601 | 199.0602 | 0.70 | 128 (100) | BC-1 | D | |
| | *p*-Hydroxybenzoic acid | 46 | 113 | $C_7H_6O_3$ | 25.502 | 204, 226sh, 276 | 139.0390 | 139.0388 | -1.44 | 139 (100), 67 (9) | GE, BE | S, D | |
| | Syringic acid | 64 | 152 | $C_9H_{10}O_5$ | 34.439 | 218, 275 | 199.0601 | 199.0608 | 3.72 | 109 (100), 153 (57), 81 (22) | C-1, GC-1, BC-1, GM-1, | S, D | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | | |
| Hydroxycinnamic acid | 3-(4-Hydroxyphenyl)-*N*-{4-[3-(4-hydroxyphenyl)prop-2-enamido]butyl}prop-2-enamide | 15 | 34 | $C_{22}H_{24}N_2O_4$ | 13.587 | 194, 282 | 381.1809 | 381.1788 | -5.55 | 381 (100) | C-3, GC-3, BC-3, GM-3 | D | |
| | Glutathionyl caftaric acid | 27 | 62 | $C_{23}H_{27}N_3O_{15}S$ | 18.638 | 196, 231, 255, 330 | 618.1236 | 618.1269 | 5.40 | 211 (100), 146 (60), 130 (48), 194 (47) | C-1, GC-1, BC-1, C-3, GC-3, BC-3, C-6, GC-6, BC-6, C-9, GC-9, BC-9 | D, L | (14), (17) |
| | Feruloylagmatine 1 | 38 | 90 | $C_{15}H_{22}N_4O_3$ | 22.477 | 212, 234sh, 274 | 307.1765 | 307.1724 | -13.24 | 139 (100), 163 (7) | GC-3, GM-3, GC-6, GM-9 | D | |
| | Feruloylagmatine 2 | 44 | 107 | $C_{15}H_{22}N_4O_3$ | 24.894 | 194, 238, 272 | 307.1765 | 307.1723 | -13.58 | 140 (100), 181 (69) | GC-3, GM-3 | D | |
| | Chlorogenic acid | 44 | 108 | $C_{16}H_{18}O_9$ | 24.894 | 242, 327 | 355.1024 | 355.1056 | 9.01 | 164 (100), 145 (65), 135 (11) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D, L | (6), (10) |
| | Grandidentoside | 45 | 111 | $C_{21}H_{28}O_{10}$ | 25.141 | 203, 232, 280 | 441.1755 | 441.1736 | -4.41 | 441 (100) | BE | D | |
| | Subaphyllin | 48 | 122 | $C_{14}H_{20}N_2O_3$ | 26.298 | 246, 356 | 265.1547 | 265.1550 | 1.47 | 120 (100) | C-1, GM-3, C-9, GC-9, BC-9 | D | |
| | 3,4-Dimethoxycinnamic acid | 120 | 259 | $C_{11}H_{12}O_4$ | 60.747 | 224, 327 | 209.0808 | 209.0817 | 4.14 | 135 (100), 117 (91), 89 (32) | C-1, GC-1, BC-1, | D, L | (14) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | C-3, GC-3, BC-3, C-6, GC-6, BC-6 | | |
| Hydroxyphenylpropanoic acid | 2-(2-Amino-4-methylpentanamido)-3-phenylpropanoic acid 1 | 61 | 146 | $C_{15}H_{22}N_2O_3$ | 32.412 | 204, 280 | 279.1703 | 279.1714 | 3.94 | 83 (100) | C-1, BC-1, C-3, C-9, GC-9, BC-9 | D | |
| | 2-(2-Amino-4-methylpentanamido)-3-phenylpropanoic acid 2 | 65 | 153 | $C_{15}H_{22}N_2O_3$ | 35.315 | 208, 281 | 279.1703 | 279.1648 | -19.70 | 86 (100), 120 (14) | C-9 | D | |
| Flavonoids | | | | | | | | | | | | | |
| Dihydrochalcone | 2',6'-Dihydroxy-4'-methoxy-3'-methyldihydrochalcone | 111 | 239 | $C_{17}H_{18}O_4$ | 56.810 | 228, 270 | 287.1278 | 287.1256 | -7.61 | 287 (100), 187 (19) | C-1, GC-1, BC-1, BC-3 | D | |
| Flavan-3-ol | Theasinensin C 1 | 24 | 51 | $C_{30}H_{26}O_{14}$ | 16.471 | 206, 275 | 611.1395 | 611.1475 | 12.97 | 317 (100), 425 (58), 308 (35), 275 (30) | GM-1, GM-3, GM-6 | D, L | (4) |
| | Gallocatechin | 28 | 63 | $C_{15}H_{14}O_7$ | 19.054 | 200, 216, 273 | 307.0812 | 307.0834 | 7.07 | 139 (100), 195 (7) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D, L | (2), (6), (17) |
| | Theasinensin C 3 | 32 | 70 | $C_{30}H_{26}O_{14}$ | 20.509 | 206, 276 | 611.1395 | 611.1446 | 8.35 | 69 (100), 251 (66), 203 (63), 270 (31) | GC-1, GM-1, GC-3, GM-3, GC-6, GM-6 | D, L | |
| | Theasinensin B 1 | 37 | 84 | $C_{37}H_{30}O_{18}$ | 22.193 | 230, 298 | 763.1505 | 763.1641 | 17.82 | 275 (100), 449 (63), 283 (58), 409 (25), 261 (20) | BE, BC-1, GM-1, BM-1, BC-3, GM-3, BM-3, BC-6, GM-6, BM-6 | D, L | (4) |
| | Leucodelphinidin | 37 | 87 | $C_{15}H_{14}O_8$ | 22.193 | 214, 250, 270 | 323.0761 | 323.0775 | 4.23 | 161 (100) | GM-1 | D | |
| | Epigallocatechin | 40 | 97 | $C_{15}H_{14}O_7$ | 23.385 | 196, 236, 272 | 307.0800 | 307.0843 | 14.00 | 163 (100), 140 (67), 205 (13) | GE, BE, C-1, GC-1, BC-1, GM-1, | S, D, L | (2), (17) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | | |
| Theasinensin B 2 | 43 | 104 | $C_{37}H_{30}O_{18}$ | 24.428 | 212, 276 | 763.1505 | 763.1583 | 10.22 | 277 (100), 425 (87), 139 (76), 577 (27) | GE, BE, GC-1, GM-1, GC-3, GM-3, GC-6, GM-6, GC-9, GM-9 | D, L | (4) |
| Catechin | 46 | 112 | $C_{15}H_{14}O_6$ | 25.502 | 206, 224sh, 285 | 291.0900 | 291.0871 | -9.96 | 123 (100), 111 (20) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D, L | (4), (6), (14) |
| (Epi)gallocatechin-(epi)catechin gallate 1 | 51 | 127 | $C_{37}H_{30}O_{17}$ | 27.305 | 208, 281 | 747.1556 | 747.1642 | 11.51 | 139 (100), 290 (47), 595 (40), 275 (38) | BE, GC-1, GM-1, GC-3, GM-3, GC-6, GM-6, GC-9, GM-9 | D, L | (9) |
| Theasinensin A | 52 | 128 | $C_{44}H_{34}O_{22}$ | 27.498 | 210, 282 | 915.1614 | 915.1708 | 10.27 | 288 (100), 575 (18), 449 (14) | GE, BE, GC-1, BC-1, BM-1, GC-3, BC-3, BM-3 | D, L | (4) |
| (Epi)gallocatechin-(epi)catechin gallate 2 | 54 | 131 | $C_{37}H_{30}O_{17}$ | 28.239 | 204, 280 | 747.1556 | 747.1641 | 11.38 | 123 (100), 273 (17), 315 (10) | GC-1, GM-1, | D, L | (9) |

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| | | | | | | | | | | GC-3, GM-3, GC-6, GM-6, GC-9. GM-9 | | |
| Epicatechin | 56 | 135 | $C_{15}H_{14}O_6$ | 29.502 | 216, 276 | 291.0863 | 291.0895 | 10.94 | 147 (100), 165 (83), 140 (54) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D, L | (4), (6), (14) |
| Epigallocatechin gallate | 58 | 137 | $C_{22}H_{18}O_{11}$ | 30.555 | 196, 232, 276 | 459.0922 | 459.0983 | 13.29 | 139 (100), 151 (14), 289 (9) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, GM-9 | S, D, L | (4), (6) |
| Gallocatechin gallate dimer | 58 | 140 | $C_{44}H_{36}O_{22}$ | 30.555 | 196, 232, 276 | 917.1771 | 917.1899 | 13.96 | 153 (100), 140 (78), 271 (28) | GC-1, GM-1, GC-3, GM-3, GC-6, GM-6 | D, L | (7) |
| Gallocatechin gallate | 63 | 149 | $C_{22}H_{18}O_{11}$ | 33.413 | 210, 275, 334 | 459.0900 | 459.0976 | 16.55 | 140 (100), 120 (31), 247 (25) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, | S, D | |

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| (Epi)catechin gallate dimer | 76 | 174 | $C_{44}H_{36}O_{20}$ | 39.622 | 196, 232, 280 | 885.1873 | 885.2010 | 15.51 | 257 (100) | BM-6, GM-9 GE, BE, GC-1, BC-1, GM-1, GC-3, BC-3, GM-3, GC-6, GM-6 | D, L | (20) |
| Epicatechin gallate | 76 | 176 | $C_{22}H_{18}O_{10}$ | 39.622 | 196, 232, 280 | 443.0973 | 443.1032 | 13.32 | 153 (100), 165 (51), 140 (35), 124 (30) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, GM-9, BM-9 | S, D, L | (2), (6), (9) |
| Epicatechin gallate 1 | 79 | 182 | $C_{22}H_{18}O_{10}$ | 41.522 | 208, 276 | 443.0973 | 443.1013 | 9.09 | 123 (100) | GE, GC-1, GM-1, GC-3, GM-3, GC-6, GM-6 | D, L | (2), (6), (9) |
| 2,3-Dihydroxy-5-(3,5,7-trihydroxy-4-oxo-3,4-dihydro-2*H*-1-benzopyran-2-yl)phenyl 3,4-dihydroxy-5-methoxybenzoate | 81 | 191 | $C_{23}H_{18}O_{12}$ | 42.668 | 210, 258, 357 | 487.0871 | 487.0903 | 6.57 | 325 (100) | BE, GC-1, BC-1, GM-1, BM-1, BC-3 | D | |
| Epicatechin 3-*O*-gallate and dehydroascorbic acid conjugate | 88 | 199 | $C_{28}H_{24}O_{16}$ | 46.074 | 198, 268, 348 | 617.1137 | 617.1548 | 66.60 | 550 (100) | GE, BE, GC-1, BC-1, GM-1, BM-1, GC-3 | D, L | (23) |
| Methyl epicatechin gallate | 90 | 204 | $C_{23}H_{20}O_{10}$ | 46.533 | 194, 280 | 457.1129 | 457.1130 | 0.17 | 123 (100) | GE, BE, GM-1, GC-3, GM-3 | D, L | (2) |
| Epiafzelechin 3-gallate | 92 | 209 | $C_{22}H_{18}O_9$ | 47.594 | 194, 206sh, 275 | 427.1024 | 427.1068 | 10.40 | 257 (100), 140 (94), 109 (42) | GE, BE, GC-1, GM-1, GC-3, GM-3, GM-6 | D, L | (11) |
| C-8 *N*-ethyl-2- | 94 | 211 | $C_{28}H_{27}NO_{11}$ | 48.399 | 194, 210, 280 | 554.1657 | 554.1710 | 9.56 | 384 (100), 217 (18) | GE, GC- | D, L | (12) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | pyrrolidinone-substituted (−)-epicatechin-3-*O*-gallate | | | | | | | | | | 1, GC-9, GM-9 | | |
| | Epigallocatechin gallate-4',4"-*O*-β-D-gluco-pyranoside | 98 | 219 | $C_{34}H_{38}O_{21}$ | 50.154 | 248, 364 | 783.1978 | 783.2441 | 59.07 | 189 (100), 111 (40), 329 (19) | GE, GC-1, GM-1 | D, L | (22) |
| | Theaflavate B | 107 | 233 | $C_{36}H_{28}O_{15}$ | 55.163 | 326 | 701.1501 | 701.5045 | 505.46 | 701 (100) | GE, BE, GC-1, BC-1, C-3, GC-3, BC-3 | D, L | (19) |
| | Theaflavin | 115 | 247 | $C_{29}H_{24}O_{12}$ | 58.863 | 210, 268, 298, 365sh | 565.1341 | 565.1412 | 12.65 | 139 (100) | GE, BE, BC-1, BC-3 | D, L | (6) |
| | Theaflavin 3-gallate | 118 | 255 | $C_{36}H_{28}O_{16}$ | 59.832 | 210, 270 | 717.1450 | 717.1531 | 11.29 | 151 (100), 379 (84), 229 (42), 367 (38), 241 (31), 111 (30) | GE, BE, BC-1, BC-3 | D, L | (6) |
| | Theaflavin-3,3'-gallate | 119 | 257 | $C_{43}H_{32}O_{20}$ | 60.230 | 208, 277, 378 | 869.1560 | 869.1664 | 12.00 | 391 (100), 153 (98), 333 (45), 593 (42), 441 (13) | GE, BE, BC-1, BC-3 | D, L | (6) |
| Flavanonol | Katuranin 1 | 58 | 139 | $C_{15}H_{12}O_6$ | 30.555 | 212, 275 | 289.0707 | 289.0707 | -0.05 | 139 (100), 151 (14) | GE, BE | D | |
| Flavone | Apigenin 6,8-di-*C*-glucoside | 55 | 132 | $C_{27}H_{30}O_{15}$ | 29.077 | 272, 352 | 595.1657 | 595.1745 | 14.71 | 559 (100), 439 (85), 421 (57), 294 (31) | BE, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, BC-6, GM-6, BM-6 | D, L | (4) |
| | Apigenin 7-*O*-apiosyl-glucoside | 63 | 150 | $C_{26}H_{28}O_{14}$ | 33.413 | 208, 270, 338 | 565.1552 | 565.1553 | 0.16 | 565 (100), 547 (100), 529 (82), 427 (78), 511 (56) | GE, BE, GC-9, BC-9, GM-9, BM-9 | D | |
| Flavonol | 3,5,7-Trihydroxy-2-(3-hydroxy-4-methoxyphenyl)-6,8-dimethoxy-4*H*-chromen-4-one | 47 | 116 | $C_{18}H_{16}O_9$ | 25.832 | 194, 222, 286, 320sh | 377.0867 | 377.0897 | 7.93 | 377 (100) | GM-1, GM-3 | D | |
| | Quercetin 3-*O*-di-galacoside/glucoside | 65 | 154 | $C_{27}H_{30}O_{17}$ | 35.315 | 208, 281 | 627.1556 | 627.1631 | 12.00 | 319 (100), 320 (24) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6 | D, L | (5) |
| | Myricetin-3-*O*-galactoside 1 | 68 | 159 | $C_{21}H_{20}O_{13}$ | 36.379 | 212, 270, 350 | 481.0977 | 481.1023 | 9.63 | 320 (100) | GE, C-1, GC-1, | D, L | (10) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Myricetin-3-*O*-galactoside 2 | 69 | 160 | $C_{21}H_{20}O_{13}$ | 36.799 | 210, 264, 360 | 481.0977 | 481.1036 | 12.33 | 320 (100), 97 (15) | BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6 | D, L | (10) |
| Quercetin 3-*O*-glucosylrutinoside 1 | 70 | 161 | $C_{33}H_{40}O_{21}$ | 37.066 | 206, 268, 350 | 773.2135 | 773.2271 | 17.61 | 304 (100), 449 (12) | GE, BE, GC-1, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, GC-6, GM-6 | D, L | (4), (9) |
| Myricetin | 71 | 162 | $C_{15}H_{10}O_{8}$ | 37.156 | 210, 264, 360 | 319.0448 | 319.0481 | 10.34 | 319 (100) | GE, BE, BC-1, BM-1, GC-3, BC-3, GM-3, BM-3, BC-6, BM-6 | D, L | |
| Kaempferol 3-*O*-rutinoside 1 | 72 | 164 | $C_{27}H_{30}O_{15}$ | 37.274 | 216, 271, 347 | 595.1658 | 595.1732 | 12.43 | 433 (100), 379 (16), 283 (12) | GC-1, BC-1, GM-1, BM-1, GC-9, GM-9 | D | |
| Quercetin 3-*O*-glucosylrutinoside 2 | 73 | 167 | $C_{33}H_{40}O_{21}$ | 38.075 | 208, 260, 360 | 773.2135 | 773.2219 | 10.88 | 303 (100) | GE, BE, BC-3, BM-3, GC-6, GM-6, GC-9, GM-9, BM-9 | D, L | (4), (9) |
| | | | | | | | | | | GE, BE, GC-1, BC-1, GM-1, BM-1, BC-3, BM-3, GC-6, BM-6, GC-9, | D, L | (6) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quercetin-3-*O*-glucoside 1 | 76 | 175 | $C_{21}H_{20}O_{12}$ | 39.622 | 345 | 465.1028 | 465.0879 | -32.02 | 303 (100) | BC-9, GM-9, BM-9<br>BC-1, BM-1, BC-3, BM-3, BM-6 | D, L | (9) |
| Rutin | 77 | 178 | $C_{27}H_{30}O_{16}$ | 40.518 | 204, 258, 357 | 611.1610 | 611.1676 | 10.80 | 304 (100) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 | S, D, L | (2), (4) |
| Myricetin-galloyl-hexoside 1 | 77 | 179 | $C_{28}H_{24}O_{17}$ | 40.518 | 202, 256, 354 | 633.1086 | 633.1430 | 54.31 | 633 (100) | GE | D, L | (16) |
| Myricetin-galloyl-hexoside 2 | 79 | 185 | $C_{28}H_{24}O_{17}$ | 41.522 | 208, 258, 356 | 633.1086 | 633.1578 | 77.64 | 633 (100), 331 (2) | BE | D, L | (16) |
| Quercetin-3-*O*-glucoside 2 | 80 | 186 | $C_{21}H_{20}O_{12}$ | 42.306 | 208, 258, 356 | 465.1028 | 465.1061 | 7.22 | 304 (100), 127 (20) | GE, BE, GC-1, GM-1, GC-3, GM-3, GC-6, BC-6, GM-6 | D, L | (9) |
| Kaempferol 3-*O*-glucosylrhamnosyl-galactoside 2 | 80 | 187 | $C_{33}H_{40}O_{20}$ | 42.306 | 198, 268, 349 | 757.2186 | 757.2331 | 19.19 | 288 (100), 449 (79), 217 (6) | GE, BE, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, BC-6, BM-6, BC-9, BM-9 | D | |
| Kaempferol 1 | 80 | 188 | $C_{15}H_{10}O_6$ | 42.306 | 198, 268, 349 | 287.0550 | 287.0601 | 17.77 | 122 (100) | BE, BC-1, BC-3, BC-6, BM-6 | D, L | (5) |
| Quercetin 3-*O*-[(2,4-diacetyl-alpha-L-rhamnopyranosyl)- | 80 | 189 | $C_{35}H_{38}O_{20}$ | 42.306 | 198, 268, 349 | 779.2029 | 779.2159 | 16.68 | 493 (100) | BE, BC-1, GM-1, BM-1 | D | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1→6)]-3,4-diacetyl-beta-D-galactopyranoside 1 | | | | | | | | | | | | |
| Quercetin 3-*O*-galactoside | 82 | 192 | $C_{21}H_{20}O_{12}$ | 42.886 | 208, 258, 357 | 465.1028 | 465.1080 | 11.28 | 303 (100) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9 | S, D, L | (6), (17) |
| Kaempferol 3-*O*-rutinoside 2 | 83 | 193 | $C_{27}H_{30}O_{15}$ | 43.739 | 206, 254, 342 | 595.1657 | 595.1694 | 6.14 | 288 (100), 449 (39), 147 (18) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6 | D, L | (6) |
| Kaempferol 3-*O*-rutinoside 3 | 87 | 198 | $C_{27}H_{30}O_{15}$ | 45.751 | 198, 268, 349 | 595.1657 | 595.1726 | 11.59 | 287 (100), 288 (18) | GE, BE, GC-1, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, GC-6, GM-6, GC-9, BC-9, GM-9, BM-9 | D, L | (6) |
| Kaempferol 2 | 88 | 200 | $C_{15}H_{10}O_6$ | 46.074 | 196, 266, 348 | 287.0550 | 287.0551 | 0.10 | 287 (100) | GE, BE, BC-9, BM-9 | D, L | (5) |
| Kaempferol 3-*O*-glucoside 1 | 89 | 201 | $C_{21}H_{20}O_{11}$ | 46.401 | 194, 280 | 449.1078 | 449.1139 | 13.50 | 91 (100) | GE, BE, BC-1, BC-3, GC-6, BC-6, BM-6 | D, L | (9) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kaempferol 3-*O*-glucoside 2 | 93 | 210 | $C_{21}H_{20}O_{11}$ | 47.827 | 280 | 449.1078 | 449.0938 | -31.17 | 288 (100), 127 (15) | BE, GM-1 | D | |
| Kaempferol 3-*O*-glucoside | 94 | 212 | $C_{21}H_{20}O_{11}$ | 48.399 | 198, 266, 350 | 449.1078 | 449.1132 | 11.94 | 288 (100), 85 (14), 127 (11) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9 | S, D, L | (9) |
| Kaempferol 3 | 95 | 215 | $C_{15}H_{10}O_{6}$ | 48.707 | 198, 268, 348 | 287.0550 | 287.0574 | 8.36 | 153 (100) | GC-1, BC-1, GM-1, BM-1, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D, L | (5) |
| Unknown quercetin conjugate 1 | 113 | 241 | $C_{42}H_{46}O_{22}$ | 58.117 | 210, 270, 318 | 903.2554 | 903.2670 | 12.90 | 147 (100), 303 (27), 309 (24), 291 (13) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9 | D, L | (6) |
| Unknown kaempferol conjugate | 115 | 248 | $C_{42}H_{46}O_{21}$ | 58.863 | 212, 270, 315 | 887.2604 | 887.2701 | 10.89 | 147 (100), 85 (13) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, | D, L | (6) |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Quercetin 3-*O*-[(2,4-diacetyl-alpha-L-rhamnopyranosyl)-(1→6)]-3,4-diacetyl-beta-D-galactopyranoside 2 | 117 | 253 | $C_{35}H_{38}O_{20}$ | 59.227 | 210, 316 | 779.2029 | 779.1913 | -14.89 | 779 (100) | GM-6, BM-6 GM-1 | D | |
| | Quercetin | 121 | 261 | $C_{15}H_{10}O_7$ | 61.100 | 206, 258, 374 | 303.0499 | 303.0524 | 8.25 | 247 (100), 177 (57) | GE, BE, GC-1, GM-1, BM-1, GC-3, GM-3, BM-3, GC-6, GM-6, BM-6, GC-9, GM-9 | S, D, L | (17) |
| | Kaempferol | 124 | 266 | $C_{15}H_{10}O_6$ | 63.686 | 228, 370 | 287.0550 | 287.0575 | 8.71 | 165 (100) | GE, BE, GC-1, GM-1, GC-3, GM-3, GM-6, GC-9, GM-9, BM-9 | S, D, L | (5) |
| Hydroxyflavonoid | 3,5,7-Tris(acetyloxy)-2-[4-(acetyloxy)-3-hydroxyphenyl]-4*H*-1-benzopyran-4-one 1 | 91 | 207 | $C_{23}H_{18}O_{11}$ | 46.86 | 194, 210, 280 | 471.0922 | 471.0938 | 3.40 | 471 (100) | BE, GC-1, BC-1, GM-1, BC-3 | D | |
| | 3,5,7-Tris(acetyloxy)-2-[4-(acetyloxy)-3-hydroxyphenyl]-4*H*-1-benzopyran-4-one 2 | 95 | 214 | $C_{23}H_{18}O_{11}$ | 48.707 | 198, 268, 348 | 471.0922 | 471.0955 | 7.00 | 309 (100) | BE, GC-1, BC-1, GM-1, BM-1 | D | |
| Isoflavonoid | 3-Oxo-3-{[3,4,5-trihydroxy-6-({3-hydroxy-14-methoxy-8,17-dioxatetracyclo[8.7.0.0$^{2}$,$^{7}$.0$^{11}$,$^{16}$]heptadeca-2,4,6,11,13,15-hexaen-5-yl}oxy)oxan-2-yl]methoxy}propanoic acid | 75 | 173 | $C_{25}H_{26}O_{13}$ | 39.040 | 220, 274, 338 | 535.1446 | 535.1539 | 17.35 | 517 (100), 481 (87), 379 (64), 427 (43) | BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, BC-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D | |
| *O*-Methylated flavonoid | Centaureidin | 42 | 101 | $C_{18}H_{16}O_8$ | 24.075 | 312 | 361.0918 | 361.0929 | 3.05 | 361 (100), 169 (58) | GE, GC-1, BC-1 | D | |
| | Sideritiflavone | 43 | 105 | $C_{18}H_{16}O_8$ | 24.428 | 206, 273 | 361.0918 | 361.0890 | -7.85 | 361 (100), 147 (58), 187 (20), 321 (14) | BE | D | |
| *O*-Methylated isoflavonoid | 2,5,7-Trihydroxy-3-(4-methoxyphenyl)-3,4- | 73 | 165 | $C_{16}H_{14}O_6$ | 38.075 | 206, 258, 356 | 303.0863 | 303.0833 | -9.95 | 91 (100), 120 (69), 175 (51), 153 (21), 221 (16) | BC-6, BM-6 | D | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | dihydro-2*H*-1-benzopyran-4-one | | | | | | | | | | | | |
| Proanthocyanidin | Procyanidin B3 | 38 | 89 | $C_{30}H_{26}O_{12}$ | 22.477 | 204, 213sh, 282 | 579.1497 | 579.1566 | 11.91 | 123 (100), 233 (33), 259 (26), 151 (22) | C-1, GC-1, BC-1, GM-1, C-3, GC-3, BC-3, GM-3, GM-6, GC-9, GM-9 | D, L | (17) |
| | Procyanidin B1 | 49 | 123 | $C_{30}H_{26}O_{12}$ | 26.435 | 204, 282 | 579.1497 | 579.1566 | 11.91 | 123 (100), 233 (33), 259 (26), 151 (22) | GE, BE, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | S, D, L | (17) |
| | Procyanidin B2 | 50 | 124 | $C_{30}H_{26}O_{12}$ | 27.127 | 204, 325 | 579.1497 | 579.1558 | 10.53 | 139 (100), 123 (52), 283 (28), 275 (28) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6 | S, D, L | (17) |
| | Procyanidin B1 3-*O*-gallate | 59 | 142 | $C_{37}H_{30}O_{16}$ | 31.447 | 208, 282, 310 | 731.1607 | 731.1704 | 13.27 | 127 (100), 139 (46), 275 (44) | GE, BE, C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, C-6, GC-6, BC-6, GM-6, BM-6 | D | |
| | Procyanidin B2 3-*O*-gallate | 61 | 147 | $C_{37}H_{30}O_{16}$ | 32.412 | 204, 280 | 731.1607 | 731.1704 | 13.27 | 127 (100), 139 (46), 275 (44) | GC-1, BC-1, | D | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | GM-1, BC-3, GM-3, GC-6 | |
| | Procyanidin dimer-trimethylglyoxal adduct 1 | 71 | 163 | $C_{39}H_{38}O_{18}$ | 37.156 | 208, 268, 350 | 795.2131 | 795.2084 | -5.91 | 732 (100) | BE, BC-1 | D |
| | Procyanidin dimer-trimethylglyoxal adduct 2 | 73 | 166 | $C_{39}H_{38}O_{18}$ | 38.075 | 206, 258, 355 | 795.2131 | 795.2098 | -4.15 | 493 (100), 389 (51) | BE, BC-1, BM-1 | D |
| | Procyanidin dimer-trimethylglyoxal adduct 3 | 74 | 169 | $C_{39}H_{38}O_{18}$ | 38.451 | 208, 258, 350 | 795.2131 | 795.2040 | -11.44 | 582 (100) | GC-1, GM-1 | D |
| Others: phenolic compounds | | | | | | | | | | | | |
| Benzenediol | 2-(3,4-Dihydroxyphenyl)-3,5,7-trihydroxy-4a,8a-dihydro-4*H*-chromen-4-one | 79 | 183 | $C_{15}H_{12}O_7$ | 41.522 | 205, 290 | 305.0656 | 305.0667 | 3.67 | 123 (100), 111 (66), 141 (33) | C-1, C-6 | D |
| Benzoyl derivative | 1-Phenylprop-2-yn-1-one | 38 | 88 | $C_9H_6O$ | 22.477 | 204, 213sh, 282 | 131.0491 | 131.0468 | -17.79 | 104 (100), 78 (56) | 4GM-9 | D |
| Coumarin | Coumarin | 42 | 102 | $C_9H_6O_2$ | 24.075 | 248, 340 | 147.0441 | 147.0442 | 0.68 | 65 (100), 105 (30) | GE, BE, GC-1, BC-1, GM-6, BM-6, GM-9, BM-9 | D |
| | Trichodermamide A | 78 | 181 | $C_{20}H_{20}N_2O_9$ | 41.340 | 208, 282 | 433.1242 | 433.1201 | -9.37 | 281 (100) | GM-1, GM-9 | D |
| Coumarin glycoside | 3,4,5-Trihydroxy-6-[(8-hydroxy-2-oxo-2*H*-chromen-7-yl)oxy]oxane-2-carboxylic acid | 14 | 31 | $C_{15}H_{14}O_{10}$ | 13.046 | 204, 222, 300 | 355.0660 | 355.0678 | 5.17 | 355 (100), 185 (9) | GM-1 | D |
| Hydrolyzable tannin | Unknown hydrolyzable tannin (gomisin R or gomisin type) | 79 | 184 | $C_{22}H_{24}O_7$ | 41.522 | 204, 268, 354 | 401.1595 | 401.1573 | -5.53 | 401 (100) | BE | D |
| Hydroxycoumarin | Skimmetin 1 | 32 | 71 | $C_9H_6O_3$ | 20.509 | 206, 276 | 163.0390 | 163.0390 | 0.00 | 77 (100) | GC-1, GM-1, GM-9 | D |
| | Skimmetin 2 | 46 | 114 | $C_9H_6O_3$ | 25.502 | 194, 222, 287, 328 | 163.0390 | 163.0395 | 3.07 | 77 (100), 107 (16) | C-1, GM-1, GM-3, GM-6, GM-9 | D |
| | Skimmetin 3 | 121 | 260 | $C_9H_6O_3$ | 61.100 | 224, 328 | 163.0390 | 163.0381 | -5.52 | 77 (100) | C-1, BC-1, C-3 | D |
| Naphthol | Solistatinol | 129 | 272 | $C_{18}H_{20}O_4$ | 67.839 | 200, 232, 278 | 301.1434 | 301.1421 | -4.37 | 301 (100), 116 (64) | C-1, GC-1, BC-1, GM-1, BM-1 | D |
| Phenol ether | Unknown phenol ether (4-[3-(4-amidinophenoxy)propoxy]benzamidine or other | 62 | 148 | $C_{21}H_{32}N_4O_{10}S_2$ | 33.214 | 202, 236, 272sh, 336 | 565.1633 | 565.1626 | -1.17 | 529 (100), 499 (59), 391 (50), 475 (30) | BC-1, GM-1, BM-1, GC-3, | D |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | phenol ether type) | | | | | | | | | | BC-3, GM-3, BM-3, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 | |
| Phenolic glycoside | Platensimycin B4 methyl ester | 35 | 79 | $C_{31}H_{39}NO_{12}$ | 21.850 | 198, 218sh, 257, 331 | 618.2545 | 618.2560 | 2.42 | 193 (100), 146 (95), 208 (74), 369 (37), 471 (15) | C-3, GC-3, BC-3 | D |
| Pyranoxanthone | Unknown pyranoxanthone | 102 | 224 | $C_{23}H_{22}O_9S$ | 51.259 | 206, 236, 316 | 475.1057 | 475.1050 | -1.53 | 313 (100) | GC-1, GM-1 | D |
| Others: non-phenolic compounds | | | | | | | | | | | | |
| Alkaloid | Pilosine | 91 | 206 | $C_{16}H_{18}N_2O_3$ | 46.860 | 208, 268, 349 | 287.1390 | 287.1424 | 11.88 | 165 (100) | GC-3, BC-3, GM-3, BC-6 | D |
| Alkyl-phenylketone | *O*-Acetylaniline | 8 | 19 | $C_8H_9NO$ | 10.415 | 196, 226sh, 275 | 136.0757 | 136.0752 | -3.53 | 92 (100), 107 (96) | C-1, GC-1, BC-1, BC-6 | D |
| Alpha amino acid | Pyroglutamic acid | 4 | 9 | $C_5H_7NO_3$ | 8.277 | 196, 262 | 130.0499 | 130.0501 | 1.61 | 84 (100) | C-1, GC-1, BC-1, GM-1, BM-1, C-3, GC-3, BC-3, GM-3, BM-3, GC-6, BC-6, GM-6, BM-6, C-9, GC-9, BC-9, GM-9, BM-9 | D |
| | Dichotocejpin B | 35 | 78 | $C_{15}H_{16}N_2O_5$ | 21.850 | 296 | 305.1132 | 305.1142 | 3.28 | 84 (100), 86 (34), 139 (25), 215 (17) | GM-1 | D |
| | 2-Amino-6-octanamidohexanoic acid 1 | 103 | 227 | $C_{14}H_{28}N_2O_3$ | 52.494 | 195, 280, 330 | 273.2173 | 273.2196 | 8.53 | 87 (100) | GC-1, BC-1, C-3, GC-3, BC-3, C-6, GC-6, BC-6, C-9, GC-9 | D |
| | 2-Amino-6-octanamidohexanoic acid 2 | 105 | 230 | $C_{14}H_{28}N_2O_3$ | 54.283 | 214, 330 | 273.2173 | 273.2190 | 6.34 | 86 (100), 160 (23) | GC-1, BC-1, C-3, C-6, C-9, BC-9 | D |
| Alpha-hydrogen aldehyde | 4-Acetamidobutanal | 13 | 28 | $C_6H_{11}NO_2$ | 12.689 | 208, 327 | 130.0863 | 130.0841 | -16.95 | 85 (100), 115 (9) | BC-9, GM-9, BM-9 | D |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aminobenzenesulfonamide | Sulfisoxazole | 8 | 18 | $C_{11}H_{13}N_3O_3S$ | 10.415 | 196, 226sh, 275 | 268.0750 | 268.0737 | -4.88 | 136 (100) | GM-9 | D |
| Aminobenzoic acid | 2-Aminobenzoic acid | 3 | 5 | $C_7H_7NO_2$ | 7.270 | 200, 248, 280sh | 138.0550 | 138.0547 | -1.85 | 138 (100), 94 (36) | C-1, C-6, BC-6, C-9, BC-9 | D |
| Aryl alkyl ketone | 1-(Pyrazin-2-yl)ethan-1-one | 7 | 16 | $C_6H_6N_2O$ | 9.797 | 192, 205sh, 262 | 123.0553 | 123.0561 | 6.35 | 81 (100), 108 (33) | GM-1, GM-6, GM-9 | D |
| Biguanide | Buformin 1 | 20 | 42 | $C_6H_{15}N_5$ | 14.758 | 198, 266 | 158.1400 | 158.1433 | 20.73 | 72 (100), 84 (38), 130 (17), 102 (12) | GC-3 | D |
| Biguanide | 1-Carbamimidamido-N,N-dimethylmethanimidamide | 22 | 48 | $C_4H_{11}N_5$ | 15.965 | 264, 338 | 130.1087 | 130.1051 | -28.07 | 84 (100) | C-3, GC-3, BC-3, GM-3, BM-3 | D |
| Biguanide | Buformin 2 | 47 | 120 | $C_6H_{15}N_5$ | 25.832 | 223, 246, 329 | 158.1400 | 158.1439 | 24.27 | 84 (100) | BC-3, GM-3 | D |
| Butenolide | Dihydrotetrodecamycin | 4 | 8 | $C_{18}H_{24}O_6$ | 8.277 | 196, 267 | 337.1646 | 337.1673 | 8.11 | 253 (100), 301 (36), 111 (20) | BM-1, BC-6, BC-9 | D |
| Cyclic peptide | Patellamide C 1 | 41 | 99 | $C_{37}H_{46}N_8O_6S_2$ | 23.825 | 211, 280 | 763.3054 | 763.3088 | 4.39 | 163 (100), 275 (32), 151 (19), 257 (15) | BM-3 | D |
| | Patellamide C 2 | 47 | 115 | $C_{37}H_{46}N_8O_6S_2$ | 25.832 | 216, 280 | 763.3054 | 763.3067 | 1.64 | 287 (100), 306 (42), 595 (15) | GC-3, GM-3 | D |
| Cycloheptathiophene | Ketotifen | 15 | 33 | $C_{19}H_{19}NOS$ | 13.587 | 194, 282 | 310.1260 | 310.1232 | -9.16 | 84 (100), 70 (57) | BC-9, BM-9 | D |
| Dihydrofuran | Phaeofuran B 1 | 37 | 86 | $C_{12}H_{18}O_5$ | 22.193 | 194, 280, 330 | 243.1227 | 243.1262 | 14.23 | 86 (100), 84 (29) | C-3, GC-3, BC-3 | D |
| | Phaeofuran B 2 | 39 | 93 | $C_{12}H_{18}O_5$ | 22.905 | 200, 284 | 243.1227 | 243.1256 | 12.05 | 120 (100) | C-3, GC-3 | D |
| Dipeptide | gamma-Glutamylleucine | 10 | 23 | $C_{11}H_{20}N_2O_5$ | 11.194 | 194, 280 | 261.1445 | 261.1474 | 11.23 | 130 (100) | C-1, BC-1, C-3 | D |
| Dipeptide | 2-(2-Amino-4-methylpentanamido)-3-methylbutanoic acid 1 | 23 | 49 | $C_{11}H_{22}N_2O_3$ | 16.276 | 195, 205sh, 280, 320 | 231.1703 | 231.1666 | -15.91 | 69 (100), 87 (77) | C-9, GC-9, BC-9 | D |
| | 2-(2-Amino-4-methylpentanamido)-3-methylbutanoic acid 2 | 26 | 59 | $C_{11}H_{22}N_2O_3$ | 17.301 | 195, 205sh, 280, 320 | 231.1703 | 231.1674 | -12.50 | 86 (100) | C-9, GC-9, BC-9 | D |
| | 2-(2-Amino-4-methylpentanamido)-3-methylbutanoic acid 3 | 33 | 72 | $C_{11}H_{22}N_2O_3$ | 20.888 | 192, 220, 280, 332 | 231.1703 | 231.1709 | 2.64 | 73 (100) | C-1, BC-1, C-3, BC-3, C-6, BC-6, C-9, GC-9, BC-9 | D |
| | 2-[(2-Amino-1-hydroxy-3-methylpentylidene)amino]-4-methylpentanoic acid 1 | 39 | 91 | $C_{12}H_{24}N_2O_3$ | 22.905 | 196, 220, 282 | 245.1860 | 245.1816 | -17.70 | 86 (100), 69 (10) | C-1, BC-1, C-3, GM-3, GC-9, BC-9 | D |
| | 1-(2-Amino-3-phenylpropanoyl)pyrrolidine-2-carboxylic acid | 40 | 95 | $C_{14}H_{18}N_2O_3$ | 23.385 | 216, 260, 293sh | 263.1390 | 263.1343 | -17.93 | 70 (100) | BC-9 | D |
| | 2-[(2-Amino-1-hydroxy-3-methylpentylidene)amino]-4-methylpentanoic | 47 | 119 | $C_{12}H_{24}N_2O_3$ | 25.832 | 192, 214, 320 | 245.1860 | 245.1869 | 3.63 | 87 (100) | C-1, BC-1, C-3, GM-3, C-9, BC-9 | D |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| | acid 2 | | | | | | | | | | |
| | 2-(2-Amino-4-methylpentanamido)-3-methylbutanoic acid 4 | 50 | 126 | $C_{11}H_{22}N_2O_3$ | 27.127 | 204, 325 | 231.1703 | 231.1705 | 0.61 | 86 (100) | C-1, BC-1, C-6, C-9 | D |
| | 2-[(2-Amino-1-hydroxy-3-methylpentylidene)amino]-4-methylpentanoic acid 3 | 53 | 130 | $C_{12}H_{24}N_2O_3$ | 27.791 | 220, 242, 328 | 245.1860 | 245.1866 | 2.37 | 86 (100) | C-1, BC-1, C-3, BC-3 | D |
| | 2-[(2-Amino-1-hydroxy-3-methylpentylidene)amino]-4-methylpentanoic acid 4 | 63 | 151 | $C_{12}H_{24}N_2O_3$ | 33.413 | 208, 270, 338 | 245.1860 | 245.1808 | -21.12 | 72 (100), 146 (12) | C-9 | D |
| Diphenylmethane | Darifenacin | 123 | 264 | $C_{28}H_{30}N_2O_2$ | 63.570 | 209, 270, 370 | 427.2380 | 427.2379 | -0.25 | 427 (100) | GM-1 | D |
| Enoate ester | Stagonolide H | 117 | 252 | $C_{10}H_{12}O_4$ | 59.227 | 206, 316 | 197.0808 | 197.0784 | -12.36 | 99 (100), 83 (80) | C-1, GC-1, BC-1, C-3, BC-3 | D |
| Fatty acid ester | Phomester C | 78 | 180 | $C_{19}H_{35}NO_5$ | 41.340 | 208, 282 | 358.2588 | 358.2635 | 13.12 | 86 (100) | C-9 | D |
| Gamma butyrolactone | N,N-Dimethyl-5-oxooxolane-2-carboxamide | 36 | 82 | $C_7H_{11}NO_3$ | 22.002 | 220, 282 | 158.0812 | 158.0782 | -18.79 | 85 (100) | C-9, GC-9, BC-9 | D |
| Glutamine | Theanine | 3 | 6 | $C_7H_{14}N_2O_3$ | 7.270 | 200, 248, 280sh | 175.1077 | 175.1047 | -17.47 | 84 (100), 158 (49), 130 (8) | GC-9, BC-9, GM-9, BM-9 | D |
| Guanidine | 3-Guanidino-*N*-(2-hydroxyheptyl)propionamide | 50 | 125 | $C_{11}H_{24}N_4O_2$ | 27.127 | 238, 330 | 245.1972 | 245.1956 | -6.54 | 91 (100), 87 (76) | C-6, BC-6, C-9, GC-9, BC-9 | D |
| Indole | *trans*-3-Indoleacrylic acid | 39 | 92 | $C_{11}H_9NO_2$ | 22.905 | 196, 220, 282 | 188.0706 | 188.0707 | 0.53 | 144 (100), 119 (34), 147 (34), 91 (21) | C-1, GC-1, BC-1, GM-1, BM-1, GM-6, BM-6, GC-9, GM-9, BM-9 | D |
| Indoline | 2,3-Dihydro-1*H*-indole 1 | 20 | 41 | $C_8H_9N$ | 14.758 | 236, 296 | 120.0808 | 120.0879 | 59.13 | 77 (100) | C-6, GC-6, BC-6, C-9, GC-9, BC-9, GM-9, BM-9 | D |
| | 2,3-Dihydro-1*H*-indole 2 | 21 | 45 | $C_8H_9N$ | 15.458 | 194, 212sh, 290 | 120.0808 | 120.0806 | -1.47 | 77 (100), 103 (13) | C-1, GC-1, BC-1, GM-1, BM-1 | D |
| | 2,3-Dihydro-1*H*-indole 3 | 60 | 144 | $C_8H_9N$ | 32.078 | 194, 266 | 120.0808 | 120.0810 | 1.67 | 93 (100), 104 (89) | C-1, BC-1, C-9 | D |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indolizidine | Isoelaeocarpiline | 7 | 17 | $C_{16}H_{21}NO_2$ | 9.797 | 200, 264 | 260.1645 | 260.1636 | -3.48 | 86 (100), 132 (9) | C-1, GC-1 | D | |
| Isoleucine | *L*-Isoleucine 1 | 5 | 10 | $C_6H_{13}NO_2$ | 8.902 | 198, 270 | 132.1019 | 132.0996 | -17.30 | 70 (100) | GC-9, BC-9 | | |
| | *L*-Isoleucine 2 | 6 | 12 | $C_6H_{13}NO_2$ | 9.325 | 198, 270 | 132.1019 | 132.1000 | -14.34 | 91 (100) | GC-9, BC-9 | | |
| Macrolactam | Cespitulactam D | 33 | 73 | $C_{20}H_{29}NO_2$ | 20.888 | 194, 365 | 316.2271 | 316.2254 | -5.49 | 187 (100) | C-1, GC-1, BC-1 | D | |
| Morpholine | 4-Amino-2-[(morpholin-4-yl)methyl]oxolan-3-ol | 22 | 46 | $C_9H_{18}N_2O_3$ | 15.965 | 264, 338 | 203.1390 | 203.1357 | -16.34 | 86 (100), 132 (26) | C-9, GC-9, BC-9 | D | |
| Morpholine | Ciclosidomine | 25 | 53 | $C_{13}H_{20}N_4O_3$ | 17.180 | 198, 268 | 281.1608 | 281.1576 | -11.48 | 84 (100) | C-6, GC-6, BC-6, C-9 | D | |
| Naphthopyran | Inumakilactone A | 40 | 96 | $C_{18}H_{20}O_8$ | 23.385 | 216, 260, 293sh | 365.1231 | 365.1244 | 3.56 | 334 (100) | GE, BE, GC-1, BC-1, GM-1, BM-1 | D | |
| Oxasteroid | Wortmannin | 92 | 208 | $C_{23}H_{24}O_8$ | 47.594 | 194, 210, 280 | 429.1544 | 429.1568 | 5.61 | 235 (100), 181 (44) | GC-1 | D | |
| Peptide | Methyl 2-(2-amino-4-methylpentanamido)-3-phenylpropanoate | 100 | 221 | $C_{16}H_{24}N_2O_3$ | 50.678 | 224, 280 | 293.1860 | 293.1865 | 1.81 | 103 (100), 147 (87) | C-1, GC-1, C-6, C-9 | D | |
| Physalin | Physalin D | 84 | 195 | $C_{28}H_{32}O_{11}$ | 44.325 | 202, 218, 266, 302, 348 | 545.2017 | 545.2050 | 6.05 | 375 (100) | GC-1, BC-1, GM-1 | D | |
| Proline | Proline betaine | 9 | 21 | $C_7H_{13}NO_2$ | 10.823 | 194, 280 | 144.1019 | 144.0998 | -14.54 | 71 (100) | C-9, GC-9, BC-9 | D | |
| Purine alkaloid | Theophyllin | 26 | 56 | $C_7H_8N_4O_2$ | 17.301 | 206, 275 | 181.0720 | 181.0759 | 21.36 | 138 (100), 181 (76), 110 (56), 163 (36), 135 (23), 139 (22), 108 (21) | BE | D, L | (1) |
| | Theobromine | 31 | 69 | $C_7H_8N_4O_2$ | 20.153 | 204, 274 | 181.0720 | 181.0724 | 2.21 | 138 (100), 110 (30) | GE, BE, GC-1, BC-1, GM-1, BM-1, GC-6, BC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 | D | |
| | Caffeine | 57 | 136 | $C_8H_{10}N_4O_2$ | 29.773 | 216, 276 | 195.0877 | 195.0898 | 10.76 | 138 (100), 139 (9) | GE, BE, GC-1, BC-1, GM-1, BM-1, GC-3, BC-3, GM-3, BM-3, GC-6, | S, D, L | (6), (9) |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Purine nucleoside | Adenosine | 11 | 25 | $C_{10}H_{13}N_5O_4$ | 11.528 | 210, 260 | 268.1040 | 268.1081 | 15.26 | 136 (100) | BC-6, GM-6, BM-6, GC-9, BC-9, GM-9, BM-9 GM-1, GM-6 | D |
| Purine nucleoside | 2-({9-[3,4-Dihydroxy-5-(hydroxymethyl)oxolan-2-yl]-9*H*-purin-6-yl}amino)butanedioic acid | 26 | 58 | $C_{14}H_{17}N_5O_8$ | 17.301 | 202, 212, 270, 329 | 384.1150 | 384.1165 | 3.91 | 253 (100), 234 (22) | C-1, GC-1, BC-1, C-3, BC-6, C-9, GC-9, BC-9 | D |
| Pyrroloindole | Physostigmine | 26 | 55 | $C_{15}H_{21}N_3O_2$ | 17.301 | 206, 275 | 276.1707 | 276.1667 | -14.48 | 231 (100), 260 (96), 175 (83), 91 (47), 112 (46) | C-9, GC-9, BC-9 | D |
| Sesquiterpenoid | Debromolaurinterol | 12 | 27 | $C_{15}H_{20}O$ | 12.358 | 212, 294, 328 | 217.1587 | 217.1613 | 11.87 | 165 (100), 86 (89), 147 (75) | C-6, GC-6, BC-6, C-9, GC-9, BC-9 | D |
| Sugar alcohol | Ribitol | 30 | 67 | $C_5H_{12}O_5$ | 20.024 | 216, 277 | 153.0758 | 153.0796 | 25.15 | 153 (100), 80 (14), 123 (12) | GC-3, BC-3, GM-3 | D |
| Terpene glycoside | Monomelittoside | 14 | 32 | $C_{15}H_{22}O_{10}$ | 13.046 | 206, 220sh, 302 | 363.1286 | 363.1293 | 2.00 | 231 (100), 156 (26) | GC-1, BC-1 | D |
| Tricarboxylic acid | Cryptoporic acid B | 110 | 237 | $C_{23}H_{36}O_8$ | 56.333 | 203, 218sh, 278 | 441.2483 | 441.2505 | 4.99 | 139 (100) | GC-1 | D |
| Triterpenoid | Gypsogenic acid | 74 | 170 | $C_{30}H_{46}O_5$ | 38.451 | 214, 270, 358 | 487.3418 | 487.3372 | -9.40 | 487 (100) | GM-3 | D |
| Xanthanolide | Xanthanol | 66 | 156 | $C_{17}H_{24}O_5$ | 35.542 | 334 | 309.1697 | 309.1744 | 15.36 | 136 (100), 72 (77), 210 (56), 193 (54) | C-9 | D |

[a] Wine type: GE, BE = detected in green tea ethanolic extract and black tea ethanolic extract, respectively; C-1, C-3, C-6 etc. refer to Table 1.

[b] ID: identification method by S = standard, D = database and L = literature.

[c] Literature reported: (1) = Akhtar et al.[1], (2) = Bastos et al.[2], (3) = Chen et al.[3], (4) = Dai et al.[4], (5) = Dai et al.[5], (6) = Del Rio et al.[6], (7) = Fracassetti et al.[7], (8) = Itoh et al.[8], (9) = Jiang et al.[9], (10) = Lantzouraki et al.[10], (11) = Lin et al.[11], (12) = Meng et al.[12], (13) = Qi[13], (14) = Rossetti et al.[14], (15) = Sang and Yang[15], (16) = Scoparo et al.[16], (17) = Topi et al.[17], (18) = Wang et al.[18], (19) = Wang et al.[19], (20) = Xie et al.[20], (21) = Zhang et al.[21], (22) = Zhang et al.[22], (23) = Zhu et al.[23].

**Table S2** HPLC-DAD quantification of phenolic compounds in tea-macerated Chardonnay wines at different aging times (μg/mL)

| Compounds | C | | | | 2GC | | | | 4GC | | | | 1BC | | | | 3BC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aging time (month) | | | | | | | | | | | | | | | | | | | |
| | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 |
| *Phenolic acids* | | | | | | | | | | | | | | | | | | | | |
| Quinic acid* | 1.51 ± 0.90$^{b}$ | 0.86 ± 0.01$^{b}$ | tr | 60.02 ± 2.31$^{a}$ | 287.60 ± 2.34$^{d}$ | 474.64 ± 2.92$^{c}$ | 767.01 ± 39.29$^{a}$ | 687.35 ± 26.32$^{b}$ | 299.99 ± 3.50$^{d}$ | 506.58 ± 5.74$^{c}$ | 755.78 ± 26.48$^{b}$ | 847.80 ± 2.32$^{a}$ | 169.49 ± 2.85$^{b}$ | 201.55 ± 1.71$^{a}$ | 186.88 ± 3.29$^{b}$ | 176.67 ± 8.39$^{b}$ | 299.05 ± 15.56$^{c}$ | 346.57 ± 14.28$^{b}$ | 412.57 ± 18.23$^{a}$ | 366.64 ± 11.78$^{b}$ |
| Gallic acid | 74.96 ± 0.77$^{b}$ | 76.25 ± 0.44$^{b}$ | 80.56 ± 0.62$^{a}$ | tr | 208.41 ± 4.45$^{a}$ | 210.24 ± 6.52$^{a}$ | tr | 170.50 ± 6.40$^{b}$ | 420.76 ± 20.69$^{a}$ | 351.49 ± 3.11$^{b}$ | 271.31 ± 11.40$^{c}$ | 339.01 ± 5.32$^{b}$ | 31.38 ± 2.43$^{a}$ | 33.83 ± 1.17$^{a}$ | tr | 16.15 ± 1.09$^{b}$ | 92.00 ± 11.16$^{a}$ | 95.47 ± 7.90$^{a}$ | tr | 71.80 ± 5.61$^{b}$ |
| Chlorogenic acid | 9.17 ± 1.52$^{a}$ | 8.73 ± 0.38$^{a}$ | 7.24 ± 0.31$^{a}$ | 3.35 ± 0.03$^{b}$ | 72.94 ± 0.91$^{a}$ | 55.32 ± 0.79$^{bc}$ | 64.03 ± 5.06$^{ab}$ | 45.85 ± 2.34$^{c}$ | 134.97 ± 3.89$^{a}$ | 94.89 ± 2.71$^{b}$ | 91.96 ± 3.69$^{b}$ | 90.73 ± 17.04$^{b}$ | 15.46 ± 4.55$^{a}$ | 12.06 ± 1.95$^{b}$ | 8.34 ± 0.13$^{c}$ | 3.99 ± 0.13$^{d}$ | 28.72 ± 1.06$^{a}$ | 26.49 ± 0.97$^{a}$ | 18.26 ± 2.44$^{b}$ | 10.24 ± 2.39$^{c}$ |
| **Total phenolic acids** | **85.63 ± 3.19$^{a}$** | **85.84 ± 0.83$^{a}$** | **87.80 ± 0.93$^{a}$** | **63.38 ± 2.34$^{b}$** | **568.95 ± 7.70$^{d}$** | **740.20 ± 10.23$^{c}$** | **831.04 ± 44.35$^{ab}$** | **903.70 ± 35.06$^{a}$** | **855.72 ± 28.07$^{d}$** | **952.96 ± 11.56$^{c}$** | **1119.06 ± 41.57$^{b}$** | **1277.55 ± 24.68$^{a}$** | **216.33 ± 9.83$^{ab}$** | **247.44 ± 4.83$^{a}$** | **195.22 ± 3.42$^{bc}$** | **196.81 ± 9.61$^{bc}$** | **419.77 ± 27.78$^{a}$** | **468.53 ± 23.15$^{a}$** | **430.83 ± 20.67$^{a}$** | **448.68 ± 19.78$^{a}$** |
| *Flavonoids* | | | | | | | | | | | | | | | | | | | | |
| Gallocatechin | 212.88 ± 66.60$^{a}$ | 160.67 ± 0.62$^{a}$ | 159.86 ± 1.12$^{a}$ | 120.89 ± 1.96$^{b}$ | 1530.19 ± 42.74$^{ab}$ | 1647.76 ± 47.21$^{a}$ | 1168.88 ± 104.79$^{c}$ | 1246.93 ± 26.56$^{bc}$ | 2943.65 ± 143.80$^{a}$ | 2569.51 ± 12.49$^{ab}$ | 2155.42 ± 93.90$^{bc}$ | 2236.41 ± 46.28$^{bc}$ | 614.90 ± 62.01$^{a}$ | 535.70 ± 23.16$^{b}$ | 404.29 ± 1.58$^{c}$ | 467.32 ± 13.38$^{c}$ | 1533.88 ± 49.21$^{a}$ | 1410.87 ± 96.27$^{a}$ | 1101.50 ± 17.01$^{b}$ | 779.03 ± 647.67$^{bc}$ |
| Epigallocatechin | 90.89 ± 11.99$^{a}$ | 51.79 ± 0.37$^{c}$ | 50.32 ± 0.13$^{c}$ | 62.66 ± 1.02$^{b}$ | 1404.25 ± 12.11$^{a}$ | 1145.62 ± 48.74$^{ab}$ | 645.17 ± 50.80$^{cd}$ | 550.21 ± 33.86$^{d}$ | 2791.69 ± 38.30$^{a}$ | 2190.60 ± 26.04$^{b}$ | 1651.57 ± 71.30$^{cd}$ | 1396.90 ± 76.52$^{d}$ | 191.20 ±1.49$^{a}$ | 84.34 ± 20.75$^{b}$ | 59.86 ± 3.96$^{b}$ | 75.91 ± 2.24$^{b}$ | 451.17 ± 32.33$^{a}$ | 433.75 ± 21.83$^{a}$ | 152.75 ± 11.16$^{b}$ | 104.87 ± 73.26$^{b}$ |
| Procyanidin B1 | 6.59 ± 0.12$^{a}$ | 3.78 ± 0.02$^{c}$ | 5.73 ± 0.03$^{b}$ | 5.65 ± 0.36$^{b}$ | 55.00 ± 0.42$^{a}$ | 57.01 ± 1.41$^{a}$ | 41.12 ± 2.40$^{b}$ | 33.03 ± 1.60$^{c}$ | 93.02 ± 0.86$^{a}$ | 89.66 ± 1.57$^{a}$ | 48.97 ± 2.30$^{c}$ | 62.09 ± 3.81$^{b}$ | 19.55 ± 2.48$^{a}$ | 16.24 ± 4.19$^{a}$ | 10.20 ± 1.28$^{b}$ | 8.00 ± 0.21$^{b}$ | 42.87 ± 1.99$^{a}$ | 35.79 ± 4.91$^{b}$ | 14.00 ± 0.53$^{c}$ | 12.04 ± 4.80$^{c}$ |
| Catechin | 65.68 ± 1.14$^{b}$ | 100.45 ± 1.57$^{a}$ | 55.33 ± 1.12$^{c}$ | 43.11 ± 1.27$^{d}$ | 6130.83 ± 18.51$^{b}$ | 8379.72 ± 204.33$^{a}$ | 6139.10 ± 287.87$^{b}$ | 5674.43 ± 191.18$^{c}$ | 11520.57 ± 289.01$^{b}$ | 15027.64 ± 74.81$^{a}$ | 12973.43 ± 371.28$^{b}$ | 11585.94 ± 997.08$^{b}$ | 2527.40 ± 80.77$^{b}$ | 2771.79 ± 37.02$^{a}$ | 2119.39 ± 84.21$^{bc}$ | 2153.61 ± 95.91$^{bc}$ | 5931.69 ± 110.81$^{b}$ | 6439.05 ± 183.56$^{a}$ | 5495.32 ± 106.02$^{bc}$ | 3552.74 ± 3074.94$^{c}$ |
| Procyanidin B2 | 6.90 ± 2.28$^{b}$ | 7.96 ± 0.68$^{b}$ | 8.62 ± 0.06$^{b}$ | 9.81 ± 0.30$^{a}$ | 231.51 ± 3.63$^{a}$ | 34.50 ± 0.54$^{c}$ | 37.66 ± 4.30$^{c}$ | 189.07 ± 11.02$^{b}$ | 383.32 ± 5.22$^{a}$ | 45.55 ± 0.57$^{d}$ | 57.77 ± 3.76$^{cd}$ | 148.24 ± 197.77$^{b}$ | 32.29 ± 0.99$^{a}$ | 27.26 ± 3.86$^{b}$ | 13.01 ± 0.10$^{c}$ | 17.98 ± 0.62$^{c}$ | 68.11 ± 3.94$^{a}$ | 47.14 ± 0.83$^{b}$ | 25.75 ± 0.53$^{c}$ | 19.18 ± 14.68$^{c}$ |
| Epicatechin | 8.22 ± 2.62$^{b}$ | 2.37 ± 0.15$^{c}$ | 14.12 ± 0.19$^{a}$ | tr | 70.75 ± 7.27$^{a}$ | 66.09 ± 3.33$^{b}$ | 43.11 ± 2.60$^{c}$ | 11.89 ± 0.27$^{d}$ | 179.25 ± 5.63$^{a}$ | 140.69 ± 1.81$^{b}$ | 133.37 ± 13.89$^{b}$ | 73.69 ± 18.51$^{c}$ | 33.98 ± 10.82$^{a}$ | 16.12 ± 17.19$^{b}$ | tr | tr | 170.56 ± 19.86$^{a}$ | 92.38 ± 3.40$^{b}$ | 0.49 ± 0.40$^{c}$ | tr |
| Epigallocatechin gallate | 25.73 ± 1.40$^{a}$ | 26.51 ± 0.11$^{a}$ | 21.65 ± 0.20$^{b}$ | 20.04 ± 0.25$^{b}$ | 163.97 ± 3.20$^{c}$ | 237.07 ± 1.16$^{b}$ | 328.05 ± 23.30$^{a}$ | 333.82 ± 14.66$^{a}$ | 239.60 ± 7.28$^{c}$ | 279.47 ± 2.83$^{c}$ | 386.65 ± 7.78$^{ab}$ | 397.31 ± 16.81$^{a}$ | 84.01 ± 0.95$^{ab}$ | 90.09 ± 10.09$^{a}$ | 73.15 ± 1.92$^{b}$ | 76.17 ± 4.08$^{b}$ | 147.05 ± 4.52$^{b}$ | 164.38 ± 5.83$^{a}$ | 125.09 ± 5.97$^{c}$ | 137.92 ± 5.02$^{c}$ |
| Procyanidin B1 3-*O*-gallate* | 3.17 ± 0.61$^{b}$ | 3.86 ± 0.45$^{b}$ | tr | 40.20 ± 0.93$^{a}$ | 123.80 ± 15.27$^{b}$ | 156.90 ± 5.97$^{a}$ | 101.79 ± 18.21$^{b}$ | tr | 252.25 ± 28.99$^{a}$ | 109.46 ± 3.96$^{c}$ | 169.04 ± 19.74$^{b}$ | 20.46 ± 2.54$^{d}$ | 44.54 ± 13.74$^{b}$ | 64.85 ± 41.83$^{a}$ | 7.60 ± 0.52$^{d}$ | 30.26 ± 1.98$^{c}$ | 64.91 ± 4.70$^{b}$ | 240.47 ± 35.28$^{a}$ | 31.73 ± 0.14$^{c}$ | 40.42 ± 1.23$^{c}$ |
| Gallocatechin gallate | 15.33 ± 0.46$^{a}$ | 15.73 ± 0.11$^{a}$ | 14.29 ± 0.38$^{a}$ | 4.51 ± 0.00$^{b}$ | 564.74 ± 9.47$^{a}$ | 337.92 ± 12.23$^{b}$ | 78.57 ± 3.03$^{c}$ | 45.04 ± 3.46$^{d}$ | 1361.66 ± 41.59$^{a}$ | 899.50 ± 10.11$^{b}$ | 461.52 ± 20.95$^{c}$ | 290.79 ± 17.76$^{d}$ | 30.06 ± 1.40$^{a}$ | 22.57 ± 7.07$^{ab}$ | 18.13 ± 0.50$^{b}$ | 12.46 ± 1.43$^{c}$ | 108.49 ± 10.16$^{a}$ | 59.03 ± 1.60$^{b}$ | 21.15 ± 0.40$^{c}$ | 13.84 ± 1.61$^{c}$ |
| Quercetin 3-*O*-di-galacoside/glucoside* | 0.92 ± 0.00$^{b}$ | 0.52 ± 0.03$^{b}$ | 0.17 ± 0.00$^{c}$ | 2.12 ± 0.10$^{a}$ | 13.73 ± 5.64$^{a}$ | 13.39 ± 0.48$^{a}$ | 7.15 ± 5.47$^{b}$ | 0.85 ± 0.00$^{c}$ | 46.77 ± 1.67$^{a}$ | 27.92 ± 0.44$^{b}$ | 25.83 ± 3.21$^{b}$ | 15.35 ± 6.45$^{c}$ | 7.99 ± 0.18$^{a}$ | 3.87 ± 2.00$^{b}$ | 0.34 ± 0.00$^{c}$ | 2.27 ± 0.22$^{b}$ | 18.48 ± 0.85$^{a}$ | 15.02 ± 0.79$^{a}$ | 1.71 ± 0.02$^{b}$ | 3.09 ± 0.94$^{b}$ |
| Myricetin 3-*O*-galactoside 1* | 0.44 ± 0.00 | tr | tr | tr | 9.08 ± 3.55$^{b}$ | 15.61 ± 0.68$^{a}$ | tr | 1.25 ± 0.00$^{c}$ | 11.72 ± 0.16$^{b}$ | 37.88 ± 0.49$^{a}$ | tr | 8.05 ± 0.76$^{c}$ | 4.40 ± 0.19$^{a}$ | 2.91 ± 1.62$^{bc}$ | 3.35 ± 0.09$^{b}$ | 0.98 ± 0.21$^{c}$ | tr | 16.72 ± 0.47$^{a}$ | 11.04 ± 0.12$^{b}$ | 2.94 ± 1.14$^{c}$ |
| Epicatechin gallate | 5.12 ± 0.55$^{b}$ | 6.57 ± 0.08$^{a}$ | 4.31 ± 0.14$^{b}$ | 1.31 ± 0.00$^{c}$ | 34.69 ± 0.59$^{a}$ | 28.25 ± 0.89$^{b}$ | 6.57 ± 0.00$^{d}$ | 9.98 ± 1.23$^{c}$ | 69.51 ± 7.26$^{a}$ | 66.89 ± 0.93$^{a}$ | 54.17 ± 6.94$^{b}$ | 23.79 ± 6.83$^{c}$ | 10.56 ± 0.10$^{a}$ | 9.39 ± 3.42$^{ab}$ | 5.90 ± 0.09$^{b}$ | 5.73 ± 0.26$^{b}$ | 49.63 ± 5.70$^{a}$ | 48.25 ± 1.48$^{a}$ | 8.30 ± 0.23$^{c}$ | 17.57 ± 0.30$^{b}$ |
| Rutin | 1.88 ± 0.57$^{a}$ | 1.83 ± 0.02$^{a}$ | tr | 1.20 ± 0.06$^{b}$ | 13.36 ± 2.03$^{ab}$ | 16.56 ± 2.50$^{a}$ | 14.22 ± 1.19$^{ab}$ | 3.72 ± 0.56$^{c}$ | 29.17 ± 0.38$^{b}$ | 34.42 ± 0.32$^{a}$ | 31.25 ± 4.71$^{ab}$ | 11.61 ± 0.68$^{c}$ | 5.30 ± 0.17$^{b}$ | 8.87 ± 4.25$^{a}$ | tr | 0.84 ± 0.03$^{c}$ | 20.84 ± 0.90$^{a}$ | 24.33 ± 0.23$^{a}$ | 13.30 ± 0.27$^{b}$ | 6.16 ± 0.06$^{c}$ |
| Quercetin 3-*O*-galactoside | 0.70 ± 0.00$^{a}$ | 0.73 ± 0.03$^{a}$ | 0.17 ± 0.00$^{b}$ | 0.17 ± 0.00$^{b}$ | 6.31 ± 0.08$^{b}$ | 7.62 ± 0.34$^{a}$ | 0.85 ± 0.00$^{c}$ | 0.85 ± 0.00$^{c}$ | 13.92 ± 0.29$^{b}$ | 20.94 ± 5.63$^{a}$ | 7.99 ± 2.77$^{c}$ | 0.85 ± 0.00$^{d}$ | 5.27 ± 1.61$^{a}$ | 1.69 ± 0.85$^{b}$ | 5.69 ± 0.17$^{a}$ | 0.34 ± 0.00$^{c}$ | 9.97 ± 0.50$^{c}$ | 14.93 ± 0.49$^{b}$ | 20.02 ± 0.48$^{a}$ | 0.98 ± 1.11$^{d}$ |
| Kaempferol 3-*O*-rutinoside 2* | 1.54 ± 0.81$^{a}$ | 0.60 ± 0.01$^{b}$ | 0.01 ± 0.00$^{c}$ | 0.77 ± 0.03$^{b}$ | 9.17 ± 0.39$^{a}$ | 8.57 ± 0.08$^{b}$ | 0.07 ± 0.00$^{c}$ | 0.07 ± 0.00$^{c}$ | 24.16 ± 0.53$^{b}$ | 33.75 ± 0.49$^{a}$ | 4.00 ± 6.82$^{c}$ | 5.46 ± 0.27$^{c}$ | 4.38 ± 0.20$^{a}$ | 2.78 ± 0.78$^{b}$ | 0.03 ± 0.00$^{d}$ | 0.88 ± 0.74$^{c}$ | 15.72 ± 0.52$^{b}$ | 26.19 ± 0.68$^{a}$ | 0.03 ± 0.00$^{d}$ | 8.95 ± 2.50$^{c}$ |
| Kaempferol 3-*O*-glucoside | 1.35 ± 0.42$^{a}$ | 0.91 ± 0.03$^{b}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{c}$ | 5.26 ± 0.51$^{a}$ | 3.12 ± 0.17$^{b}$ | 0.07 ± 0.00$^{c}$ | 0.07 ± 0.00$^{c}$ | 8.27 ± 1.93$^{ab}$ | 13.94 ± 0.17$^{a}$ | 7.20 ± 12.36$^{ab}$ | 6.61 ± 1.65$^{bc}$ | 5.22 ± 0.11$^{a}$ | 3.39 ± 0.39$^{b}$ | 0.03 ± 0.00$^{d}$ | 1.90 ± 0.36$^{c}$ | 11.90 ± 0.51$^{b}$ | 34.00 ± 0.72$^{a}$ | 9.32 ± 0.51$^{c}$ | 7.08 ± 1.14$^{c}$ |
| Unknown quercetin conjugate* | 0.94 ± 0.02$^{a}$ | 0.93 ± 0.00$^{a}$ | 0.65 ± 0.00$^{b}$ | 0.65 ± 0.00$^{b}$ | 8.03 ± 0.23$^{a}$ | 8.01 ± 0.27$^{a}$ | 3.23 ± 0.00$^{c}$ | 5.17 ± 0.16$^{b}$ | 13.26 ± 0.29$^{a}$ | 14.95 ± 0.10$^{a}$ | 4.47 ± 2.16$^{bc}$ | 8.78 ± 0.63$^{b}$ | 3.79 ± 0.12$^{a}$ | 2.99 ± 0.08$^{b}$ | 1.29 ± 0.00$^{c}$ | 1.52 ± 0.04$^{c}$ | 4.88 ± 1.62$^{a}$ | 6.97 ± 0.23$^{a}$ | 1.29 ± 0.00$^{c}$ | 2.44 ± 0.47$^{c}$ |
| Unknown kaempferol conjugate* | 1.47 ± 0.01$^{a}$ | 1.44 ± 0.03$^{a}$ | 0.57 ± 0.00$^{b}$ | 0.57 ± 0.00$^{b}$ | 4.51 ± 0.07$^{b}$ | 5.72 ± 0.21$^{a}$ | 3.83 ± 0.85$^{bc}$ | 3.62 ± 0.06$^{c}$ | 6.41 ± 0.04$^{b}$ | 10.69 ± 0.04$^{a}$ | 6.99 ± 0.69$^{b}$ | 5.09 ± 0.28$^{c}$ | 3.29 ± 0.05$^{a}$ | 2.78 ± 0.05$^{b}$ | 1.14 ± 0.00$^{c}$ | 1.99 ± 0.10$^{c}$ | 6.21 ± 0.42$^{a}$ | 5.17 ± 0.22$^{a}$ | 1.83 ± 0.03$^{b}$ | 1.75 ± 0.51$^{b}$ |
| **Total flavonoids** | **449.73 ± 89.60$^{a}$** | **386.64 ± 4.32$^{a}$** | **335.82 ± 3.37$^{b}$** | **313.67 ± 6.27$^{b}$** | **10379.17 ± 125.72$^{b}$** | **12169.43 ± 330.53$^{a}$** | **8619.44 ± 504.82$^{c}$** | **8109.99 ± 284.60$^{c}$** | **19988.21 ± 573.04$^{ab}$** | **21613.48 ± 142.80$^{a}$** | **18179.66 ± 644.55$^{bc}$** | **16297.43 ± 1394.61$^{cd}$** | **3628.12 ± 177.38$^{a}$** | **3667.64 ± 178.61$^{a}$** | **2723.39 ± 94.41$^{b}$** | **2858.16 ± 121.84$^{b}$** | **8656.35 ± 248.54$^{ab}$** | **9114.46 ± 358.83$^{a}$** | **7034.60 ± 143.82$^{b}$** | **4710.98 ± 3831.38$^{bc}$** |
| *Purine alkaloid* | | | | | | | | | | | | | | | | | | | | |
| Caffeine | ND | ND | ND | ND | 1940.93 ± 22.43$^{a}$ | 859.36 ± 10.36$^{b}$ | 773.00 ± 26.85$^{c}$ | 286.77 ± 26.74$^{d}$ | 4381.69 ± 199.15$^{a}$ | 1398.32 ± 23.79$^{b}$ | 1392.00 ± 16.38$^{b}$ | 1289.59 ± 100.72$^{bc}$ | 93.71 ± 0.97$^{a}$ | 96.57 ± 9.32$^{a}$ | 33.51 ± 1.18$^{b}$ | 34.54 ± 2.61$^{b}$ | 271.99 ± 26.02$^{a}$ | 222.01 ± 11.09$^{a}$ | 111.83 ± 11.21$^{b}$ | 73.09 ± 53.24$^{bc}$ |
| **Total purine alkaloid** | -- | -- | -- | -- | **1940.93 ± 22.43$^{a}$** | **859.36 ± 10.36$^{b}$** | **773.00 ± 26.85$^{c}$** | **286.77 ± 26.74$^{d}$** | **4381.69 ± 199.15$^{a}$** | **1398.32 ± 23.79$^{b}$** | **1392.00 ± 16.38$^{b}$** | **1289.59 ± 100.72$^{bc}$** | **93.71 ± 0.97$^{a}$** | **96.57 ± 9.32$^{a}$** | **33.51 ± 1.18$^{b}$** | **34.54 ± 2.61$^{b}$** | **271.99 ± 26.02$^{a}$** | **222.01 ± 11.09$^{a}$** | **111.83 ± 11.21$^{b}$** | **73.09 ± 53.24$^{bc}$** |

* = Semi-quantification: Quinic acid, Procyanidin B1 3-*O*-gallate, Quercetin 3-*O*-di-galacoside/glucoside, Myricetin 3-*O*-galactoside 1, Kaempferol 3-*O*-rutinoside 2, Unknown quercetin conjugate and Unknown kaempferol conjugate were semi-quantified using the calibration curves of Chlorogenic acid, Procyanidin B1, Quercetin 3-*O*-galactoside, Quercetin 3-*O*-galactoside, Kaempferol 3-*O*-glucoside, Quercetin and Kaempferol, respectively.

ND = Not detected or value below the detection threshold.

C, 2GC, 4GC, 1BC, 3BC = Control Chardonnay wine, 2% (w/v) green tea-macerated Chardonnay wine, 4% (w/v) green tea-macerated Chardonnay wine, 1% (w/v) black tea-macerated Chardonnay wine, 3% (w/v) black tea-macerated Chardonnay wine.

tr = trace.

-- = Not available.

$^{abcd}$ = Values with different superscripts in the same wine group are significantly different ($p < 0.05$).

**Table S3** HPLC-DAD quantification of phenolic compounds in tea-macerated model wines at different aging times (μg/mL)

| Compounds | M | | | | 2GM | | | | 4GM | | | | 1BM | | | | 3BM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aging time (month) | | | | | | | | | | | | | | | | | | | |
| | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 |
| *Phenolic acids* | | | | | | | | | | | | | | | | | | | | |
| Quinic acid* | ND | ND | ND | ND | tr | 11.14 ± 1.08$^{c}$ | 177.59 ± 9.21$^{a}$ | 42.05 ± 2.32$^{b}$ | 1.56 ± 0.90$^{c}$ | 29.39 ± 10.01$^{b}$ | 319.58 ± 10.68$^{a}$ | 67.65 ± 38.03$^{b}$ | 16.26 ± 0.41$^{c}$ | 22.29 ± 0.59$^{b}$ | 54.61 ± 13.93$^{a}$ | 55.05 ± 10.45$^{a}$ | 76.32 ± 31.63$^{c}$ | 89.46 ± 35.19$^{c}$ | 122.30 ± 10.74$^{b}$ | 174.28 ± 26.64$^{a}$ |
| Gallic acid | ND | ND | ND | ND | 110.20 ± 2.96$^{b}$ | 124.48 ± 8.10$^{b}$ | tr | 204.31 ± 19.13$^{a}$ | 213.38 ± 66.35$^{b}$ | 218.84 ± 50.20$^{b}$ | tr | 401.94 ± 161.35$^{a}$ | 6.10 ± 0.26$^{d}$ | 10.18 ± 0.46$^{c}$ | 23.23 ± 0.00$^{b}$ | 95.98 ± 106.13$^{a}$ | 48.26 ± 2.69$^{c}$ | 45.46 ± 22.46$^{c}$ | 64.81 ± 11.32$^{a}$ | 70.58 ± 32.65$^{a}$ |
| Chlorogenic acid | ND | ND | ND | ND | 24.01 ± 1.26$^{a}$ | 25.44 ± 2.13$^{a}$ | 22.77 ± 1.68$^{a}$ | 24.94 ± 3.90$^{a}$ | 51.31 ± 17.31$^{a}$ | 46.52 ± 10.33$^{a}$ | 47.76 ± 3.40$^{a}$ | 49.64 ± 23.29$^{a}$ | 0.32 ± 0.22$^{b}$ | tr | 1.61 ± 1.77$^{b}$ | 11.46 ± 19.44$^{a}$ | 5.46 ± 4.69$^{a}$ | 5.78 ± 2.93$^{a}$ | 3.37 ± 0.19$^{a}$ | 4.55 ± 3.95$^{a}$ |
| **Total phenolic acids** | -- | -- | -- | -- | **134.21 ± 4.22$^{c}$** | **161.05 ± 11.31$^{c}$** | **200.36 ± 10.89$^{b}$** | **271.30 ± 25.35$^{a}$** | **266.25 ± 84.55$^{c}$** | **294.76 ± 70.54$^{c}$** | **367.35 ± 14.07$^{b}$** | **519.23 ± 222.67$^{a}$** | **22.67 ± 0.89$^{c}$** | **32.47 ± 1.05$^{c}$** | **79.45 ± 0.00$^{b}$** | **162.49 ± 136.03$^{a}$** | **130.04 ± 39.02$^{c}$** | **140.69 ± 60.58$^{c}$** | **190.47 ± 22.25$^{b}$** | **249.41 ± 63.24$^{a}$** |
| *Flavonoids* | | | | | | | | | | | | | | | | | | | | |
| Gallocatechin | ND | ND | ND | ND | 579.20 ± 23.48$^{d}$ | 780.93 ± 70.79$^{c}$ | 1001.59 ± 49.73$^{b}$ | 1836.30 ± 885.25$^{a}$ | 1070.10 ± 285.55$^{c}$ | 1349.94 ± 242.15$^{c}$ | 1891.93 ± 114.97$^{b}$ | 2364.61 ± 914.95$^{a}$ | 197.05 ± 4.27$^{d}$ | 246.22 ± 4.61$^{c}$ | 409.97 ± 39.15$^{b}$ | 833.81 ± 539.86$^{a}$ | 690.58 ± 318.56$^{b}$ | 785.98 ± 270.94$^{ab}$ | 845.87 ± 60.22$^{ab}$ | 965.80 ± 420.74$^{a}$ |
| Epigallocatechin | ND | ND | ND | ND | 626.08 ± 68.43$^{c}$ | 815.40 ± 48.55$^{b}$ | 1029.22 ± 52.71$^{a}$ | 895.27 ± 467.55$^{ab}$ | 1187.07 ± 364.01$^{c}$ | 1383.97 ± 299.14$^{c}$ | 1795.85 ± 91.07$^{b}$ | 2095.17 ± 793.68$^{a}$ | 27.83 ± 5.47$^{d}$ | 43.63 ± 5.92$^{b}$ | 63.67 ± 17.07$^{b}$ | 374.53 ± 561.17$^{a}$ | 122.06 ± 62.42$^{c}$ | 165.58 ± 62.29$^{b}$ | 188.26 ± 13.91$^{a}$ | 109.08 ± 53.36$^{c}$ |
| Procyanidin B1 | ND | ND | ND | ND | 26.85 ± 1.64$^{b}$ | 33.93 ± 1.23$^{a}$ | 27.88 ± 0.68$^{b}$ | 35.39 ± 0.97$^{a}$ | 42.23 ± 9.42$^{b}$ | 47.33 ± 5.37$^{b}$ | 42.73 ± 3.24$^{b}$ | 55.83 ± 18.42$^{a}$ | 8.27 ± 0.68$^{c}$ | 10.21 ± 0.83$^{b}$ | 10.38 ± 2.74$^{b}$ | 17.21 ± 14.17$^{a}$ | 21.52 ± 6.89$^{a}$ | 20.07 ± 3.64$^{a}$ | 20.39 ± 3.48$^{a}$ | 16.62 ± 8.73$^{a}$ |
| Catechin | ND | ND | ND | ND | 3165.80 ± 47.32$^{c}$ | 5592.70 ± 404.97$^{ab}$ | 4952.16 ± 191.60$^{b}$ | 8335.28 ± 4249.99$^{a}$ | 5576.38 ± 1405.23$^{c}$ | 9405.58 ± 1430.41$^{a}$ | 8247.79 ± 485.22$^{b}$ | 9461.17 ± 3095.64$^{a}$ | 1175.54 ± 42.85$^{c}$ | 1438.55 ± 52.53$^{c}$ | 2207.71 ± 198.34$^{b}$ | 3751.95 ± 1811.69$^{a}$ | 3396.73 ± 1203.18$^{b}$ | 3890.03 ± 1056.94$^{ab}$ | 4582.78 ± 289.20$^{a}$ | 4841.91 ± 2063.66$^{a}$ |
| Procyanidin B2 | ND | ND | ND | ND | 99.38 ± 9.42$^{b}$ | 19.30 ± 1.63$^{c}$ | 140.25 ± 6.36$^{a}$ | 116.78 ± 45.06$^{ab}$ | 182.94 ± 54.55$^{a}$ | 33.25 ± 5.85$^{b}$ | 252.13 ± 25.70$^{a}$ | 243.58 ± 86.07$^{a}$ | 3.22 ± 0.44$^{b}$ | 2.22 ± 0.34$^{b}$ | 2.91 ± 3.72$^{b}$ | 54.00 ± 78.50$^{a}$ | 19.10 ± 9.80$^{a}$ | 8.28 ± 2.43$^{b}$ | 11.93 ± 1.78$^{b}$ | 21.34 ± 11.87$^{a}$ |
| Epicatechin | ND | ND | ND | ND | tr | 24.31 ± 1.77$^{c}$ | 52.69 ± 5.82$^{a}$ | 45.19 ± 2.98$^{ab}$ | 46.18 ± 33.96$^{b}$ | 56.20 ± 14.19$^{b}$ | 137.69 ± 35.37$^{a}$ | 102.05 ± 51.65$^{a}$ | tr | tr | 4.84 ± 0.00$^{b}$ | 68.99 ± 0.00$^{a}$ | 35.32 ± 20.95$^{a}$ | 14.02 ± 6.57$^{b}$ | 10.61 ± 3.98$^{b}$ | 15.09 ± 6.86$^{b}$ |
| Epigallocatechin gallate | ND | ND | ND | ND | 12.93 ± 0.43$^{d}$ | 22.07 ± 0.38$^{c}$ | 68.94 ± 5.02$^{b}$ | 137.73 ± 188.74$^{a}$ | 26.46 ± 11.05$^{c}$ | 35.12 ± 4.28$^{c}$ | 157.53 ± 19.51$^{a}$ | 64.75 ± 37.74$^{b}$ | 5.82 ± 0.46$^{d}$ | 8.71 ± 2.68$^{c}$ | 16.71 ± 3.73$^{b}$ | 33.60 ± 20.83$^{a}$ | 24.51 ± 10.68$^{c}$ | 28.40 ± 3.43$^{c}$ | 45.34 ± 11.64$^{b}$ | 72.61 ± 25.27$^{a}$ |
| Procyanidin B1 3-*O*-gallate* | ND | ND | ND | ND | 1.13 ± 0.37$^{c}$ | 18.63 ± 3.95$^{b}$ | 18.04 ± 5.89$^{b}$ | 79.13 ± 24.58$^{a}$ | 74.51 ± 54.82$^{b}$ | 56.44 ± 16.68$^{b}$ | 128.50 ± 11.51$^{a}$ | 119.71 ± 88.43$^{a}$ | 3.44 ± 1.15$^{c}$ | 2.61 ± 2.21$^{c}$ | 8.80 ± 2.87$^{b}$ | 48.65 ± 81.97$^{a}$ | 40.45 ± 18.22$^{b}$ | 24.95 ± 4.52$^{c}$ | 39.83 ± 9.18$^{b}$ | 64.16 ± 23.06$^{a}$ |
| Gallocatechin gallate | ND | ND | ND | ND | 365.63 ± 96.87$^{c}$ | 500.54 ± 39.51$^{b}$ | 618.32 ± 56.93$^{a}$ | 460.22 ± 365.84$^{c}$ | 745.65 ± 166.06$^{b}$ | 828.61 ± 93.86$^{b}$ | 1013.78 ± 172.21$^{a}$ | 986.09 ± 294.80$^{ab}$ | 26.17 ± 0.85$^{d}$ | 35.95 ± 4.68$^{c}$ | 48.55 ± 5.14$^{b}$ | 267.88 ± 388.49$^{a}$ | 66.02 ± 25.99$^{b}$ | 79.14 ± 18.02$^{a}$ | 60.10 ± 14.91$^{b}$ | 55.32 ± 22.62$^{b}$ |
| Quercetin 3-*O*-di-galacoside/glucoside* | ND | ND | ND | ND | 6.25 ± 1.19$^{b}$ | 0.85 ± 0.00$^{c}$ | 0.85 ± 0.00$^{c}$ | 15.20 ± 5.20$^{a}$ | 15.96 ± 5.54$^{b}$ | 0.85 ± 0.00$^{c}$ | 23.41 ± 7.18$^{ab}$ | 32.36 ± 13.53$^{a}$ | tr | 0.82 ± 0.83$^{c}$ | 2.76 ± 2.12$^{b}$ | 7.73 ± 12.81$^{a}$ | 4.18 ± 0.52$^{a}$ | 0.34 ± 0.00$^{c}$ | 1.30 ± 1.65$^{b}$ | 2.84 ± 2.23$^{ab}$ |
| Myricetin 3-*O*-galactoside 1* | ND | ND | ND | ND | tr | 17.56 ± 2.38$^{a}$ | tr | 9.28 ± 0.00$^{b}$ | tr | 34.07 ± 6.09$^{a}$ | tr | 11.63 ± 0.00$^{b}$ | tr | 1.41 ± 0.33$^{a}$ | tr | 1.55 ± 0.31$^{a}$ | tr | 8.66 ± 2.82$^{a}$ | tr | 5.68 ± 4.10$^{b}$ |
| Epicatechin gallate | ND | ND | ND | ND | 24.01 ± 0.92$^{b}$ | 26.24 ± 1.95$^{b}$ | 6.57 ± 0.00$^{c}$ | 40.43 ± 3.50$^{a}$ | 42.62 ± 12.91$^{b}$ | 42.89 ± 7.33$^{b}$ | 59.92 ± 6.82$^{a}$ | 58.00 ± 19.17$^{a}$ | 7.43 ± 0.22$^{b}$ | 8.13 ± 0.73$^{b}$ | 4.46 ± 3.17$^{c}$ | 20.35 ± 16.22$^{a}$ | 30.38 ± 12.14$^{a}$ | 25.06 ± 7.61$^{b}$ | 18.95 ± 5.06$^{c}$ | 23.45 ± 11.42$^{b}$ |
| Rutin | ND | ND | ND | ND | 3.72 ± 0.50$^{d}$ | 6.88 ± 1.03$^{c}$ | 16.54 ± 1.31$^{a}$ | 11.32 ± 3.09$^{b}$ | 10.50 ± 4.62$^{b}$ | 14.33 ± 3.07$^{b}$ | 43.35 ± 3.32$^{a}$ | 16.36 ± 7.07$^{b}$ | 1.57 ± 0.19$^{b}$ | 2.09 ± 0.25$^{b}$ | 6.30 ± 0.49$^{a}$ | 6.84 ± 6.44$^{a}$ | 9.13 ± 3.81$^{b}$ | 9.17 ± 2.39$^{b}$ | 19.22 ± 2.26$^{a}$ | 7.77 ± 4.23$^{b}$ |
| Quercetin 3-*O*-galactoside | ND | ND | ND | ND | 3.09 ± 0.00$^{ab}$ | 3.09 ± 0.61$^{ab}$ | 0.85 ±0.00$^{c}$ | 4.90 ± 3.52$^{a}$ | 6.47 ± 2.35$^{b}$ | 5.67 ± 1.33$^{b}$ | 9.06 ± 0.96$^{a}$ | 8.74 ± 1.86$^{a}$ | tr | 0.34 ± 0.00$^{c}$ | 5.97 ± 0.16$^{a}$ | 2.28 ± 3.36$^{b}$ | tr | 3.58 ± 1.03$^{b}$ | 16.60 ± 0.66$^{a}$ | 0.34 ± 0.00$^{c}$ |
| Kaempferol 3-*O*-rutinoside 2* | ND | ND | ND | ND | 5.16 ± 0.57$^{b}$ | 7.39 ± 0.87$^{b}$ | 0.07 ± 0.00$^{c}$ | 14.38 ± 2.34$^{a}$ | 13.35 ± 4.86$^{ab}$ | 14.82 ± 3.55$^{ab}$ | 18.26 ± 3.70$^{a}$ | 17.78 ± 4.68$^{a}$ | 2.31 ± 0.09$^{b}$ | 2.79 ± 0.07$^{b}$ | 0.03 ± 0.00$^{c}$ | 7.02 ± 3.58$^{a}$ | 11.07 ± 4.38$^{a}$ | 10.81 ± 3.20$^{a}$ | 0.03 ± 0.00$^{b}$ | 10.73 ± 5.11$^{a}$ |
| Kaempferol 3-*O*-glucoside | ND | ND | ND | ND | tr | 2.51 ± 0.01$^{b}$ | 7.95 ± 0.56$^{a}$ | 7.64 ± 6.03$^{a}$ | 5.47 ± 0.73$^{b}$ | 4.61 ± 1.05$^{b}$ | 25.83 ± 4.62$^{a}$ | 6.53 ± 2.26$^{b}$ | 1.52 ± 0.05$^{b}$ | 1.86 ± 0.16$^{b}$ | 3.81 ± 0.25$^{a}$ | 3.13 ± 0.28$^{a}$ | 5.89 ± 2.19$^{b}$ | 7.11 ± 1.37$^{b}$ | 10.02 ± 1.34$^{a}$ | 5.79 ± 2.51$^{b}$ |
| Unknown quercetin conjugate* | ND | ND | ND | ND | 5.80 ± 0.20$^{b}$ | 6.36 ± 0.09$^{a}$ | 3.23 ± 0.00$^{c}$ | 6.53 ± 1.08$^{a}$ | 8.38 ± 1.45$^{a}$ | 8.88 ± 1.26$^{a}$ | 3.23 ± 0.00$^{b}$ | 9.84 ± 2.39$^{a}$ | tr | 1.83 ± 0.09$^{b}$ | 1.29 ± 0.00$^{b}$ | 3.22 ± 1.83$^{a}$ | 2.67 ± 0.80$^{b}$ | 4.24 ± 0.55$^{a}$ | 1.29 ± 0.00$^{c}$ | 3.19 ± 1.28$^{a}$ |
| Unknown kaempferol conjugate* | ND | ND | ND | ND | 3.66 ± 0.06$^{c}$ | 4.02 ± 0.08$^{b}$ | 5.31 ± 0.11$^{a}$ | 4.04 ± 0.35$^{b}$ | 4.79 ± 0.52$^{b}$ | 5.29 ± 0.56$^{b}$ | 7.21 ± 0.49$^{a}$ | 5.11 ± 0.87$^{b}$ | tr | 1.40 ± 0.12$^{a}$ | 1.14 ± 0.00$^{a}$ | 1.85 ± 0.64$^{a}$ | 2.20 ± 0.47$^{a}$ | 2.52 ± 0.13$^{a}$ | 2.03 ± 0.30$^{a}$ | 2.09 ± 0.98$^{a}$ |
| **Total flavonoids** | -- | -- | -- | -- | **4928.70 ± 251.40$^{c}$** | **7882.71 ± 579.80$^{b}$** | **7950.45 ± 376.72$^{b}$** | **12055.02 ± 6256.07$^{a}$** | **9059.06 ± 2417.61$^{c}$** | **13327.84 ± 2136.18$^{b}$** | **13858.20 ± 985.88$^{b}$** | **15659.30 ± 5433.21$^{a}$** | **1460.18 ± 56.73$^{d}$** | **1808.77 ± 76.39$^{c}$** | **2799.28 ± 278.94$^{b}$** | **5504.58 ± 3542.14$^{a}$** | **4481.82 ± 1701.00$^{c}$** | **5087.95 ± 1447.89$^{b}$** | **5874.55 ± 419.58$^{b}$** | **6223.79 ± 2668.05$^{a}$** |
| *Purine alkaloid* | | | | | | | | | | | | | | | | | | | | |
| Caffeine | ND | ND | ND | ND | 918.66 ± 175.72$^{b}$ | 419.07 ± 20.35$^{c}$ | 1427.96 ± 183.42$^{a}$ | 1126.41 ± 735.27$^{a}$ | 1911.92 ± 433.91$^{b}$ | 690.71 ± 145.68$^{c}$ | 2434.06 ± 464.72$^{a}$ | 2552.21 ± 926.54$^{a}$ | 30.63 ± 3.57$^{b}$ | 24.33 ± 2.80$^{b}$ | 33.62 ± 8.61$^{b}$ | 68.64 ± 11.43$^{a}$ | 114.91 ± 50.03$^{a}$ | 75.87 ± 25.07$^{b}$ | 65.74 ± 1.84$^{b}$ | 91.32 ± 41.49$^{ab}$ |
| **Total purine alkaloid** | -- | -- | -- | -- | **918.66 ± 175.72$^{b}$** | **419.07 ± 20.35$^{c}$** | **1427.96 ± 183.42$^{a}$** | **1126.41 ± 735.27$^{a}$** | **1911.92 ± 433.91$^{b}$** | **690.71 ± 145.68$^{c}$** | **2434.06 ± 464.72$^{a}$** | **2552.21 ± 926.54$^{a}$** | **30.63 ± 3.57$^{b}$** | **24.33 ± 2.80$^{b}$** | **33.62 ± 8.61$^{b}$** | **68.64 ± 11.43$^{a}$** | **114.91 ± 50.03$^{a}$** | **75.87 ± 25.07$^{b}$** | **65.74 ± 1.84$^{b}$** | **91.32 ± 41.49$^{ab}$** |

* = Semi-quantification: Quinic acid, Procyanidin B1 3-*O*-gallate, Quercetin 3-*O*-di-galacoside/glucoside, Myricetin 3-*O*-galactoside 1, Kaempferol 3-*O*-rutinoside 2, Unknown quercetin conjugate and Unknown kaempferol conjugate were semi-quantified using the calibration curves of Chlorogenic acid, Procyanidin B1, Quercetin 3-*O*-galactoside, Quercetin 3-*O*-galactoside, Kaempferol 3-*O*-glucoside, Quercetin and Kaempferol, respectively.

ND = Not detected or value below the detection threshold.

M, 2GM, 4GM, 1BM, 3BM = model wine, 2% (w/v) green tea-macerated model wine, 4% (w/v) green tea-macerated model wine, 1% (w/v) black tea-macerated model wine, 3% (w/v) black tea-macerated model wine.

tr = trace.

-- = Not available.

$^{abcd}$ = Values with different superscripts in the same wine group are significantly different ($p < 0.05$).

**Table S4** Effect of aging time on volatile compounds of tea-macerated Chardonnay wines (μg/mL)

| Peak No. | Compound name | RI* | C | | | | 2GC | | | | 4GC | | | | 1BC | | | | 3BC | | | | ID** | Odor description*** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Aging time (month) | | | | | | | | | | | | | | | | | | | | | |
| | | | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | | |
| **17** | Ethoxyacetic acid**** | 1268 | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | RI, MS | -- |
| **28** | Acetic acid**** | 1433 | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{d}$ | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{d}$ | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{c}$ | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | RI, MS | Pungent, acidic, cheesy, vinegar |
| **29** | Pterin-6-carboxylic acid**** | 1461 | tr | tr | tr | tr | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{d}$ | 0.01 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{c}$ | tr | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | tr | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | RI, MS | -- |
| **49** | Hexanoic acid | 1829 | 4.37 ± 0.20$^{b}$ | 3.99 ± 0.17$^{bc}$ | 5.48 ± 1.13$^{a}$ | 3.36 ± 0.10$^{c}$ | 3.64 ± 0.12$^{b}$ | 3.69 ± 0.15$^{b}$ | 4.50 ± 0.23$^{a}$ | 3.69 ± 0.44$^{b}$ | 3.63 ± 0.25$^{b}$ | 3.61 ± 0.15$^{b}$ | 4.79 ± 0.57$^{a}$ | 3.49 ± 0.21$^{b}$ | 4.10 ± 0.22$^{b}$ | 4.12 ± 0.20$^{b}$ | 5.04 ± 0.32$^{a}$ | 3.75 ± 0.19$^{c}$ | 4.44 ± 0.16$^{a}$ | 3.72 ± 0.19$^{b}$ | 4.78 ± 0.49$^{a}$ | 4.27± 0.31$^{a}$ | RI, MS, ES | Sour, fatty, sweaty, cheesy |
| **53** | Octanoic acid | 2046 | 8.38 ± 0.43$^{a}$ | 6.68 ± 0.81$^{b}$ | 7.65 ± 2.14$^{b}$ | 4.10 ± 0.12$^{c}$ | 4.27 ± 0.21$^{a}$ | 3.46 ± 0.11$^{b}$ | 4.24 ± 0.18$^{a}$ | 3.01 ± 0.37$^{c}$ | 3.28 ± 0.23$^{a}$ | 2.89 ± 0.07$^{b}$ | 3.50 ± 0.48$^{a}$ | 2.34 ± 0.10$^{b}$ | 5.63± 0.18$^{a}$ | 5.14 ± 0.13$^{a}$ | 5.43 ± 0.32$^{a}$ | 3.64 ± 0.37$^{b}$ | 4.50 ± 0.20$^{a}$ | 3.37 ± 0.05$^{b}$ | 3.69 ± 0.43$^{b}$ | 3.17 ± 0.16$^{b}$ | RI, MS, ES | Fatty, waxy, rancid, oily, vegetable, cheesy |
| **54** | Nonanoic acid | 2269 | 2.17 ± 0.06$^{a}$ | 1.63 ± 0.15$^{b}$ | 1.52 ± 0.32$^{b}$ | 0.90 ± 0.01$^{c}$ | 0.79 ± 0.03$^{b}$ | 0.76 ± 0.02$^{b}$ | 0.84 ± 0.05$^{a}$ | tr | 0.70 ± 0.01$^{a}$ | 0.69 ± 0.04$^{a}$ | 0.68 ± 0.04$^{a}$ | tr | 0.94 ± 0.03$^{a}$ | 0.90 ± 0.02$^{a}$ | 0.92 ± 0.08$^{a}$ | 0.71 ± 0.02$^{b}$ | 0.74 ± 0.01$^{b}$ | 0.72 ± 0.03$^{b}$ | 0.82 ± 0.02$^{a}$ | tr | RI, MS, ES | Waxy, dirty, cheese, cultured, dairy |
| | **Total acid** | | **14.94 ± 0.69$^{a}$** | **12.32 ± 1.13$^{b}$** | **14.68 ± 3.59$^{a}$** | **8.38 ± 0.22$^{c}$** | **8.72 ± 0.37$^{b}$** | **7.95 ± 0.28$^{c}$** | **9.61 ± 0.46$^{a}$** | **6.73 ± 0.81$^{d}$** | **7.64 ± 0.49$^{b}$** | **7.24 ± 0.25$^{b}$** | **9.01 ± 1.10$^{a}$** | **5.86 ± 0.31$^{c}$** | **10.70 ± 0.42$^{b}$** | **10.18 ± 0.36$^{b}$** | **11.43 ± 0.69$^{a}$** | **8.12 ± 0.58$^{c}$** | **9.71 ± 0.37$^{a}$** | **7.84 ± 0.28$^{b}$** | **9.32 ± 0.93$^{a}$** | **7.47 ± 0.47$^{b}$** | | |
| **3** | 2-Methyl-1-propanol**** | 1079 | 0.16 ± 0.01$^{b}$ | 0.17 ± 0.01$^{a}$ | 0.19 ± 0.03$^{a}$ | 0.14 ± 0.01$^{b}$ | 0.16 ± 0.01$^{c}$ | 0.17 ± 0.01$^{b}$ | 0.19 ± 0.01$^{a}$ | 0.17 ± 0.02$^{b}$ | 0.18 ± 0.01$^{b}$ | 0.21 ± 0.00$^{a}$ | 0.21 ± 0.02$^{a}$ | 0.16 ± 0.01$^{c}$ | 0.16 ± 0.00$^{c}$ | 0.18 ± 0.01$^{b}$ | 0.20 ± 0.01$^{a}$ | 0.15 ± 0.01$^{c}$ | 0.18 ± 0.01$^{a}$ | 0.18 ± 0.00$^{a}$ | 0.18 ± 0.01$^{a}$ | 0.17 ± 0.02$^{b}$ | RI, MS | Ethereal, winey, cortex |
| **5** | 2-Pentanol**** | 1127 | ND | tr | tr | ND | 0.68 ± 0.00 | tr | tr | tr | 1.22 ± 0.02 | tr | tr | tr | 1.06 ± 0.15 | tr | tr | tr | tr | tr | tr | tr | RI, MS | Mild, green, fusel, oil, fermented |
| **6** | 1-Butanol | 1132 | 0.77 ± 0.09$^{b}$ | tr | 0.92 ± 0.14$^{a}$ | 0.39 ± 0.09$^{c}$ | 0.93 ± 0.14$^{b}$ | tr | 1.06 ± 0.11$^{a}$ | 0.67 ± 0.21$^{c}$ | 1.43 ± 0.13$^{b}$ | 8.83 ± 0.00$^{a}$ | 1.32 ± 0.07$^{b}$ | 0.68 ± 0.16$^{c}$ | 1.01 ± 0.17$^{b}$ | 3.47 ± 0.67$^{a}$ | 1.07 ± 0.07$^{b}$ | 0.53 ± 0.04$^{c}$ | tr | 1.28 ± 0.14$^{a}$ | 0.78 ± 0.13$^{b}$ | 0.75 ± 0.00$^{b}$ | RI, MS, ES | Fusel, oil, sweet, balsam, whiskey |
| **7** | 2-Hexanol**** | 1142 | 0.78 ± 0.15$^{b}$ | tr | 0.99 ± 0.06$^{a}$ | 0.28 ± 0.07$^{c}$ | 1.02 ± 0.11$^{b}$ | tr | 1.21 ± 0.17$^{a}$ | 0.82 ± 0.34$^{c}$ | 1.24 ± 0.08$^{b}$ | 5.03 ± 0.00$^{a}$ | 1.19 ± 0.24$^{b}$ | 0.71 ± 0.26$^{c}$ | 1.24 ± 0.21$^{b}$ | 3.89 ± 1.05$^{a}$ | 0.95 ± 0.18$^{c}$ | tr | 1.18 ± 0.03$^{b}$ | 1.38 ± 0.07$^{a}$ | 0.96 ± 0.06$^{c}$ | tr | RI, MS | Chemical, winey, fruity, fatty, terpenic, cauliflower |
| **10** | 3-Methyl-1-butanol | 1196 | 61.83 ± 4.35$^{b}$ | 67.39 ± 3.87$^{b}$ | 80.79 ± 15.47$^{a}$ | 60.05 ± 0.00$^{b}$ | 59.78 ± 3.16$^{c}$ | 68.98 ± 2.18$^{b}$ | 72.71 ± 3.79$^{a}$ | 65.31 ± 7.91$^{b}$ | 65.19 ± 3.63$^{c}$ | 72.71 ± 3.90$^{b}$ | 82.39 ± 9.69$^{a}$ | 62.40 ± 3.83$^{c}$ | 60.24 ± 2.55$^{b}$ | 73.01 ± 3.83$^{a}$ | 78.53 ± 2.48$^{a}$ | 59.83 ± 2.60$^{b}$ | 69.79 ± 2.72$^{b}$ | 68.31 ± 1.13$^{b}$ | 72.68 ± 5.41$^{a}$ | 69.57 ± 6.92$^{b}$ | RI, MS, ES | Fusel, oily, alcoholic, whiskey, fruity, banana |
| **12** | 1-(2-Aminoethylamino)-2-propanol**** | 1228 | ND | ND | ND | ND | 0.01± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | tr | tr | 0.01 ± 0.00$^{a}$ | 0.01± 0.00$^{c}$ | 0.01 ± 0.00$^{b}$ | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | -- |
| **20** | 2-Octen-4-ol**** | 1304 | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | ND | 0.48 ± 0.03$^{a}$ | 0.41 ± 0.01$^{b}$ | 0.32 ± 0.02$^{c}$ | 0.17 ± 0.03$^{d}$ | 0.93 ± 0.14$^{a}$ | 0.82 ± 0.05$^{b}$ | 0.74 ± 0.10$^{c}$ | 0.39 ± 0.03$^{d}$ | 0.09 ± 0.01$^{a}$ | 0.08 ± 0.00$^{b}$ | 0.08 ± 0.01$^{b}$ | 0.02 ± 0.00$^{c}$ | 0.19 ± 0.01$^{a}$ | 0.16 ± 0.03$^{ab}$ | 0.13 ± 0.02$^{b}$ | 0.09 ± 0.01$^{c}$ | RI, MS | Fruity, berry |
| **21** | 3-Methyl-1-pentanol**** | 1315 | 0.02 ± 0.00$^{a}$ | 0.03 ± 0.00$^{a}$ | 0.03 ± 0.01$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{c}$ | 0.02 ± 0.00$^{b}$ | 0.03 ± 0.00$^{a}$ | 0.02 ± 0.00$^{c}$ | 0.02 ± 0.00$^{c}$ | 0.03 ± 0.00$^{b}$ | 0.03 ± 0.00$^{a}$ | 0.02 ± 0.00$^{c}$ | 0.02 ± 0.00$^{c}$ | 0.03 ± 0.00$^{b}$ | 0.04 ± 0.00$^{a}$ | 0.02 ± 0.00$^{c}$ | 0.03 ± 0.00$^{b}$ | 0.03 ± 0.00$^{b}$ | 0.04 ± 0.00$^{a}$ | 0.02 ± 0.00$^{c}$ | RI, MS | Fusel, cognac, wine, cocoa, green, fruity |
| **24** | (*E*)-3-Hexen-1-ol | 1350 | tr | tr | tr | tr | 0.44 ± 0.00 | tr | tr | tr | tr | tr | tr | tr | tr | 0.01 ± 0.00 | tr | tr | tr | tr | tr | tr | RI, MS, ES | Green, leafy |
| **25** | 1-Hexanol | 1343 | 2.05 ± 1.16$^{a}$ | 1.57 ± 0.10$^{b}$ | 1.98 ± 0.38$^{a}$ | 1.35 ± 0.08$^{b}$ | 3.23 ± 0.18$^{a}$ | 1.52 ± 0.03$^{bb}$ | 1.68 ± 0.08$^{b}$ | 1.50 ± 0.17$^{b}$ | 3.30 ± 0.18$^{a}$ | 1.51 ± 0.11$^{b}$ | 1.78 ± 0.24$^{b}$ | 1.32 ± 0.08$^{c}$ | 3.38 ± 0.21$^{a}$ | 1.62 ± 0.08$^{c}$ | 1.85 ± 0.06$^{b}$ | 1.39 ± 0.04$^{d}$ | 3.77 ± 0.14$^{a}$ | 1.49 ± 0.03$^{b}$ | 1.66 ± 0.14$^{b}$ | 1.55 ± 0.18$^{b}$ | RI, MS, ES | Pungen, ethereal, fusel, oily, fruity, alcoholic, sweet, green |
| **26** | 2-Methyl-4-heptanol**** | 1385 | 0.02 ± 0.00 | tr | tr | tr | 0.02 ± 0.00 | tr | tr | tr | 0.02 ± 0.00 | tr | tr | tr | 0.01 ± 0.00 | tr | tr | tr | 0.02 ± 0.00$^{b}$ | 0.04 ± 0.00$^{a}$ | tr | tr | RI, MS | -- |
| **30** | 2-Ethyl-1-hexanol | 1480 | tr | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | tr | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | tr | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | tr | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | tr | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | RI, MS, ES | Citrus, fresh, floral, oily, sweet |
| **35** | Linalool | 1537 | 0.01 ± 0.01$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | tr | 0.14 ± 0.10$^{c}$ | 0.29 ± 0.02$^{a}$ | 0.26 ± 0.02$^{a}$ | 0.22 ± 0.03$^{b}$ | 0.32 ± 0.03$^{c}$ | 0.43 ± 0.01$^{b}$ | 0.59 ± 0.08$^{a}$ | 0.45 ± 0.04$^{b}$ | 0.07 ± 0.01$^{a}$ | 0.07 ± 0.01$^{a}$ | 0.06 ± 0.00$^{b}$ | 0.04 ± 0.00$^{c}$ | 0.17 ± 0.01$^{ab}$ | 0.16 ± 0.00$^{ab}$ | 0.18 ± 0.01$^{a}$ | 0.13 ± 0.01$^{b}$ | RI, MS, ES | Citrus, floral, sweet, rose, woody, green, blueberry |
| **36** | 1-Octanol | 1550 | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{ab}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{ab}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{ab}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | RI, MS, ES | Waxy, green, orange, aldehydic, rose, mushroom |
| **38** | 2,3-Butanediol**** | 1571 | 0.02 ± 0.00$^{b}$ | 0.03 ± 0.00$^{a}$ | 0.03 ± 0.01$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.02 ± 0.00$^{c}$ | 0.04 ± 0.00$^{a}$ | 0.03 ± 0.00$^{b}$ | 0.02 ± 0.00$^{c}$ | 0.02 ± 0.00$^{b}$ | 0.03 ± 0.00$^{a}$ | 0.03 ± 0.00$^{a}$ | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{b}$ | 0.03 ± 0.00$^{a}$ | 0.03 ± 0.00$^{a}$ | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{c}$ | 0.03 ± 0.00$^{b}$ | 0.03 ± 0.00$^{b}$ | 0.04 ± 0.02$^{a}$ | RI, MS | Fruity, creamy, buttery |
| **52** | Phenylethyl alcohol**** | 1891 | 27.49 ± 2.03$^{b}$ | 30.69 ± 2.59$^{a}$ | 37.51 ± 7.80$^{a}$ | 25.15 ± 0.98$^{b}$ | 22.92 ± 1.56$^{c}$ | 27.60 ± 1.00$^{b}$ | 31.56 ± 1.58$^{a}$ | 27.41 ± 3.80$^{b}$ | 23.37 ± 1.27$^{c}$ | 27.77 ± 1.61$^{b}$ | 33.00 ± 4.31$^{a}$ | 24.64 ± 1.65$^{c}$ | 24.76 ± 1.42$^{b}$ | 30.96 ± 0.24$^{a}$ | 33.79 ± 2.16$^{a}$ | 26.82 ± 2.32$^{b}$ | 27.30 ± 1.19$^{b}$ | 29.01 ± 1.27$^{ab}$ | 31.92 ± 3.44$^{a}$ | 28.79 ± 2.65$^{ab}$ | RI, MS | Sweet, floral, fresh, bready, rose, honey |
| | **Total alcohol** | | **93.18 ± 7.80$^{b}$** | **99.92 ± 6.58$^{b}$** | **122.50 ± 23.91$^{a}$** | **87.40 ± 1.24$^{c}$** | **89.85 ± 5.30$^{c}$** | **99.07 ± 3.26$^{b}$** | **109.08 ± 5.78$^{a}$** | **96.33 ± 12.52$^{b}$** | **97.25 ± 5.49$^{b}$** | **117.38 ± 5.68$^{a}$** | **121.31 ± 14.76$^{a}$** | **90.80 ± 6.08$^{b}$** | **92.08 ± 4.74$^{b}$** | **113.37 ± 5.89$^{a}$** | **116.63 ± 4.98$^{a}$** | **88.85 ± 5.02$^{b}$** | **102.67 ± 4.12$^{b}$** | **102.10 ± 2.69$^{b}$** | **108.58 ± 9.24$^{a}$** | **101.14 ± 9.82$^{b}$** | | |
| **13** | 3-Hydroxybutanal**** | 1243 | tr | tr | tr | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | -- |
| **19** | Octanal | 1289 | 2.08 ± 0.23$^{b}$ | 2.57 ± 0.29$^{a}$ | 2.12 ± 0.32$^{b}$ | 2.01 ± 0.11$^{b}$ | 2.20 ± 0.13$^{b}$ | 2.48 ± 0.04$^{a}$ | 2.16 ± 0.07$^{b}$ | 2.07 ± 0.17$^{c}$ | 2.22 ± 0.09$^{b}$ | 2.28 ± 0.35$^{a}$ | 2.18 ± 0.30$^{b}$ | 2.12 ± 0.07$^{b}$ | 2.04 ± 0.05$^{a}$ | 2.29 ± 0.05$^{a}$ | 2.06 ± 0.11$^{a}$ | 1.86 ± 0.10$^{b}$ | 1.90 ± 0.02$^{b}$ | 2.17 ± 0.08$^{a}$ | 1.93 ± 0.12$^{b}$ | 1.85 ± 0.17$^{b}$ | RI, MS | Aldehydic, waxy, citrus, orange, green, peely |
| | **Total aldehyde** | | **2.08 ± 0.23$^{b}$** | **2.57 ± 0.29$^{a}$** | **2.12 ± 0.32$^{b}$** | **2.01 ± 0.11$^{b}$** | **2.20 ± 0.13$^{b}$** | **2.48 ± 0.04$^{a}$** | **2.16 ± 0.07$^{b}$** | **2.07 ± 0.17$^{c}$** | **2.22 ± 0.09$^{b}$** | **2.28 ± 0.35$^{a}$** | **2.18 ± 0.30$^{b}$** | **2.12 ± 0.07$^{b}$** | **2.04 ± 0.05$^{a}$** | **2.29 ± 0.05$^{a}$** | **2.06 ± 0.11$^{a}$** | **1.86 ± 0.10$^{b}$** | **1.90 ± 0.02$^{b}$** | **2.17 ± 0.08$^{a}$** | **1.93 ± 0.12$^{b}$** | **1.85 ± 0.17$^{b}$** | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **31** | Benzaldehyde | 1491 | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | tr | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{b}$ | 0.03 ± 0.01$^{a}$ | 0.01 ± 0.01$^{c}$ | 0.02 ± 0.00$^{b}$ | 0.03 ± 0.02$^{a}$ | 0.03 ± 0.01$^{a}$ | 0.01± 0.00$^{d}$ | 0.02 ± 0.00$^{c}$ | 0.06 ± 0.00$^{b}$ | 0.09 ± 0.01$^{a}$ | 0.02 ± 0.00$^{c}$ | 0.03 ± 0.00$^{b}$ | 0.04 ± 0.01$^{a}$ | 0.04 ± 0.00$^{a}$ | RI, MS, ES | Strong, sharp, sweet, bitter, almond, cherry |
| **32** | Myristicin**** | 1501 | 0.04 ± 0.00$^{c}$ | 0.06 ± 0.02$^{b}$ | 0.09 ± 0.02$^{a}$ | 0.06 ± 0.01$^{b}$ | 0.02 ± 0.00$^{d}$ | 0.03 ± 0.00$^{c}$ | 0.07 ± 0.01$^{a}$ | 0.06 ± 0.01$^{b}$ | 0.02 ± 0.00$^{c}$ | 0.03 ± 0.00$^{b}$ | 0.06 ± 0.01$^{a}$ | 0.06 ± 0.00$^{a}$ | 0.03 ± 0.00$^{d}$ | 0.05 ± 0.00$^{c}$ | 0.08 ± 0.01$^{a}$ | 0.06 ± 0.01$^{b}$ | 0.03 ± 0.00$^{d}$ | 0.04 ± 0.00$^{c}$ | 0.05 ± 0.01$^{b}$ | 0.07 ± 0.01$^{a}$ | RI, MS | Spicy, warm, balsamic, woody |
| **41** | Benzeneacetaldehyde | 1612 | tr | tr | tr | 0.03 ± 0.00 | 0.03 ± 0.00$^{b}$ | tr | tr | 0.04 ± 0.01$^{a}$ | 0.04 ± 0.00$^{c}$ | 0.07 ± 0.01$^{a}$ | 0.06 ± 0.01$^{b}$ | 0.04 ± 0.00$^{c}$ | 0.02 ± 0.01$^{d}$ | 0.06 ± 0.01$^{a}$ | 0.04 ± 0.01$^{b}$ | 0.03 ± 0.01$^{c}$ | 0.03 ± 0.00$^{c}$ | 0.06 ± 0.01$^{a}$ | 0.04 ± 0.01$^{b}$ | 0.04 ± 0.00$^{bc}$ | RI, MS, ES | Green, sweet, floral, hyacinth, clover, honey, cocoa |
| **45** | Naphthalene | 1703 | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Pungent, dry, tarry |
| **46** | 1,2-Dihydro-1,1,6-trimethyl-naphthalene | 1712 | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Licorice |
| **51** | Benzyl alcohol | 1856 | 0.65 ± 0.08$^{a}$ | 0.31 ± 0.04$^{c}$ | 0.30 ± 0.03$^{c}$ | 0.51 ± 0.10$^{b}$ | 0.65 ± 0.06$^{a}$ | 0.31 ± 0.02$^{c}$ | 0.29 ± 0.02$^{c}$ | 0.44 ± 0.04$^{b}$ | 0.69 ± 0.06$^{a}$ | 0.30 ± 0.02$^{c}$ | 0.36 ± 0.03$^{b}$ | 0.40 ± 0.04$^{b}$ | 0.66 ± 0.02$^{a}$ | 0.31 ± 0.02$^{b}$ | 0.32 ± 0.03$^{b}$ | 0.37 ± 0.04$^{b}$ | 0.87 ± 0.09$^{a}$ | 0.33 ± 0.02$^{c}$ | 0.35 ± 0.02$^{c}$ | 0.46 ± 0.07$^{b}$ | RI, MS, ES | Floral, rose, phenolic, balsamic |
| | **Total benzenoid** | | **0.71 ± 0.09$^{a}$** | **0.39 ± 0.05$^{c}$** | **0.41 ± 0.06$^{c}$** | **0.63 ± 0.11$^{b}$** | **0.71 ± 0.07$^{a}$** | **0.36 ± 0.02$^{c}$** | **0.38 ± 0.03$^{c}$** | **0.56 ± 0.07$^{b}$** | **0.76 ± 0.07$^{a}$** | **0.42 ± 0.04$^{c}$** | **0.51 ± 0.06$^{b}$** | **0.52 ± 0.06$^{b}$** | **0.73 ± 0.03$^{a}$** | **0.44 ± 0.03$^{c}$** | **0.50 ± 0.05$^{b}$** | **0.56 ± 0.06$^{b}$** | **0.94 ± 0.09$^{a}$** | **0.45 ± 0.04$^{c}$** | **0.49 ± 0.05$^{c}$** | **0.61 ± 0.08$^{b}$** | | |
| **1** | Ethyl butanoate | 1016 | 0.28 ± 0.03$^{a}$ | 0.24 ± 0.06$^{b}$ | 0.22 ± 0.02$^{b}$ | 0.17 ± 0.01$^{c}$ | 0.27 ± 0.01$^{a}$ | 0.20 ± 0.02$^{b}$ | 0.25 ± 0.02$^{a}$ | 0.17 ± 0.01$^{c}$ | 0.30 ± 0.02$^{a}$ | 0.26 ± 0.02$^{b}$ | 0.25 ± 0.02$^{b}$ | 0.17 ± 0.02$^{c}$ | 0.29 ± 0.01$^{a}$ | 0.23 ± 0.01$^{b}$ | 0.24 ± 0.03$^{b}$ | 0.16 ± 0.01$^{c}$ | 0.32 ± 0.01$^{a}$ | 0.23 ± 0.05$^{b}$ | 0.18 ± 0.02$^{c}$ | 0.18 ± 0.02$^{c}$ | RI, MS, ES | Sweet, fruity, juicy, pineapple, cognac |
| **2** | Ethyl 3-methylbutanoate | 1045 | 0.10 ± 0.00$^{ab}$ | 0.10 ± 0.00$^{a}$ | 0.10 ± 0.00$^{ab}$ | 0.09 ± 0.00$^{b}$ | 0.10 ± 0.00$^{b}$ | 0.10 ± 0.00$^{bc}$ | 0.10 ± 0.00$^{a}$ | 0.09 ± 0.00$^{c}$ | 0.10 ± 0.00$^{a}$ | 0.10 ± 0.00$^{b}$ | 0.10 ± 0.00$^{a}$ | 0.10 ± 0.00$^{b}$ | 0.10 ± 0.00$^{a}$ | 0.10 ± 0.00$^{bc}$ | 0.10 ± 0.00$^{a}$ | 0.09 ± 0.00$^{c}$ | 0.10 ± 0.00$^{a}$ | 0.10 ± 0.00$^{b}$ | 0.10 ± 0.00$^{b}$ | 0.10 ± 0.00$^{b}$ | RI, MS, ES | Sweet, estery, fruity, sharp, pineapple, apple, green, orange |
| **4** | 3-Methylbutyl acetate | 1104 | 0.59 ± 0.11$^{a}$ | 0.31 ± 0.19$^{b}$ | 0.11 ± 0.02$^{c}$ | 0.06 ± 0.01$^{cd}$ | 0.56 ± 0.04$^{a}$ | 0.21 ± 0.04$^{b}$ | 0.15 ± 0.02$^{c}$ | 0.06 ± 0.01$^{d}$ | 0.68 ± 0.08$^{a}$ | 0.36 ± 0.04$^{b}$ | 0.20 ± 0.02$^{c}$ | 0.09 ± 0.02$^{d}$ | 0.61 ± 0.06$^{a}$ | 0.28 ± 0.03$^{b}$ | 0.15 ± 0.05$^{c}$ | 0.05 ± 0.01$^{d}$ | 0.70 ± 0.05$^{a}$ | 0.31 ± 0.12$^{b}$ | 0.10 ± 0.03$^{c}$ | 0.10 ± 0.03$^{c}$ | RI, MS, ES | Sweet, banana, fruity, ripe estery |
| **9** | 3-Hydroxymandelic acid ethyl ester**** | 1178 | 43.21± 5.04$^{a}$ | 44.69 ± 3.94$^{a}$ | 20.29 ± 3.21$^{b}$ | 15.07 ± 1.92$^{bc}$ | 37.70 ± 3.91$^{b}$ | 45.75 ± 4.86$^{a}$ | 19.17 ± 1.70$^{c}$ | 13.51 ± 2.38$^{d}$ | 34.57 ± 6.14$^{b}$ | 40.81 ± 7.85$^{a}$ | 20.53 ± 1.17$^{c}$ | 16.98 ± 7.14$^{d}$ | 26.14 ± 0.41$^{b}$ | 50.74 ± 37.18$^{a}$ | 13.37 ± 5.96$^{c}$ | 11.83 ± 0.82$^{c}$ | 31.69 ± 3.20$^{b}$ | 43.88 ± 8.28$^{a}$ | 27.20 ± 9.06$^{b}$ | 12.81 ± 5.29$^{c}$ | RI, MS | -- |
| **11** | Ethyl hexanoate | 1216 | 0.72 ± 0.11$^{a}$ | 0.67 ± 0.22$^{ab}$ | 0.69 ± 0.13$^{ab}$ | 0.51 ± 0.00$^{b}$ | 0.58 ± 0.03$^{b}$ | 0.48 ± 0.07$^{c}$ | 0.67 ± 0.07$^{a}$ | 0.42 ± 0.08$^{c}$ | 0.58 ± 0.06$^{a}$ | 0.58 ± 0.05$^{a}$ | 0.61 ± 0.05$^{a}$ | 0.38 ± 0.04$^{b}$ | 0.67 ± 0.05$^{a}$ | 0.60 ± 0.03$^{a}$ | 0.66 ± 0.12$^{a}$ | 0.38 ± 0.05$^{b}$ | 0.70 ± 0.05$^{a}$ | 0.50 ± 0.12$^{b}$ | 0.36 ± 0.05$^{c}$ | 0.39 ± 0.06$^{c}$ | RI, MS, ES | Sweet, fruity, pineapple, waxy, green, banana |
| **14** | Hexyl acetate | 1253 | 0.03 ± 0.00$^{a}$ | 0.01 ± 0.01$^{b}$ | tr | tr | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | tr | tr | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{c}$ | tr | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | tr | tr | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | tr | tr | RI, MS, ES | Fruity, green, apple, banana, sweet |
| **18** | Ethyl (*E*)-3-hexenoate**** | 1282 | 0.04 ± 0.01$^{a}$ | 0.02 ± 0.00$^{b}$ | 0.03 ± 0.01$^{b}$ | 0.01 ± 0.00$^{b}$ | 0.04 ± 0.01$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.03 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.01$^{a}$ | 0.02 ± 0.00$^{b}$ | 0.03 ± 0.01$^{a}$ | 0.05 ± 0.03$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.04 ± 0.01$^{a}$ | 0.04 ± 0.01$^{a}$ | 0.04 ± 0.01$^{a}$ | 0.04 ± 0.01$^{a}$ | RI, MS | Green, fruity, passion fruit, guava, pineapple, papaya, weedy, honey |
| **22** | Ethyl lactate**** | 1326 | 0.15 ± 0.01$^{c}$ | 0.21 ± 0.01$^{b}$ | 0.23 ± 0.04$^{a}$ | 0.16 ± 0.01$^{c}$ | 0.14 ± 0.01$^{c}$ | 0.20 ± 0.00$^{a}$ | 0.20 ± 0.01$^{a}$ | 0.17 ± 0.02$^{b}$ | 0.15 ± 0.01$^{b}$ | 0.20 ± 0.01$^{a}$ | 0.20 ± 0.02$^{a}$ | 0.15 ± 0.01$^{b}$ | 0.14 ± 0.01$^{c}$ | 0.21 ± 0.01$^{a}$ | 0.21 ± 0.01$^{a}$ | 0.17 ± 0.01$^{b}$ | 0.15 ± 0.00$^{b}$ | 0.17 ± 0.01$^{b}$ | 0.19 ± 0.01$^{a}$ | 0.18 ± 0.01$^{a}$ | RI, MS | Sweet, fruity, acidic, ethereal, brown |
| **23** | Propyl hexanoate**** | 1335 | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | tr | tr | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | tr | tr | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | tr | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | tr | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | tr | tr | RI, MS | Sweet, fruity, juicy, pineapple, green, tropical |
| **27** | Ethyl octanoate | 1419 | 1.97 ± 0.21$^{b}$ | 2.15 ± 0.34$^{a}$ | 1.70 ± 0.24$^{c}$ | 1.26 ± 0.17$^{d}$ | 1.18 ± 0.07$^{b}$ | 1.31 ± 0.02$^{a}$ | 1.22 ± 0.07$^{b}$ | 0.93 ± 0.12$^{c}$ | 0.98 ± 0.10$^{b}$ | 1.12 ± 0.06$^{a}$ | 0.98 ± 0.11$^{b}$ | 0.69 ± 0.05$^{c}$ | 1.37 ± 0.05$^{b}$ | 1.54 ± 0.05$^{a}$ | 1.34 ± 0.11$^{b}$ | 0.89 ± 0.09$^{c}$ | 1.15 ± 0.03$^{a}$ | 1.01 ± 0.11$^{a}$ | 0.74 ± 0.05$^{b}$ | 0.65 ± 0.07$^{b}$ | RI, MS, ES | Fruity, wine, waxy, sweet, apricot, banana, brandy, pear |
| **33** | Ethyl 3-hydroxybutanoate**** | 1512 | tr | tr | 0.01 ± 0.00 | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | 0.01 ± 0.00 | tr | tr | tr | tr | tr | RI, MS | Fruity, green, grape, tropical, apple skin |
| **34** | Ethyl nonanoate | 1521 | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{ab}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{d}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | tr | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{d}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{b}$ | tr | RI, MS, ES | Waxy, cognac, estery, fruity, apple, banana, tropical, winey |
| **37** | Isoamyl lactate**** | 1554 | 0.01 ± 0.00$^{c}$ | 0.02 ± 0.00$^{ab}$ | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{c}$ | 0.03 ± 0.00$^{a}$ | 0.03 ± 0.00$^{ab}$ | 0.02 ± 0.00$^{bc}$ | 0.01 ± 0.00$^{c}$ | 0.03 ± 0.00$^{a}$ | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{b}$ | 0.01 ± 0.00$^{d}$ | 0.03 ± 0.01$^{a}$ | 0.02 ± 0.01$^{b}$ | 0.02 ± 0.00$^{c}$ | 0.01 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.01$^{a}$ | RI, MS | Fruity, creamy, nutty |
| **39** | Methyl decanoate | 1577 | 0.08 ± 0.00$^{a}$ | 0.08 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | 0.06 ± 0.03$^{b}$ | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | tr | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | tr | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | 0.07 ± 0.00$^{a}$ | tr | RI, MS, ES | Oily, wine, fruity, floral |
| **40** | Ethyl 2-furancarboxylate**** | 1600 | 0.03 ± 0.00$^{d}$ | 0.05 ± 0.00$^{c}$ | 0.08 ± 0.02$^{a}$ | 0.07 ± 0.00$^{b}$ | 0.04 ± 0.03$^{c}$ | 0.05 ± 0.00$^{b}$ | 0.06 ± 0.00$^{a}$ | 0.05 ± 0.01$^{b}$ | 0.03 ± 0.00$^{d}$ | 0.05 ± 0.00$^{b}$ | 0.06 ± 0.01$^{a}$ | 0.04 ± 0.00$^{c}$ | 0.03 ± 0.00$^{c}$ | 0.05 ± 0.00$^{b}$ | 0.07 ± 0.00$^{a}$ | 0.06 ± 0.00$^{b}$ | 0.03 ± 0.00$^{d}$ | 0.04 ± 0.00$^{c}$ | 0.06 ± 0.00$^{a}$ | 0.05 ± 0.01$^{b}$ | RI, MS | Balsamic, fruity, floral, orchid |
| **42** | Ethyl decanoate | 1640 | 0.32 ± 0.03$^{a}$ | 0.32 ± 0.05$^{a}$ | 0.18 ± 0.01$^{b}$ | 0.14 ± 0.01$^{c}$ | 0.18 ± 0.11$^{a}$ | 0.11 ± 0.01$^{b}$ | 0.09 ± 0.00$^{c}$ | 0.09 ± 0.00$^{c}$ | 0.10 ± 0.00$^{b}$ | 0.10 ± 0.00$^{a}$ | 0.09 ± 0.00$^{c}$ | 0.08 ± 0.00$^{c}$ | 0.14 ± 0.00$^{a}$ | 0.13 ± 0.00$^{b}$ | 0.10 ± 0.00$^{c}$ | 0.09 ± 0.00$^{c}$ | 0.10 ± 0.00$^{a}$ | 0.10 ± 0.01$^{a}$ | 0.09 ± 0.00$^{b}$ | 0.08 ± 0.00$^{b}$ | RI, MS, ES | Sweet, waxy, fruity, apple, grape, oily, brandy |
| **43** | Diethyl succinate | 1663 | 1.49 ± 0.00$^{d}$ | 1.94 ± 0.10$^{c}$ | 2.86 ± 0.63$^{a}$ | 2.27 ± 0.09$^{b}$ | 0.84± 0.66$^{c}$ | 1.71 ± 0.12$^{b}$ | 2.11 ± 0.09$^{a}$ | 2.27 ± 0.30$^{a}$ | 1.24 ± 0.08$^{d}$ | 1.69 ± 0.14$^{c}$ | 2.22 ± 0.28$^{a}$ | 1.94 ± 0.17$^{b}$ | 1.31 ± 0.05$^{c}$ | 1.82 ± 0.04$^{b}$ | 2.35 ± 0.12$^{a}$ | 2.11 ± 0.21$^{a}$ | 1.43 ± 0.08$^{b}$ | 1.62 ± 0.05$^{b}$ | 2.08 ± 0.19$^{a}$ | 2.12 ± 0.24$^{a}$ | RI, MS | Fruity, apple, cooked apple, ylang |
| **44** | Ethyl 9-decenoate**** | 1674 | 0.39 ± 0.04$^{c}$ | 0.64 ± 0.13$^{a}$ | 0.43 ± 0.00$^{b}$ | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | 0.03 ± 0.00 | tr | tr | tr | tr | tr | tr | RI, MS | Fruity, fatty |
| **47** | Ethyl benzeneacetate | 1765 | tr | tr | tr | tr | tr | 0.01 ± 0.00$^{c}$ | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | tr | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{d}$ | 0.01 ± 0.00$^{c}$ | 0.02 ± 0.00$^{b}$ | 0.03 ± 0.00$^{a}$ | RI, MS, ES | Sweet, floral, honey, rose, balsamic, cocoa |
| **48** | 2-Phenethyl acetate | 1790 | 0.04± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.03 ± 0.01$^{b}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | 0.04 ± 0.00$^{a}$ | RI, MS, ES | Floral, rose, sweet, honey, fruity, tropical |
| **50** | Ethyl dodecanoate | 1888 | 0.04 ± 0.00$^{a}$ | tr | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | tr | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | tr | RI, MS, ES | Sweet, waxy, floral, soapy, clean |
| | **Total ester** | | **49.50 ± 5.59$^{a}$** | **51.49 ± 5.06$^{a}$** | **27.10 ± 4.34$^{b}$** | **19.96 ± 2.22$^{b}$** | **41.78 ± 4.91$^{b}$** | **50.35 ± 5.14$^{a}$** | **24.23 ± 1.99$^{c}$** | **17.89 ± 2.95$^{d}$** | **38.96 ± 6.51$^{b}$** | **45.48 ± 8.19$^{a}$** | **25.47 ± 1.70$^{c}$** | **20.75 ± 7.46$^{c}$** | **31.01 ± 0.66$^{b}$** | **55.96 ± 37.38$^{a}$** | **18.82 ± 6.43$^{c}$** | **16.03 ± 1.21$^{c}$** | **36.62 ± 3.41$^{bc}$** | **48.21 ± 8.77$^{a}$** | **31.32 ± 9.43$^{c}$** | **16.78 ± 5.74$^{d}$** | | |
| **16** | 3-Hydroxy-2-butanone**** | 1261 | 0.04 ± 0.01 | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Sweet, buttery, creamy, dairy, milky, fatty |
| | **Total ketone** | | **0.04 ± 0.01** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **8** | Limonene | 1170 | ND | ND | ND | ND | 0.02 ± 0.00$^{c}$ | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.03 ± 0.00$^{a}$ | 0.03 ± 0.00$^{a}$ | 0.03 ± 0.00$^{a}$ | 0.03 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{b}$ | RI, MS, ES | Citrus, orange, fresh, sweet |
| **15** | Terpinolene**** | 1255 | ND | ND | ND | ND | 0.01 ± 0.00 | tr | tr | tr | 0.01 ± 0.00$^{a}$ | tr | 0.01 ± 0.00$^{b}$ | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Sweet, fresh pine, citrus, woody, lemon peel |
| | **Total terpene** | | **ND** | **ND** | **ND** | **ND** | **0.03 ± 0.00$^{c}$** | **0.02 ± 0.00$^{b}$** | **0.02 ± 0.00$^{a}$** | **0.02 ± 0.00$^{b}$** | **0.04 ± 0.00$^{a}$** | **0.04 ± 0.00$^{c}$** | **0.04 ± 0.00$^{b}$** | **0.03 ± 0.00$^{d}$** | **0.02 ± 0.00$^{b}$** | **0.02 ± 0.00$^{b}$** | **0.02 ± 0.00$^{b}$** | **0.02 ± 0.00$^{a}$** | **0.02 ± 0.00$^{a}$** | **0.02 ± 0.00$^{ab}$** | **0.02 ± 0.00$^{ab}$** | **0.02 ± 0.00$^{b}$** | | |
| | **Total** | | **160.45 ± 14.40$^{a}$** | **166.68 ± 13.12$^{a}$** | **166.81 ± 32.22$^{a}$** | **118.39 ± 3.91$^{b}$** | **143.29 ± 10.77$^{b}$** | **160.23 ± 8.75$^{a}$** | **145.49 ± 8.32$^{b}$** | **123.61 ± 16.53$^{c}$** | **146.87 ± 12.65$^{b}$** | **172.84 ± 14.52$^{a}$** | **158.53 ± 17.92$^{ab}$** | **120.08 ± 13.98$^{c}$** | **136.57 ± 5.90$^{b}$** | **182.26 ± 43.71$^{a}$** | **149.45 ± 12.25$^{b}$** | **115.43 ± 6.98$^{c}$** | **151.87 ± 8.01$^{b}$** | **160.79 ± 11.86$^{a}$** | **151.66 ± 19.78$^{b}$** | **127.87 ± 16.28$^{c}$** | | |

*RI = retention index

**ID = Identification by comparison of mass spectra (MS) with in-house NIST library 11.0, MS and retention index (RI) with NIST Webbook (NIST[24]), and MS and retention time with external standards

*** = Odor description were obtained from TGSC[25].

****= Semi-quantification: Ethoxyacetic acid, acetic acid, pterin-6-carboxylic acid, 2-methyl-1-propanol, 2-pentanol, 2-hexanol, 1-(2-aminoethylamino)-2-propanol, 2-octen-4-ol, 3-methyl-1-pentanol, 2-methyl-4-heptanol, 2,3-butanediol, phenylethyl alcohol, 3-hydroxybutanal, myristicin, 3-hydroxymandelic acid ethyl ester, ethyl (*E*)-3-hexenoate, ethyl lactate, propyl hexanoate, ethyl 3-hydroxybutanoate, isoamyl lactate, ethyl 2-furancarboxylate, ethyl 9-decenoate and 3-hydroxy-2-butanone were semi-quantified using the calibration curves of ethyl hexanoate, ethyl octanoate, 2-ethyl-1-hexanol, 3-methylbutyl acetate, 1-butanol, 1-butanol, ethyl hexanoate, 1-hexanol, 1-hexanol, 1-hexanol, 1-octanol, benzyl alcohol, ethyl hexanoate, benzaldehyde, 1-butanol, 1-hexanol, 2-heptanol, 2-heptanol, ethyl nonanoate, 1-octanol, benzeneacetaldehyde, diethyl succinate and ethyl hexanoate, respectively.

Samples of C, 2GC, 4GC etc. refer to Table S2.

ND = Not detected or value below the detection threshold.

tr = trace

-- = Not available.

a-d = Values with different superscripts in the same wine group are significantly different ($p \leq 0.05$)

**Table S5** Effect of aging time on volatile compounds of tea-macerated model wines (μg/mL)

| Peak No. | Compound name | RI* | M | | | | 2GM | | | | 4GM | | | | 1BM | | | | 3BM | | | | ID** | Odor description*** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Aging time (month) | | | | | | | | | | | | | | | | | | | | | |
| | | | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | | |
| **17** | Ethoxyacetic acid**** | 1268 | 0.01 ± 0.00 | tr | tr | tr | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{ab}$ | 0.01 ± 0.00$^{b}$ | tr | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.01$^{ab}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{b}$ | 0.03 ± 0.02$^{a}$ | 0.02 ± 0.01$^{b}$ | 0.01 ± 0.00$^{c}$ | 0.01 ± 0.00$^{c}$ | 0.02 ± 0.02$^{a}$ | 0.02 ± 0.01$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.01$^{b}$ | RI, MS | -- |
| **28** | Acetic acid**** | 1433 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Pungent, acidic, cheesy, vinegar |
| **29** | Pterin-6-carboxylic acid**** | 1461 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | -- |
| **49** | Hexanoic acid | 1829 | ND | ND | ND | ND | 0.58 ± 0.02 | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | 0.61 ± 0.01$^{a}$ | tr | 0.62 ± 0.01$^{a}$ | 0.60 ± 0.00$^{a}$ | RI, MS, ES | Sour, fatty, sweaty, cheesy |
| **53** | Octanoic acid | 2046 | ND | ND | ND | ND | 0.66 ± 0.03 | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Fatty, waxy, rancid, oily, vegetable, cheesy |
| **54** | Nonanoic acid | 2269 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Waxy, dirty, cheese, cultured, dairy |
| | **Total acid** | | **0.01 ± 0.00** | **tr** | **tr** | **tr** | **1.25 ± 0.05$^{a}$** | **0.01 ± 0.00$^{b}$** | **0.01 ± 0.00$^{b}$** | **0.01 ± 0.00$^{b}$** | **0.01 ± 0.01$^{a}$** | **0.01 ± 0.01$^{a}$** | **0.01 ± 0.00$^{a}$** | **0.01 ± 0.01$^{a}$** | **0.03 ± 0.02$^{a}$** | **0.03 ± 0.01$^{b}$** | **0.01 ± 0.01$^{c}$** | **0.01 ± 0.01$^{c}$** | **0.64 ± 0.02$^{a}$** | **0.02 ± 0.01$^{b}$** | **0.63 ± 0.02$^{a}$** | **0.61 ± 0.01$^{a}$** | | |
| **3** | 2-Methyl-1-propanol**** | 1079 | ND | ND | ND | ND | 0.01 ± 0.01$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.02 ± 0.01$^{a}$ | 0.01 ± 0.01$^{b}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{b}$ | tr | 0.01 ± 0.00 | tr | tr | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | 0.01 ± 0.00$^{a}$ | RI, MS | Ethereal, winey, cortex |
| **5** | 2-Pentanol**** | 1127 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Mild, green, fusel, oil, fermented |
| **6** | 1-Butanol | 1132 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Fusel, oil, sweet, balsam, whiskey |
| **7** | 2-Hexanol**** | 1142 | ND | ND | ND | ND | tr | tr | tr | tr | 0.26 ± 0.05$^{b}$ | 0.93 ± 0.17$^{a}$ | tr | tr | tr | tr | tr | tr | 0.67 ± 0.16 | tr | tr | tr | RI, MS | Chemical, winey, fruity, fatty, terpenic, cauliflower |
| **10** | 3-Methyl-1-butanol | 1196 | ND | ND | ND | ND | 0.01 ± 0.00 | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Fusel, oily, alcoholic, whiskey, fruity, banana |
| **12** | 1-(2-Aminoethylamino)-2-propanol**** | 1228 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | -- |
| **20** | 2-Octen-4-ol**** | 1304 | ND | ND | ND | ND | 0.11 ± 0.02$^{a}$ | 0.03 ± 0.01$^{c}$ | 0.07 ± 0.02$^{b}$ | 0.08 ± 0.03$^{b}$ | 0.10 ± 0.02$^{b}$ | 0.07 ± 0.05$^{c}$ | 0.10 ± 0.07$^{b}$ | 0.23 ± 0.09$^{a}$ | 0.06 ± 0.00 | tr | tr | tr | 0.03 ± 0.01$^{a}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.00$^{b}$ | 0.01 ± 0.01$^{b}$ | RI, MS | Fruity, berry |
| **21** | 3-Methyl-1-pentanol**** | 1315 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Fusel, cognac, wine, cocoa, green, fruity |
| **24** | (*E*)-3-Hexen-1-ol | 1350 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | 0.03 ± 0.00 | tr | RI, MS, ES | Green, leafy |
| **25** | 1-Hexanol | 1343 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | 0.02 ± 0.00 | tr | tr | tr | RI, MS, ES | Pungen, ethereal, fusel, oily, fruity, alcoholic, sweet, green |
| **26** | 2-Methyl-4-heptanol**** | 1385 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | 0.74 ± 0.00 | tr | tr | tr | RI, MS | -- |
| **30** | 2-Ethyl-1-hexanol | 1480 | ND | ND | 0.01 ± 0.00 | tr | tr | tr | 0.01 ± 0.00 | tr | tr | tr | tr | 0.01 ± 0.00 | tr | tr | tr | tr | tr | tr | 0.01 ± 0.00 | tr | RI, MS, ES | Citrus, fresh, floral, oily, sweet |
| **35** | Linalool | 1537 | ND | ND | ND | ND | tr | 0.08 ± 0.00$^{b}$ | tr | 0.14 ± 0.00$^{a}$ | 0.07 ± 0.06$^{d}$ | 0.15 ± 0.00$^{c}$ | 0.35 ± 0.00$^{b}$ | 0.55 ± 0.00$^{a}$ | tr | tr | tr | tr | 0.11 ± 0.01$^{b}$ | tr | 0.11 ± 0.00$^{b}$ | 0.14 ± 0.03$^{a}$ | RI, MS, ES | Citrus, floral, sweet, rose, woody, green, blueberry |
| **36** | 1-Octanol | 1550 | ND | ND | ND | ND | tr | tr | 0.01 ± 0.00 | tr | tr | 0.01 ± 0.00$^{c}$ | 0.02 ± 0.00$^{b}$ | 0.04 ± 0.00$^{a}$ | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Waxy, green, orange, aldehydic, rose, mushroom |
| **38** | 2,3-Butanediol**** | 1571 | ND | ND | tr | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Fruity, creamy, buttery |
| **52** | Phenylethyl alcohol**** | 1891 | ND | ND | ND | ND | 0.36 ± 0.33 | tr | tr | tr | tr | tr | tr | tr | tr | tr | 0.01 ± 0.00$^{b}$ | 0.44 ± 0.07$^{a}$ | 1.27 ± 0.01$^{b}$ | 1.53 ± 0.00$^{b}$ | 2.23 ± 0.10$^{a}$ | 2.20 ± 0.41$^{a}$ | RI, MS | Sweet, floral, fresh, bready, rose, honey |
| | **Total alcohol** | | **ND** | **ND** | **0.01 ± 0.00** | **tr** | **0.49 ± 0.36$^{a}$** | **0.12 ± 0.02$^{c}$** | **0.09 ± 0.02$^{c}$** | **0.23 ± 0.03$^{b}$** | **0.45 ± 0.14$^{c}$** | **1.18 ± 0.23$^{a}$** | **0.48 ± 0.07$^{c}$** | **0.84 ± 0.09$^{b}$** | **0.07 ± 0.00$^{b}$** | **0.02 ± 0.00$^{c}$** | **0.02 ± 0.00$^{c}$** | **0.44 ± 0.07$^{a}$** | **2.85 ± 0.18$^{a}$** | **1.56 ± 0.01$^{b}$** | **2.40 ± 0.11$^{a}$** | **2.37 ± 0.45$^{a}$** | | |
| **13** | 3-Hydroxybutanal**** | 1243 | ND | tr | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | -- |
| **19** | Octanal | 1289 | 1.11 ± 0.15$^{a}$ | 0.89 ± 0.10$^{b}$ | 0.62 ± 0.51$^{c}$ | 0.76 ± 0.08$^{c}$ | 2.06 ± 0.52$^{a}$ | 1.40 ± 0.17$^{b}$ | 1.52 ± 0.31$^{ab}$ | 1.48 ± 0.26$^{ab}$ | 1.69 ± 0.98$^{a}$ | 1.02 ± 0.82$^{b}$ | 0.39 ± 0.60$^{c}$ | 1.04 ± 1.00$^{b}$ | 3.14 ± 1.13$^{a}$ | 2.55 ± 1.05$^{b}$ | 1.01 ± 0.79$^{c}$ | 2.25 ± 0.74$^{b}$ | 2.22 ± 1.23$^{a}$ | 2.33 ± 0.89$^{a}$ | 0.57 ± 0.88$^{c}$ | 1.26 ± 1.13$^{b}$ | RI, MS | Aldehydic, waxy, citrus, orange, green, peely |
| | **Total aldehyde** | | **1.11 ± 0.15$^{a}$** | **0.89 ± 0.10$^{b}$** | **0.62 ± 0.51$^{c}$** | **0.76 ± 0.08$^{c}$** | **2.06 ± 0.52$^{a}$** | **1.40 ± 0.17$^{b}$** | **1.52 ± 0.31$^{ab}$** | **1.48 ± 0.26$^{ab}$** | **1.69 ± 0.98$^{a}$** | **1.02 ± 0.82$^{b}$** | **0.39 ± 0.60$^{c}$** | **1.04 ± 1.00$^{b}$** | **3.14 ± 1.13$^{a}$** | **2.55 ± 1.05$^{b}$** | **1.01 ± 0.79$^{c}$** | **2.25 ± 0.74$^{b}$** | **2.22 ± 1.23$^{a}$** | **2.33 ± 0.89$^{a}$** | **0.57 ± 0.88$^{c}$** | **1.26 ± 1.13$^{b}$** | | |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **31** | Benzaldehyde | 1491 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | 0.01 ± 0.00 | tr | tr | tr | 0.03 ± 0.00$^{a}$ | 0.03 ± 0.01$^{a}$ | 0.06 ± 0.00$^{c}$ | 0.08 ± 0.02$^{b}$ | 0.09 ± 0.02$^{ab}$ | 0.10 ± 0.01$^{a}$ | RI, MS, ES | Strong, sharp, sweet, bitter, almond, cherry |
| **32** | Myristicin**** | 1501 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Spicy, warm, balsamic, woody |
| **41** | Benzeneacetaldehyde | 1612 | ND | ND | ND | ND | tr | 0.01 ± 0.00 | tr | tr | tr | 0.01 ± 0.01 | tr | tr | tr | 0.02 ± 0.01$^{a}$ | 0.01 ± 0.01$^{b}$ | tr | 0.05 ± 0.00$^{b}$ | 0.02 ± 0.01$^{c}$ | 0.06 ± 0.07$^{a}$ | tr | RI, MS, ES | Green, sweet, floral, hyacinth, clover, honey, cocoa |
| **45** | Naphthalene | 1703 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Pungent, dry, tarry |
| **46** | 1,2-Dihydro-1,1,6-trimethyl-naphthalene | 1712 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Licorice |
| **51** | Benzyl alcohol | 1856 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | 0.31 ± 0.00$^{a}$ | tr | 0.25 ± 0.00$^{b}$ | 1.32 ± 0.20$^{a}$ | 0.65 ± 0.18$^{bc}$ | 0.73 ± 0.04$^{b}$ | 0.58 ± 0.00$^{c}$ | RI, MS, ES | Floral, rose, phenolic, balsamic |
| | **Total benzenoid** | | **ND** | **ND** | **ND** | **ND** | **tr** | **0.01 ± 0.00** | **tr** | **tr** | **tr** | **0.01 ± 0.01$^{a}$** | **0.01 ± 0.00$^{a}$** | **0.01 ± 0.00$^{a}$** | **tr** | **0.33 ± 0.01$^{a}$** | **0.04 ± 0.01$^{c}$** | **0.28 ± 0.01$^{b}$** | **1.44 ± 0.20$^{a}$** | **0.75 ± 0.21$^{c}$** | **0.87 ± 0.13$^{b}$** | **0.68 ± 0.01$^{d}$** | | |
| **1** | Ethyl butanoate | 1016 | ND | ND | ND | ND | 0.11 ± 0.00 | tr | tr | tr | 0.11 ± 0.00$^{a}$ | 0.11 ± 0.00$^{a}$ | tr | tr | 0.11 ± 0.00 | tr | tr | tr | 0.11 ± 0.00 | tr | tr | tr | RI, MS, ES | Sweet, fruity, juicy, pineapple, cognac |
| **2** | Ethyl 3-methylbutanoate | 1045 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Sweet, estery, fruity, sharp, pineapple, apple, green, orange |
| **4** | 3-Methylbutyl acetate | 1104 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Sweet, banana, fruity, ripe estery |
| **9** | 3-Hydroxymandelic acid ethyl ester**** | 1178 | 41.49 ± 29.09$^{a}$ | 32.86 ± 2.80$^{b}$ | 14.50 ± 0.76$^{c}$ | 7.79 ± 1.77$^{d}$ | 27.84 ± 7.92$^{ab}$ | 32.97 ± 13.11$^{a}$ | 23.54 ± 5.48$^{b}$ | 15.50 ± 4.81$^{c}$ | 20.06 ± 12.08$^{b}$ | 35.60 ± 15.39$^{a}$ | 14.03 ± 13.18$^{c}$ | 15.65 ± 7.59$^{c}$ | 35.17 ± 11.61$^{c}$ | 52.45 ± 19.65$^{a}$ | 42.63 ± 22.65$^{b}$ | 17.91 ± 6.31$^{d}$ | 27.55 ± 14.61$^{c}$ | 36.27 ± 18.10$^{b}$ | 45.55 ± 12.74$^{a}$ | 16.57 ± 8.74$^{d}$ | RI, MS | -- |
| **11** | Ethyl hexanoate | 1216 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | 0.05 ± 0.00 | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Sweet, fruity, pineapple, waxy, green, banana |
| **14** | Hexyl acetate | 1253 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Fruity, green, apple, banana, sweet |
| **18** | Ethyl (*E*)-3-hexenoate**** | 1282 | ND | ND | 0.37 ± 0.61 | ND | tr | 0.05 ± 0.01$^{a}$ | 0.06 ± 0.02$^{a}$ | tr | tr | 0.86 ± 1.40$^{b}$ | 1.42 ± 0.34$^{a}$ | 0.02 ± 0.00$^{c}$ | tr | 0.09 ± 0.04$^{b}$ | 1.11 ± 1.89$^{a}$ | tr | 0.06 ± 0.01$^{b}$ | 0.08 ± 0.04$^{b}$ | 1.12 ± 1.12$^{a}$ | 0.04 ± 0.01$^{b}$ | RI, MS | Green, fruity, passion fruit, guava, pineapple, papaya, weedy, honey |
| **22** | Ethyl lactate**** | 1326 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | 0.01 ± 0.00 | tr | tr | tr | 0.01 ± 0.01$^{a}$ | tr | 0.01 ± 0.00$^{a}$ | RI, MS | Sweet, fruity, acidic, ethereal, brown |
| **23** | Propyl hexanoate**** | 1335 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Sweet, fruity, juicy, pineapple, green, tropical |
| **27** | Ethyl octanoate | 1419 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Fruity, wine, waxy, sweet, apricot, banana, brandy, pear |
| **33** | Ethyl 3-hydroxybutanoate**** | 1512 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Fruity, green, grape, tropical, apple skin |
| **34** | Ethyl nonanoate | 1521 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Waxy, cognac, estery, fruity, apple, banana, tropical, winey |
| **37** | Isoamyl lactate**** | 1554 | ND | ND | tr | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Fruity, creamy, nutty |
| **39** | Methyl decanoate | 1577 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Oily, wine, fruity, floral |
| **40** | Ethyl 2-furancarboxylate**** | 1600 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | 0.01 ± 0.00 | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Balsamic, fruity, floral, orchid |
| **42** | Ethyl decanoate | 1640 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Sweet, waxy, fruity, apple, grape, oily, brandy |
| **43** | Diethyl succinate | 1663 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Fruity, apple, cooked apple, ylang |
| **44** | Ethyl 9-decenoate**** | 1674 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Fruity, fatty |
| **47** | Ethyl benzeneacetate | 1765 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Sweet, floral, honey, rose, balsamic, cocoa |
| **48** | 2-Phenethyl acetate | 1790 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Floral, rose, sweet, honey, fruity, tropical |
| **50** | Ethyl dodecanoate | 1888 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Sweet, waxy, floral, soapy, clean |
| | **Total ester** | | **41.49 ± 29.09$^{a}$** | **32.86 ± 2.80$^{b}$** | **14.87 ± 1.37$^{c}$** | **7.79 ± 1.77$^{d}$** | **27.95 ± 7.92$^{b}$** | **33.03 ± 13.12$^{a}$** | **23.61 ± 5.51$^{c}$** | **15.50 ± 4.81$^{d}$** | **20.17 ± 12.09$^{b}$** | **36.58 ± 16.79$^{a}$** | **15.45 ± 13.53$^{c}$** | **15.73 ± 7.59$^{c}$** | **35.28 ± 11.61$^{c}$** | **52.56 ± 19.70$^{a}$** | **43.75 ± 24.55$^{b}$** | **17.91 ± 6.31$^{d}$** | **27.72 ± 14.63$^{c}$** | **36.37 ± 18.15$^{b}$** | **46.69 ± 13.86$^{a}$** | **16.62 ± 8.75$^{d}$** | | |
| **16** | 3-Hydroxy-2-butanone**** | 1261 | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS | Sweet, buttery, creamy, dairy, milky, fatty |
| | **Total ketone** | | **ND** | **ND** | **ND** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | **tr** | | |
| **8** | Limonene | 1170 | ND | ND | ND | ND | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.03 ± 0.00$^{b}$ | 0.03 ± 0.00$^{a}$ | 0.03 ± 0.00$^{b}$ | 0.03 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{b}$ | 0.02 ± 0.00$^{a}$ | 0.02 ± 0.00$^{ab}$ | 0.02 ± 0.00$^{ab}$ | RI, MS, ES | Citrus, orange, fresh, sweet |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **15** | Terpinolene**** | 1255 | ND | ND | ND | ND | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | tr | RI, MS, ES | Sweet, fresh pine, citrus, woody, lemon peel |
| | **Total terpene** | | **ND** | **ND** | **ND** | **ND** | **0.02 ± 0.00$^{b}$** | **0.02 ± 0.00$^{b}$** | **0.02 ± 0.00$^{a}$** | **0.02 ± 0.00$^{a}$** | **0.03 ± 0.00$^{b}$** | **0.03 ± 0.00$^{a}$** | **0.03 ± 0.00$^{b}$** | **0.03 ± 0.00$^{b}$** | **0.02 ± 0.00$^{a}$** | **0.02 ± 0.00$^{a}$** | **0.02 ± 0.00$^{a}$** | **0.02 ± 0.00$^{a}$** | **0.02 ± 0.00$^{b}$** | **0.02 ± 0.00$^{a}$** | **0.02 ± 0.00$^{ab}$** | **0.02 ± 0.00$^{ab}$** | | |
| | **Total** | | **42.60 ± 29.24$^{a}$** | **33.76 ± 2.89$^{b}$** | **15.51 ± 1.88$^{c}$** | **8.55 ± 1.85$^{d}$** | **31.78 ± 8.86$^{a}$** | **34.58 ± 13.31$^{a}$** | **25.26 ± 5.84$^{b}$** | **17.24 ± 5.11$^{c}$** | **22.36 ± 13.22$^{b}$** | **38.84 ± 17.86$^{a}$** | **16.38 ± 14.20$^{c}$** | **17.66 ± 8.70$^{c}$** | **38.54 ± 12.76$^{c}$** | **55.51 ± 20.78$^{a}$** | **44.85 ± 25.35$^{b}$** | **20.90 ± 7.13$^{d}$** | **34.89 ± 16.27$^{c}$** | **41.05 ± 19.27$^{b}$** | **51.18 ± 14.98$^{a}$** | **21.57 ± 10.35$^{d}$** | | |

*RI = retention index

**ID = Identification by comparison of mass spectra (MS) with in-house NIST library 11.0, MS and retention index (RI) with NIST Webbook (NIST[24]), and MS and retention time with external standards

*** = Odor description were obtained from TGSC[25].

****= Semi-quantification: Ethoxyacetic acid, acetic acid, pterin-6-carboxylic acid, 2-methyl-1-propanol, 2-pentanol, 2-hexanol, 1-(2-aminoethylamino)-2-propanol, 2-octen-4-ol, 3-methyl-1-pentanol, 2-methyl-4-heptanol, 2,3-butanediol, phenylethyl alcohol, 3-hydroxybutanal, myristicin, 3-hydroxymandelic acid ethyl ester, ethyl (*E*)-3-hexenoate, ethyl lactate, propyl hexanoate, ethyl 3-hydroxybutanoate, isoamyl lactate, ethyl 2-furancarboxylate, ethyl 9-decenoate and 3-hydroxy-2-butanone were semi-quantified using the calibration curves of ethyl hexanoate, ethyl octanoate, 2-ethyl-1-hexanol, 3-methylbutyl acetate, 1-butanol, 1-butanol, ethyl hexanoate, 1-hexanol, 1-hexanol, 1-hexanol, 1-octanol, benzyl alcohol, ethyl hexanoate, benzaldehyde, 1-butanol, 1-hexanol, 2-heptanol, 2-heptanol, ethyl nonanoate, 1-octanol, benzeneacetaldehyde, diethyl succinate and ethyl hexanoate, respectively.

Samples of M, 2GM, 4GM etc. refer to Table S3.

ND = Not detected or value below the detection threshold.

tr = trace

-- = Not available.

a-d = Values with different superscripts in the same wine group are significantly different ($p \leq 0.05$)

**Table S6** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated Chardonnay wines

(continued 1/7)

| Variables | TA | pH | TPC | TFC | DPPH | FRAP | ABTS | L* | a* | b* | Quinic acid | Gallic acid | Chlorogenic acid | Total phenolic acids | Gallocatechin |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | **1** | **-0.967** | **-0.729** | **-0.748** | **-0.802** | **-0.743** | **-0.723** | **0.451** | -0.375 | **-0.572** | **-0.602** | **-0.590** | **-0.739** | **-0.701** | **-0.806** |
| pH | **-0.967** | **1** | **0.786** | **0.801** | **0.857** | **0.790** | **0.777** | **-0.495** | 0.409 | **0.601** | **0.617** | **0.664** | **0.794** | **0.743** | **0.869** |
| TPC | **-0.729** | **0.786** | **1** | **0.940** | **0.975** | **0.844** | **0.910** | -0.434 | **0.448** | **0.563** | **0.792** | **0.875** | **0.949** | **0.954** | **0.945** |
| TFC | **-0.748** | **0.801** | **0.940** | **1** | **0.932** | **0.916** | **0.961** | -0.295 | 0.227 | 0.422 | **0.635** | **0.890** | **0.970** | **0.852** | **0.961** |
| DPPH | **-0.802** | **0.857** | **0.975** | **0.932** | **1** | **0.821** | **0.919** | **-0.494** | **0.462** | **0.618** | **0.758** | **0.854** | **0.931** | **0.921** | **0.970** |
| FRAP | **-0.743** | **0.790** | **0.844** | **0.916** | **0.821** | **1** | **0.917** | -0.131 | 0.080 | 0.257 | **0.501** | **0.832** | **0.940** | **0.736** | **0.870** |
| ABTS | **-0.723** | **0.777** | **0.910** | **0.961** | **0.919** | **0.917** | **1** | -0.168 | 0.112 | 0.301 | **0.504** | **0.926** | **0.966** | **0.773** | **0.938** |
| L* | **0.451** | **-0.495** | -0.434 | -0.295 | **-0.494** | -0.131 | -0.168 | **1** | **-0.893** | **-0.971** | **-0.747** | -0.102 | -0.232 | **-0.580** | **-0.452** |
| a* | -0.375 | 0.409 | **0.448** | 0.227 | **0.462** | 0.080 | 0.112 | **-0.893** | **1** | **0.883** | **0.822** | 0.149 | 0.233 | **0.650** | 0.376 |
| b* | **-0.572** | **0.601** | **0.563** | 0.422 | **0.618** | 0.257 | 0.301 | **-0.971** | **0.883** | **1** | **0.814** | 0.250 | 0.359 | **0.692** | **0.575** |
| Quinic acid | **-0.602** | **0.617** | **0.792** | **0.635** | **0.758** | **0.501** | **0.504** | **-0.747** | **0.822** | **0.814** | **1** | **0.466** | **0.639** | **0.925** | **0.676** |
| Gallic acid | **-0.590** | **0.664** | **0.875** | **0.890** | **0.854** | **0.832** | **0.926** | -0.102 | 0.149 | 0.250 | **0.466** | **1** | **0.899** | **0.765** | **0.877** |
| Chlorogenic acid | **-0.739** | **0.794** | **0.949** | **0.970** | **0.931** | **0.940** | **0.966** | -0.232 | 0.233 | 0.359 | **0.639** | **0.899** | **1** | **0.861** | **0.934** |
| Total phenolic acids | **-0.701** | **0.743** | **0.954** | **0.852** | **0.921** | **0.736** | **0.773** | **-0.580** | **0.650** | **0.692** | **0.925** | **0.765** | **0.861** | **1** | **0.873** |
| Gallocatechin | **-0.806** | **0.869** | **0.945** | **0.961** | **0.970** | **0.870** | **0.938** | **-0.452** | 0.376 | **0.575** | **0.676** | **0.877** | **0.934** | **0.873** | **1** |
| Epigallocatechin | **-0.684** | **0.749** | **0.909** | **0.962** | **0.900** | **0.928** | **0.992** | -0.128 | 0.088 | 0.259 | **0.496** | **0.931** | **0.972** | **0.770** | **0.929** |
| Procyanidin B1 | **-0.713** | **0.766** | **0.905** | **0.981** | **0.905** | **0.886** | **0.955** | -0.270 | 0.179 | 0.405 | **0.575** | **0.883** | **0.941** | **0.805** | **0.959** |
| Catechin | **-0.743** | **0.804** | **0.958** | **0.924** | **0.975** | **0.765** | **0.894** | **-0.524** | **0.476** | **0.630** | **0.758** | **0.834** | **0.894** | **0.910** | **0.965** |
| Procyanidin B2 | **-0.587** | **0.643** | **0.621** | **0.713** | **0.603** | **0.879** | **0.722** | -0.020 | -0.017 | 0.137 | 0.285 | **0.698** | **0.742** | **0.518** | **0.664** |
| Epicatechin | **-0.674** | **0.740** | **0.729** | **0.805** | **0.779** | **0.697** | **0.807** | -0.312 | 0.159 | 0.418 | 0.368 | **0.731** | **0.766** | **0.590** | **0.851** |
| Epigallocatechin gallate | **-0.646** | **0.684** | **0.910** | **0.780** | **0.862** | **0.663** | **0.679** | **-0.635** | **0.711** | **0.730** | **0.963** | **0.661** | **0.796** | **0.983** | **0.801** |
| Procyanidin B1 3-O-gallate | **-0.469** | **0.576** | **0.551** | **0.670** | **0.569** | **0.665** | **0.636** | -0.261 | 0.068 | 0.269 | 0.281 | **0.523** | **0.636** | 0.443 | **0.684** |
| Gallocatechin gallate | **-0.625** | **0.680** | **0.763** | **0.874** | **0.772** | **0.905** | **0.955** | 0.053 | -0.149 | 0.067 | 0.254 | **0.866** | **0.884** | **0.569** | **0.831** |
| Quercetin 3-O-di-galacoside/glucoside | **-0.692** | **0.767** | **0.792** | **0.872** | **0.837** | **0.842** | **0.923** | -0.199 | 0.054 | 0.306 | 0.351 | **0.828** | **0.870** | **0.623** | **0.895** |
| Myricetin 3-O-galactoside 1 | -0.347 | 0.380 | **0.484** | **0.587** | **0.527** | 0.402 | **0.595** | -0.142 | 0.013 | 0.206 | 0.232 | **0.540** | **0.473** | 0.398 | **0.603** |
| Epicatechin gallate | **-0.671** | **0.745** | **0.737** | **0.816** | **0.787** | **0.711** | **0.837** | -0.308 | 0.153 | 0.403 | 0.345 | **0.778** | **0.759** | **0.589** | **0.870** |
| Rutin | **-0.704** | **0.760** | **0.776** | **0.818** | **0.825** | **0.671** | **0.801** | **-0.460** | 0.310 | **0.519** | **0.513** | **0.682** | **0.768** | **0.674** | **0.878** |
| Quercetin 3-O-galactoside | **-0.558** | **0.600** | 0.417 | **0.494** | **0.527** | 0.397 | **0.520** | -0.330 | 0.121 | 0.359 | 0.186 | 0.372 | 0.412 | 0.301 | **0.608** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kaempferol 3-O-rutinoside 2 | **-0.482** | **0.527** | **0.491** | **0.636** | **0.562** | **0.506** | **0.665** | -0.198 | 0.000 | 0.275 | 0.141 | **0.604** | **0.533** | 0.363 | **0.688** |
| Kaempferol 3-O-glucoside | -0.341 | 0.416 | 0.221 | 0.293 | 0.331 | 0.139 | 0.249 | **-0.486** | 0.328 | **0.466** | 0.164 | 0.229 | 0.189 | 0.213 | 0.432 |
| Unknown quercetin conjugate | **-0.611** | **0.666** | **0.817** | **0.921** | **0.826** | **0.809** | **0.910** | -0.200 | 0.086 | 0.333 | **0.450** | **0.872** | **0.849** | **0.704** | **0.899** |
| Unknown kaempferol conjugate | **-0.624** | **0.668** | **0.840** | **0.870** | **0.852** | **0.658** | **0.831** | -0.406 | 0.284 | **0.517** | **0.570** | **0.766** | **0.789** | **0.745** | **0.890** |
| Total flavonoids | **-0.760** | **0.824** | **0.964** | **0.958** | **0.979** | **0.835** | **0.941** | **-0.445** | 0.388 | **0.560** | **0.703** | **0.877** | **0.935** | **0.892** | **0.986** |
| Caffeine | **-0.668** | **0.729** | **0.752** | **0.860** | **0.756** | **0.962** | **0.911** | 0.015 | -0.085 | 0.095 | 0.314 | **0.819** | **0.902** | **0.597** | **0.807** |
| Ethoxyacetic acid | -0.226 | 0.220 | 0.167 | 0.333 | 0.186 | 0.260 | 0.352 | 0.257 | -0.383 | -0.229 | -0.207 | 0.303 | 0.302 | -0.008 | 0.272 |
| Acetic acid | -0.054 | 0.059 | 0.276 | 0.288 | 0.256 | 0.068 | 0.225 | -0.300 | 0.218 | 0.253 | 0.309 | 0.233 | 0.198 | 0.317 | 0.279 |
| Pterin-6-carboxylic acid | **-0.567** | **0.614** | **0.856** | **0.724** | **0.827** | **0.569** | **0.673** | **-0.597** | **0.643** | **0.644** | **0.866** | **0.618** | **0.739** | **0.895** | **0.762** |
| Hexanoic acid | -0.005 | -0.004 | -0.316 | -0.395 | -0.275 | -0.354 | -0.359 | -0.009 | 0.038 | -0.065 | -0.159 | -0.400 | -0.327 | -0.284 | -0.343 |
| Octanoic acid | **0.507** | **-0.540** | **-0.668** | **-0.606** | **-0.687** | **-0.531** | **-0.533** | **0.696** | **-0.591** | **-0.756** | **-0.726** | **-0.458** | **-0.543** | **-0.721** | **-0.685** |
| Nonanoic acid | **0.459** | **-0.467** | **-0.539** | -0.442 | **-0.549** | -0.389 | -0.350 | **0.708** | **-0.629** | **-0.779** | **-0.702** | -0.332 | -0.377 | **-0.644** | **-0.510** |
| Total acid | 0.433 | **-0.459** | **-0.632** | **-0.589** | **-0.638** | **-0.518** | **-0.513** | **0.611** | **-0.517** | **-0.683** | **-0.669** | **-0.469** | **-0.517** | **-0.683** | **-0.643** |
| 2-Methyl-1-propanol | -0.361 | 0.400 | 0.379 | 0.329 | 0.400 | 0.188 | 0.342 | -0.304 | 0.262 | 0.281 | 0.304 | 0.267 | 0.340 | 0.340 | 0.367 |
| 2-Pentanol | -0.381 | 0.389 | 0.246 | 0.394 | 0.281 | **0.555** | **0.450** | 0.304 | **-0.472** | -0.200 | -0.145 | 0.338 | 0.406 | 0.058 | 0.314 |
| 1-Butanol | -0.183 | 0.179 | 0.368 | 0.418 | 0.394 | 0.198 | **0.474** | -0.079 | -0.039 | 0.095 | 0.144 | 0.372 | 0.337 | 0.264 | 0.379 |
| 2-Hexanol | -0.184 | 0.198 | 0.308 | 0.388 | 0.347 | 0.158 | 0.394 | -0.178 | -0.007 | 0.156 | 0.127 | 0.273 | 0.290 | 0.214 | 0.339 |
| 3-Methyl-1-butanol | -0.145 | 0.180 | 0.105 | 0.011 | 0.120 | -0.065 | 0.023 | -0.307 | 0.288 | 0.230 | 0.187 | -0.019 | 0.042 | 0.128 | 0.070 |
| 1-(2-Aminoethylamino)-2-propanol | **-0.680** | **0.748** | **0.873** | **0.902** | **0.866** | **0.891** | **0.925** | -0.207 | 0.124 | 0.308 | **0.514** | **0.802** | **0.921** | **0.732** | **0.882** |
| 2-Octen-4-ol | **-0.718** | **0.776** | **0.916** | **0.950** | **0.910** | **0.898** | **0.974** | -0.201 | 0.138 | 0.315 | **0.539** | **0.875** | **0.956** | **0.778** | **0.924** |
| 3-Methyl-1-pentanol | -0.133 | 0.154 | -0.091 | -0.128 | -0.031 | -0.198 | -0.147 | -0.293 | 0.219 | 0.185 | 0.058 | -0.254 | -0.123 | -0.060 | -0.055 |
| (E)-3-Hexen-1-ol | -0.176 | 0.171 | 0.089 | 0.271 | 0.051 | 0.307 | 0.171 | 0.264 | -0.280 | -0.226 | -0.051 | 0.143 | 0.195 | 0.034 | 0.102 |
| 1-Hexanol | -0.418 | 0.399 | 0.084 | 0.251 | 0.144 | 0.331 | 0.256 | 0.189 | -0.393 | -0.086 | -0.226 | 0.150 | 0.209 | -0.084 | 0.213 |
| 2-Methyl-4-heptanol | -0.201 | 0.286 | -0.003 | 0.166 | 0.063 | 0.183 | 0.131 | -0.039 | -0.100 | 0.037 | -0.183 | 0.118 | 0.107 | -0.076 | 0.211 |
| 2-Ethyl-1-hexanol | -0.201 | 0.225 | 0.372 | 0.157 | 0.341 | 0.035 | 0.076 | **-0.691** | **0.775** | **0.645** | **0.731** | 0.057 | 0.171 | **0.547** | 0.234 |
| Linalool | **-0.687** | **0.745** | **0.944** | **0.829** | **0.937** | **0.670** | **0.786** | **-0.577** | **0.615** | **0.670** | **0.851** | **0.759** | **0.841** | **0.944** | **0.877** |
| 1-Octanol | **0.551** | **-0.541** | **-0.598** | **-0.607** | **-0.621** | **-0.592** | **-0.575** | 0.338 | -0.286 | **-0.474** | **-0.475** | **-0.564** | **-0.560** | **-0.585** | **-0.642** |
| 2,3-Butanediol | -0.147 | 0.113 | 0.133 | 0.130 | 0.139 | 0.007 | 0.075 | -0.325 | 0.234 | 0.279 | 0.240 | 0.079 | 0.057 | 0.201 | 0.177 |
| Phenylethyl alcohol | 0.220 | -0.214 | -0.305 | -0.419 | -0.303 | -0.442 | -0.400 | -0.102 | 0.172 | -0.027 | -0.074 | -0.391 | -0.357 | -0.224 | -0.366 |
| Total alcohol | -0.141 | 0.167 | 0.114 | 0.051 | 0.137 | -0.060 | 0.077 | -0.248 | 0.197 | 0.172 | 0.137 | 0.008 | 0.064 | 0.105 | 0.088 |
| 3-Hydroxybutanal | -0.134 | 0.178 | 0.192 | 0.142 | 0.243 | 0.097 | 0.175 | -0.286 | 0.169 | 0.275 | 0.157 | 0.056 | 0.149 | 0.145 | 0.222 |
| Octanal | 0.101 | -0.089 | 0.232 | 0.321 | 0.143 | 0.250 | 0.284 | 0.287 | -0.226 | -0.288 | 0.015 | 0.371 | 0.320 | 0.172 | 0.195 |
| Total aldehyde | 0.099 | -0.087 | 0.233 | 0.323 | 0.145 | 0.251 | 0.285 | 0.285 | -0.224 | -0.287 | 0.017 | 0.372 | 0.322 | 0.174 | 0.197 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzaldehyde | 0.253 | -0.216 | -0.240 | -0.371 | -0.199 | -0.338 | -0.324 | -0.276 | 0.229 | 0.198 | 0.004 | -0.362 | -0.366 | -0.161 | -0.262 |
| Myristicin | 0.426 | -0.438 | -0.354 | **-0.557** | -0.400 | **-0.502** | **-0.513** | -0.002 | 0.225 | -0.088 | -0.001 | **-0.455** | -0.432 | -0.203 | **-0.539** |
| Benzeneacetaldehyde | -0.330 | 0.416 | 0.396 | 0.368 | **0.482** | 0.214 | 0.374 | **-0.606** | 0.423 | **0.561** | 0.324 | 0.297 | 0.277 | 0.358 | **0.454** |
| Naphthalene | **-0.815** | **0.869** | **0.928** | **0.887** | **0.964** | **0.772** | **0.842** | **-0.636** | **0.547** | **0.734** | **0.803** | **0.753** | **0.852** | **0.909** | **0.939** |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | **-0.815** | **0.869** | **0.928** | **0.887** | **0.964** | **0.772** | **0.842** | **-0.636** | **0.547** | **0.734** | **0.803** | **0.753** | **0.852** | **0.909** | **0.939** |
| Benzyl alcohol | -0.298 | 0.273 | 0.021 | 0.134 | 0.065 | 0.231 | 0.160 | 0.187 | -0.290 | -0.071 | -0.229 | 0.127 | 0.108 | -0.105 | 0.134 |
| Total benzenoid | -0.289 | 0.276 | 0.002 | 0.079 | 0.063 | 0.178 | 0.121 | 0.086 | -0.203 | 0.016 | -0.208 | 0.076 | 0.054 | -0.113 | 0.109 |
| Ethyl butanoate | -0.387 | 0.380 | 0.176 | 0.342 | 0.226 | 0.299 | 0.361 | 0.166 | -0.340 | -0.110 | -0.168 | 0.236 | 0.309 | -0.003 | 0.292 |
| Ethyl 3-methylbutanoate | -0.195 | 0.139 | -0.105 | 0.010 | -0.058 | 0.001 | 0.038 | 0.252 | -0.316 | -0.262 | -0.272 | -0.048 | 0.029 | -0.204 | -0.028 |
| 3-Methylbutyl acetate | -0.342 | 0.333 | 0.117 | 0.320 | 0.169 | 0.326 | 0.342 | 0.281 | **-0.453** | -0.196 | -0.282 | 0.275 | 0.264 | -0.074 | 0.272 |
| 3-Hydroxymandelic acid ethyl ester | 0.016 | -0.006 | 0.004 | 0.215 | 0.008 | 0.104 | 0.167 | 0.219 | -0.340 | -0.257 | -0.255 | 0.199 | 0.110 | -0.097 | 0.149 |
| Ethyl hexanoate | 0.116 | -0.130 | -0.188 | -0.087 | -0.204 | -0.107 | -0.049 | 0.442 | **-0.469** | **-0.449** | -0.388 | -0.109 | -0.049 | -0.313 | -0.192 |
| Hexyl acetate | -0.209 | 0.186 | -0.013 | 0.180 | 0.020 | 0.204 | 0.206 | 0.424 | **-0.529** | -0.351 | -0.379 | 0.175 | 0.141 | -0.189 | 0.109 |
| Ethyl (E)-3-hexenoate | **-0.464** | **0.502** | 0.170 | 0.318 | 0.253 | 0.245 | 0.289 | -0.202 | -0.023 | 0.174 | -0.009 | 0.231 | 0.211 | 0.096 | 0.350 |
| Ethyl lactate | 0.256 | -0.258 | -0.137 | -0.214 | -0.171 | -0.275 | -0.202 | -0.075 | 0.102 | -0.040 | 0.006 | -0.189 | -0.186 | -0.081 | -0.211 |
| Propyl hexanoate | 0.105 | -0.089 | -0.036 | 0.020 | -0.064 | -0.078 | 0.024 | 0.253 | -0.255 | -0.305 | -0.167 | -0.035 | 0.051 | -0.124 | -0.060 |
| Ethyl octanoate | **0.571** | **-0.607** | **-0.514** | -0.420 | **-0.578** | -0.403 | -0.373 | **0.724** | **-0.629** | **-0.777** | **-0.648** | -0.285 | -0.380 | **-0.590** | **-0.546** |
| Ethyl 3-hydroxybutanoate | **0.660** | **-0.621** | **-0.574** | **-0.619** | **-0.590** | **-0.526** | **-0.531** | 0.350 | -0.274 | **-0.455** | **-0.487** | **-0.483** | **-0.526** | **-0.561** | **-0.649** |
| Ethyl nonanoate | 0.112 | -0.139 | -0.264 | -0.125 | -0.244 | -0.185 | -0.128 | 0.335 | **-0.464** | -0.338 | **-0.453** | -0.162 | -0.167 | -0.390 | -0.184 |
| Isoamyl lactate | -0.174 | 0.178 | 0.226 | 0.183 | 0.230 | 0.021 | 0.105 | **-0.491** | 0.405 | 0.402 | 0.419 | 0.032 | 0.119 | 0.316 | 0.227 |
| Methyl decanoate | 0.253 | -0.210 | -0.278 | -0.147 | -0.236 | -0.157 | -0.081 | 0.341 | **-0.519** | -0.434 | **-0.494** | -0.248 | -0.142 | **-0.446** | -0.174 |
| Ethyl 2-furancarboxylate | **0.470** | **-0.453** | -0.367 | **-0.461** | -0.410 | -0.421 | -0.431 | 0.082 | 0.012 | -0.195 | -0.144 | -0.437 | -0.394 | -0.293 | **-0.473** |
| Ethyl decanoate | 0.439 | **-0.499** | **-0.470** | -0.387 | **-0.524** | -0.325 | -0.319 | **0.783** | **-0.578** | **-0.799** | **-0.630** | -0.173 | -0.329 | **-0.533** | **-0.491** |
| Diethyl succinate | 0.391 | -0.383 | -0.253 | **-0.479** | -0.291 | **-0.449** | -0.421 | -0.127 | 0.308 | 0.046 | 0.057 | -0.346 | -0.368 | -0.119 | -0.403 |
| Ethyl 9-decenoate | 0.413 | **-0.481** | **-0.457** | -0.444 | **-0.496** | -0.374 | -0.349 | **0.656** | -0.409 | **-0.678** | **-0.549** | -0.165 | -0.346 | **-0.476** | **-0.486** |
| Ethyl benzeneacetate | **-0.470** | **0.459** | 0.373 | 0.165 | 0.412 | 0.105 | 0.105 | **-0.785** | **0.843** | **0.785** | **0.716** | 0.092 | 0.168 | **0.549** | 0.307 |
| 2-Phenethyl acetate | 0.126 | -0.129 | -0.153 | -0.245 | -0.094 | -0.283 | -0.136 | -0.083 | 0.045 | 0.051 | -0.157 | -0.116 | -0.193 | -0.170 | -0.101 |
| Ethyl dodecanoate | 0.173 | -0.078 | -0.124 | -0.076 | -0.162 | -0.041 | -0.057 | 0.222 | -0.286 | -0.269 | -0.247 | -0.144 | -0.071 | -0.229 | -0.106 |
| Total ester | 0.049 | -0.042 | -0.029 | 0.179 | -0.028 | 0.072 | 0.138 | 0.255 | -0.364 | -0.295 | -0.288 | 0.175 | 0.082 | -0.132 | 0.110 |
| 3-Hydroxy-2-butanone | 0.195 | -0.185 | -0.247 | -0.239 | -0.280 | -0.203 | -0.183 | 0.405 | -0.227 | -0.417 | -0.305 | -0.094 | -0.187 | -0.265 | -0.259 |
| Limonene | **-0.768** | **0.823** | **0.847** | **0.811** | **0.893** | **0.692** | **0.746** | **-0.700** | **0.549** | **0.777** | **0.780** | **0.629** | **0.751** | **0.841** | **0.865** |
| Terpinolene | **-0.626** | **0.693** | **0.746** | **0.794** | **0.742** | **0.873** | **0.838** | -0.083 | 0.001 | 0.171 | 0.369 | **0.704** | **0.843** | **0.589** | **0.755** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total terpene | **-0.809** | **0.868** | **0.895** | **0.878** | **0.932** | **0.794** | **0.830** | **-0.607** | **0.465** | **0.694** | **0.749** | **0.704** | **0.839** | **0.854** | **0.912** |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S6** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated Chardonnay wines (continued 2/7)

| Variables | Epigallocatechin | Procyanidin B1 | Catechin | Procyanidin B2 | Epicatechin | Epigallocatechin gallate | Procyanidin B1 3-O-gallate | Gallocatechin gallate | Quercetin 3-O-di-galacoside/glucoside | Myricetin 3-O-galactoside 1 | Epicatechin gallate | Rutin | Quercetin 3-O-galactoside | Kaempferol 3-O-rutinoside 2 | Kaempferol 3-O-glucoside |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | **-0.684** | **-0.713** | **-0.743** | **-0.587** | **-0.674** | **-0.646** | **-0.469** | **-0.625** | **-0.692** | -0.347 | **-0.671** | **-0.704** | **-0.558** | **-0.482** | -0.341 |
| pH | **0.749** | **0.766** | **0.804** | **0.643** | **0.740** | **0.684** | **0.576** | **0.680** | **0.767** | 0.380 | **0.745** | **0.760** | **0.600** | **0.527** | 0.416 |
| TPC | **0.909** | **0.905** | **0.958** | **0.621** | **0.729** | **0.910** | **0.551** | **0.763** | **0.792** | **0.484** | **0.737** | **0.776** | 0.417 | **0.491** | 0.221 |
| TFC | **0.962** | **0.981** | **0.924** | **0.713** | **0.805** | **0.780** | **0.670** | **0.874** | **0.872** | **0.587** | **0.816** | **0.818** | **0.494** | **0.636** | 0.293 |
| DPPH | **0.900** | **0.905** | **0.975** | **0.603** | **0.779** | **0.862** | **0.569** | **0.772** | **0.837** | **0.527** | **0.787** | **0.825** | **0.527** | **0.562** | 0.331 |
| FRAP | **0.928** | **0.886** | **0.765** | **0.879** | **0.697** | **0.663** | **0.665** | **0.905** | **0.842** | 0.402 | **0.711** | **0.671** | 0.397 | **0.506** | 0.139 |
| ABTS | **0.992** | **0.955** | **0.894** | **0.722** | **0.807** | **0.679** | **0.636** | **0.955** | **0.923** | **0.595** | **0.837** | **0.801** | **0.520** | **0.665** | 0.249 |
| L* | -0.128 | -0.270 | **-0.524** | -0.020 | -0.312 | **-0.635** | -0.261 | 0.053 | -0.199 | -0.142 | -0.308 | **-0.460** | -0.330 | -0.198 | **-0.486** |
| a* | 0.088 | 0.179 | **0.476** | -0.017 | 0.159 | **0.711** | 0.068 | -0.149 | 0.054 | 0.013 | 0.153 | 0.310 | 0.121 | 0.000 | 0.328 |
| b* | 0.259 | 0.405 | **0.630** | 0.137 | 0.418 | **0.730** | 0.269 | 0.067 | 0.306 | 0.206 | 0.403 | **0.519** | 0.359 | 0.275 | **0.466** |
| Quinic acid | **0.496** | **0.575** | **0.758** | 0.285 | 0.368 | **0.963** | 0.281 | 0.254 | 0.351 | 0.232 | 0.345 | **0.513** | 0.186 | 0.141 | 0.164 |
| Gallic acid | **0.931** | **0.883** | **0.834** | **0.698** | **0.731** | **0.661** | **0.523** | **0.866** | **0.828** | **0.540** | **0.778** | **0.682** | 0.372 | **0.604** | 0.229 |
| Chlorogenic acid | **0.972** | **0.941** | **0.894** | **0.742** | **0.766** | **0.796** | **0.636** | **0.884** | **0.870** | **0.473** | **0.759** | **0.768** | 0.412 | **0.533** | 0.189 |
| Total phenolic acids | **0.770** | **0.805** | **0.910** | **0.518** | **0.590** | **0.983** | 0.443 | **0.569** | **0.623** | 0.398 | **0.589** | **0.674** | 0.301 | 0.363 | 0.213 |
| Gallocatechin | **0.929** | **0.959** | **0.965** | **0.664** | **0.851** | **0.801** | **0.684** | **0.831** | **0.895** | **0.603** | **0.870** | **0.878** | **0.608** | **0.688** | 0.432 |
| Epigallocatechin | **1** | **0.955** | **0.884** | **0.722** | **0.800** | **0.679** | **0.675** | **0.956** | **0.919** | **0.583** | **0.831** | **0.798** | **0.499** | **0.645** | 0.236 |
| Procyanidin B1 | **0.955** | **1** | **0.912** | **0.676** | **0.845** | **0.729** | **0.680** | **0.882** | **0.893** | **0.661** | **0.849** | **0.834** | **0.550** | **0.728** | 0.348 |
| Catechin | **0.884** | **0.912** | **1** | **0.487** | **0.780** | **0.853** | **0.615** | **0.748** | **0.814** | **0.644** | **0.820** | **0.882** | **0.600** | **0.634** | 0.411 |
| Procyanidin B2 | **0.722** | **0.676** | **0.487** | **1** | **0.534** | **0.449** | **0.475** | **0.744** | **0.669** | 0.165 | **0.526** | 0.386 | 0.206 | 0.362 | 0.084 |
| Epicatechin | **0.800** | **0.845** | **0.780** | **0.534** | **1** | **0.532** | **0.719** | **0.757** | **0.926** | **0.450** | **0.944** | **0.888** | **0.583** | **0.763** | **0.507** |
| Epigallocatechin gallate | **0.679** | **0.729** | **0.853** | **0.449** | **0.532** | **1** | 0.407 | **0.458** | **0.538** | 0.298 | **0.509** | **0.622** | 0.221 | 0.273 | 0.178 |
| Procyanidin B1 3-O-gallate | **0.675** | **0.680** | **0.615** | **0.475** | **0.719** | 0.407 | **1** | **0.664** | **0.790** | **0.459** | **0.782** | **0.804** | **0.554** | **0.686** | **0.619** |
| Gallocatechin gallate | **0.956** | **0.882** | **0.748** | **0.744** | **0.757** | **0.458** | **0.664** | **1** | **0.915** | **0.582** | **0.809** | **0.729** | **0.530** | **0.677** | 0.202 |
| Quercetin 3-O-di-galacoside/glucoside | **0.919** | **0.893** | **0.814** | **0.669** | **0.926** | **0.538** | **0.790** | **0.915** | **1** | **0.508** | **0.927** | **0.870** | **0.581** | **0.755** | 0.425 |
| Myricetin 3-O-galactoside 1 | **0.583** | **0.661** | **0.644** | 0.165 | **0.450** | 0.298 | **0.459** | **0.582** | **0.508** | **1** | **0.613** | **0.639** | **0.765** | **0.794** | **0.545** |
| Epicatechin gallate | **0.831** | **0.849** | **0.820** | **0.526** | **0.944** | **0.509** | **0.782** | **0.809** | **0.927** | **0.613** | **1** | **0.929** | **0.690** | **0.870** | **0.623** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rutin | **0.798** | **0.834** | **0.882** | 0.386 | **0.888** | **0.622** | **0.804** | **0.729** | **0.870** | **0.639** | **0.929** | **1** | **0.754** | **0.782** | **0.624** |
| Quercetin 3-O-galactoside | **0.499** | **0.550** | **0.600** | 0.206 | **0.583** | 0.221 | **0.554** | **0.530** | **0.581** | **0.765** | **0.690** | **0.754** | **1** | **0.710** | **0.664** |
| Kaempferol 3-O-rutinoside 2 | **0.645** | **0.728** | **0.634** | 0.362 | **0.763** | 0.273 | **0.686** | **0.677** | **0.755** | **0.794** | **0.870** | **0.782** | **0.710** | **1** | **0.749** |
| Kaempferol 3-O-glucoside | 0.236 | 0.348 | 0.411 | 0.084 | **0.507** | 0.178 | **0.619** | 0.202 | 0.425 | **0.545** | **0.623** | **0.624** | **0.664** | **0.749** | **1** |
| Unknown quercetin conjugate | **0.902** | **0.959** | **0.850** | **0.646** | **0.775** | **0.611** | **0.649** | **0.862** | **0.842** | **0.784** | **0.836** | **0.777** | **0.582** | **0.826** | 0.441 |
| Unknown kaempferol conjugate | **0.823** | **0.903** | **0.912** | 0.393 | **0.869** | **0.698** | **0.640** | **0.721** | **0.818** | **0.704** | **0.889** | **0.910** | **0.628** | **0.781** | **0.495** |
| Total flavonoids | **0.934** | **0.950** | **0.991** | **0.579** | **0.818** | **0.824** | **0.661** | **0.823** | **0.871** | **0.639** | **0.854** | **0.888** | **0.599** | **0.666** | 0.396 |
| Caffeine | **0.919** | **0.836** | **0.685** | **0.865** | **0.708** | **0.504** | **0.680** | **0.946** | **0.884** | 0.368 | **0.715** | **0.642** | 0.382 | **0.523** | 0.135 |
| Ethoxyacetic acid | 0.360 | 0.377 | 0.211 | 0.170 | **0.551** | -0.044 | 0.385 | 0.433 | **0.475** | 0.283 | **0.487** | **0.467** | 0.394 | 0.438 | 0.211 |
| Acetic acid | 0.228 | 0.312 | 0.414 | -0.245 | 0.165 | 0.309 | 0.272 | 0.164 | 0.156 | **0.565** | 0.281 | 0.411 | 0.296 | 0.366 | 0.251 |
| Pterin-6-carboxylic acid | **0.678** | **0.682** | **0.881** | 0.217 | **0.501** | **0.895** | **0.491** | **0.491** | **0.549** | **0.471** | **0.561** | **0.727** | 0.392 | 0.356 | 0.255 |
| Hexanoic acid | -0.370 | -0.420 | -0.286 | -0.407 | -0.198 | -0.237 | -0.299 | -0.343 | -0.303 | -0.378 | -0.266 | -0.190 | -0.047 | -0.393 | -0.209 |
| Octanoic acid | **-0.515** | **-0.588** | **-0.706** | -0.392 | -0.396 | **-0.700** | **-0.446** | -0.390 | **-0.461** | -0.435 | **-0.481** | **-0.536** | -0.381 | -0.415 | -0.376 |
| Nonanoic acid | -0.314 | -0.404 | **-0.524** | -0.364 | -0.219 | **-0.646** | -0.186 | -0.182 | -0.252 | -0.198 | -0.279 | -0.279 | -0.119 | -0.218 | -0.216 |
| Total acid | **-0.496** | **-0.575** | **-0.647** | -0.435 | -0.355 | **-0.657** | -0.405 | -0.378 | -0.431 | -0.419 | -0.441 | **-0.458** | -0.289 | -0.414 | -0.345 |
| 2-Methyl-1-propanol | 0.333 | 0.330 | **0.470** | -0.094 | 0.427 | 0.345 | 0.273 | 0.283 | 0.343 | 0.314 | 0.440 | **0.554** | **0.460** | 0.286 | 0.206 |
| 2-Pentanol | **0.445** | 0.378 | 0.152 | **0.660** | 0.342 | -0.003 | 0.394 | **0.562** | **0.515** | 0.099 | 0.319 | 0.193 | 0.192 | 0.264 | 0.028 |
| 1-Butanol | 0.429 | **0.458** | **0.486** | -0.016 | 0.318 | 0.208 | 0.181 | **0.452** | 0.356 | **0.754** | 0.442 | **0.497** | **0.495** | **0.594** | 0.261 |
| 2-Hexanol | 0.344 | 0.412 | 0.418 | 0.020 | 0.363 | 0.182 | 0.204 | 0.362 | 0.338 | **0.601** | 0.413 | **0.496** | **0.469** | **0.519** | 0.287 |
| 3-Methyl-1-butanol | 0.019 | -0.006 | 0.187 | -0.293 | 0.124 | 0.158 | 0.073 | -0.017 | 0.044 | 0.026 | 0.136 | 0.262 | 0.221 | -0.019 | 0.038 |
| 1-(2-Aminoethylamino)-2-propanol | **0.938** | **0.876** | **0.852** | **0.650** | **0.791** | **0.674** | **0.718** | **0.891** | **0.893** | **0.449** | **0.804** | **0.809** | **0.481** | **0.540** | 0.199 |
| 2-Octen-4-ol | **0.980** | **0.932** | **0.908** | **0.635** | **0.807** | **0.703** | **0.699** | **0.929** | **0.911** | **0.577** | **0.845** | **0.855** | **0.548** | **0.628** | 0.246 |
| 3-Methyl-1-pentanol | -0.149 | -0.137 | 0.042 | -0.391 | 0.043 | -0.022 | 0.088 | -0.161 | -0.071 | 0.032 | 0.050 | 0.212 | 0.354 | -0.041 | 0.189 |
| (E)-3-Hexen-1-ol | 0.207 | 0.184 | 0.034 | 0.391 | 0.067 | -0.010 | 0.146 | 0.224 | 0.063 | 0.069 | 0.116 | 0.029 | 0.008 | 0.041 | -0.023 |
| 1-Hexanol | 0.239 | 0.264 | 0.040 | **0.458** | **0.495** | -0.116 | 0.225 | 0.337 | 0.412 | -0.093 | 0.359 | 0.205 | 0.200 | 0.240 | 0.065 |
| 2-Methyl-4-heptanol | 0.144 | 0.217 | 0.062 | 0.319 | 0.438 | -0.097 | **0.572** | 0.192 | 0.365 | 0.179 | **0.454** | 0.338 | 0.355 | **0.550** | **0.730** |
| 2-Ethyl-1-hexanol | 0.067 | 0.105 | 0.411 | -0.203 | -0.080 | **0.612** | 0.018 | -0.117 | -0.081 | 0.158 | 0.004 | 0.207 | 0.105 | -0.089 | 0.082 |
| Linalool | **0.785** | **0.787** | **0.950** | 0.371 | **0.676** | **0.918** | **0.509** | **0.598** | **0.696** | 0.440 | **0.684** | **0.791** | 0.426 | 0.412 | 0.275 |
| 1-Octanol | **-0.545** | **-0.595** | **-0.555** | **-0.619** | **-0.461** | **-0.532** | -0.343 | **-0.476** | **-0.540** | -0.279 | **-0.482** | -0.409 | -0.197 | -0.439 | -0.284 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,3-Butanediol | 0.080 | 0.146 | 0.278 | -0.299 | 0.086 | 0.200 | 0.288 | 0.042 | 0.086 | 0.379 | 0.220 | 0.333 | 0.266 | 0.282 | 0.283 |
| Phenylethyl alcohol | -0.396 | -0.432 | -0.240 | **-0.556** | -0.299 | -0.162 | -0.249 | -0.404 | -0.384 | -0.224 | -0.296 | -0.159 | -0.060 | -0.345 | -0.124 |
| Total alcohol | 0.062 | 0.044 | 0.213 | -0.291 | 0.150 | 0.124 | 0.072 | 0.049 | 0.078 | 0.157 | 0.177 | 0.306 | 0.297 | 0.081 | 0.076 |
| 3-Hydroxybutanal | 0.160 | 0.156 | 0.250 | -0.007 | 0.316 | 0.176 | 0.186 | 0.136 | 0.259 | -0.006 | 0.267 | 0.267 | 0.151 | 0.118 | 0.121 |
| Octanal | 0.342 | 0.319 | 0.216 | 0.104 | 0.176 | 0.145 | 0.312 | 0.323 | 0.230 | 0.308 | 0.204 | 0.243 | 0.069 | 0.171 | -0.022 |
| Total aldehyde | 0.344 | 0.321 | 0.217 | 0.105 | 0.178 | 0.147 | 0.314 | 0.324 | 0.232 | 0.308 | 0.206 | 0.245 | 0.071 | 0.172 | -0.021 |
| Benzaldehyde | -0.351 | -0.372 | -0.179 | -0.329 | -0.385 | -0.122 | -0.279 | -0.344 | -0.344 | -0.155 | -0.306 | -0.311 | -0.131 | -0.267 | -0.092 |
| Myristicin | **-0.513** | **-0.595** | -0.408 | **-0.500** | **-0.626** | -0.125 | **-0.571** | **-0.558** | **-0.616** | **-0.492** | **-0.635** | **-0.559** | **-0.540** | **-0.655** | **-0.475** |
| Benzeneacetaldehyde | 0.322 | 0.331 | **0.520** | 0.167 | 0.361 | 0.320 | 0.352 | 0.294 | 0.382 | 0.441 | **0.521** | **0.538** | **0.532** | **0.489** | **0.564** |
| Naphthalene | **0.815** | **0.852** | **0.954** | **0.553** | **0.710** | **0.865** | **0.575** | **0.684** | **0.764** | **0.526** | **0.751** | **0.799** | **0.534** | **0.556** | 0.390 |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | **0.815** | **0.852** | **0.954** | **0.553** | **0.710** | **0.865** | **0.575** | **0.684** | **0.764** | **0.526** | **0.751** | **0.799** | **0.534** | **0.556** | 0.390 |
| Benzyl alcohol | 0.139 | 0.156 | -0.047 | 0.432 | 0.382 | -0.140 | 0.072 | 0.217 | 0.303 | -0.198 | 0.258 | 0.069 | 0.033 | 0.181 | 0.034 |
| Total benzenoid | 0.087 | 0.094 | -0.055 | 0.396 | 0.342 | -0.143 | 0.019 | 0.165 | 0.265 | -0.242 | 0.236 | 0.038 | 0.025 | 0.149 | 0.043 |
| Ethyl butanoate | 0.349 | 0.376 | 0.199 | 0.249 | **0.636** | -0.023 | 0.389 | 0.422 | **0.530** | 0.123 | **0.532** | **0.459** | 0.329 | **0.446** | 0.226 |
| Ethyl 3-methylbutanoate | 0.038 | 0.022 | -0.059 | -0.099 | 0.269 | -0.203 | 0.151 | 0.115 | 0.178 | -0.055 | 0.198 | 0.196 | 0.181 | 0.121 | 0.055 |
| 3-Methylbutyl acetate | 0.331 | 0.359 | 0.120 | 0.391 | **0.566** | -0.126 | 0.351 | 0.435 | **0.503** | 0.143 | **0.487** | 0.349 | 0.304 | **0.459** | 0.239 |
| 3-Hydroxymandelic acid ethyl ester | 0.194 | 0.247 | 0.107 | 0.039 | 0.290 | -0.153 | 0.396 | 0.257 | 0.256 | 0.419 | 0.333 | 0.353 | 0.361 | 0.428 | 0.354 |
| Ethyl hexanoate | -0.036 | -0.054 | -0.219 | -0.123 | 0.203 | -0.279 | 0.005 | 0.036 | 0.076 | -0.207 | 0.053 | 0.013 | -0.108 | 0.000 | -0.167 |
| Hexyl acetate | 0.203 | 0.206 | -0.032 | 0.301 | 0.380 | -0.236 | 0.207 | 0.312 | 0.336 | 0.055 | 0.309 | 0.177 | 0.174 | 0.304 | 0.123 |
| Ethyl (E)-3-hexenoate | 0.267 | 0.321 | 0.311 | 0.126 | 0.439 | 0.034 | 0.416 | 0.328 | 0.387 | 0.378 | **0.498** | **0.508** | **0.565** | **0.474** | 0.434 |
| Ethyl lactate | -0.190 | -0.217 | -0.068 | **-0.470** | -0.228 | -0.044 | -0.131 | -0.196 | -0.248 | 0.011 | -0.181 | -0.043 | -0.024 | -0.197 | -0.176 |
| Propyl hexanoate | 0.060 | 0.041 | 0.002 | -0.266 | 0.200 | -0.091 | 0.153 | 0.070 | 0.093 | 0.053 | 0.120 | 0.211 | 0.130 | 0.037 | -0.038 |
| Ethyl octanoate | -0.336 | -0.387 | **-0.552** | -0.334 | -0.268 | **-0.572** | -0.280 | -0.233 | -0.322 | -0.249 | -0.340 | -0.379 | -0.337 | -0.262 | -0.349 |
| Ethyl 3-hydroxybutanoate | **-0.517** | **-0.608** | **-0.610** | -0.390 | **-0.506** | **-0.524** | **-0.464** | -0.437 | **-0.505** | **-0.478** | **-0.561** | **-0.612** | **-0.465** | **-0.533** | **-0.452** |
| Ethyl nonanoate | -0.129 | -0.073 | -0.245 | -0.132 | 0.234 | -0.368 | -0.024 | -0.046 | 0.051 | -0.153 | 0.072 | 0.015 | 0.020 | 0.054 | -0.041 |
| Isoamyl lactate | 0.106 | 0.172 | 0.381 | -0.328 | 0.048 | 0.336 | 0.271 | 0.026 | 0.048 | 0.432 | 0.172 | 0.398 | 0.371 | 0.190 | 0.263 |
| Methyl decanoate | -0.048 | -0.088 | -0.171 | -0.281 | 0.148 | -0.443 | 0.264 | 0.078 | 0.114 | 0.080 | 0.085 | 0.162 | 0.306 | 0.090 | 0.066 |
| Ethyl 2-furancarboxylate | -0.406 | **-0.473** | -0.356 | **-0.467** | **-0.490** | -0.244 | -0.336 | -0.397 | **-0.499** | -0.238 | **-0.466** | -0.378 | -0.253 | **-0.453** | -0.330 |
| Ethyl decanoate | -0.285 | -0.382 | **-0.526** | -0.202 | -0.305 | **-0.553** | -0.327 | -0.185 | -0.317 | -0.240 | -0.317 | -0.400 | -0.329 | -0.248 | -0.287 |
| Diethyl succinate | -0.422 | **-0.482** | -0.271 | **-0.481** | **-0.491** | -0.055 | **-0.468** | **-0.470** | **-0.493** | -0.334 | **-0.490** | -0.399 | -0.350 | **-0.503** | -0.344 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ethyl 9-decenoate | -0.324 | -0.427 | **-0.500** | -0.276 | -0.319 | **-0.488** | -0.393 | -0.241 | -0.344 | -0.285 | -0.337 | -0.406 | -0.343 | -0.284 | -0.283 |
| Ethyl benzeneacetate | 0.063 | 0.090 | 0.408 | -0.024 | -0.013 | **0.576** | -0.022 | -0.096 | -0.002 | 0.029 | 0.073 | 0.198 | 0.133 | -0.059 | 0.175 |
| 2-Phenethyl acetate | -0.173 | -0.147 | -0.083 | -0.334 | 0.062 | -0.146 | -0.062 | -0.135 | 0.040 | -0.032 | -0.006 | 0.043 | 0.101 | 0.080 | 0.106 |
| Ethyl dodecanoate | -0.026 | -0.036 | -0.124 | -0.048 | 0.057 | -0.200 | 0.117 | 0.032 | 0.012 | 0.020 | 0.006 | 0.051 | 0.159 | 0.005 | -0.027 |
| Total ester | 0.166 | 0.213 | 0.070 | 0.011 | 0.267 | -0.184 | 0.365 | 0.234 | 0.229 | 0.389 | 0.305 | 0.322 | 0.332 | 0.399 | 0.323 |
| 3-Hydroxy-2-butanone | -0.170 | -0.224 | -0.279 | -0.155 | -0.173 | -0.269 | -0.218 | -0.133 | -0.183 | -0.150 | -0.191 | -0.214 | -0.185 | -0.137 | -0.140 |
| Limonene | **0.711** | **0.774** | **0.884** | **0.497** | **0.638** | **0.813** | **0.543** | **0.588** | **0.684** | **0.486** | **0.678** | **0.733** | **0.514** | **0.507** | 0.390 |
| Terpinolene | **0.853** | **0.747** | **0.681** | **0.727** | **0.707** | **0.537** | **0.666** | **0.849** | **0.836** | 0.228 | **0.699** | **0.658** | 0.330 | 0.403 | 0.086 |
| Total terpene | **0.805** | **0.835** | **0.910** | **0.594** | **0.712** | **0.817** | **0.618** | **0.698** | **0.777** | **0.469** | **0.742** | **0.782** | **0.521** | **0.528** | 0.355 |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S6** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated Chardonnay wines (continued 3/7)

| Variables | Unknown quercetin conjugate | Unknown kaempferol conjugate | Total flavonoids | Caffeine | Ethoxyacetic acid | Acetic acid | Pterin-6-carboxylic acid | Hexanoic acid | Octanoic acid | Nonanoic acid | Total acid | 2-Methyl-1-propanol | 2-Pentanol | 1-Butanol | 2-Hexanol |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | **-0.611** | **-0.624** | **-0.760** | **-0.668** | -0.226 | -0.054 | **-0.567** | -0.005 | **0.507** | **0.459** | 0.433 | -0.361 | -0.381 | -0.183 | -0.184 |
| pH | **0.666** | **0.668** | **0.824** | **0.729** | 0.220 | 0.059 | **0.614** | -0.004 | **-0.540** | **-0.467** | **-0.459** | 0.400 | 0.389 | 0.179 | 0.198 |
| TPC | **0.817** | **0.840** | **0.964** | **0.752** | 0.167 | 0.276 | **0.856** | -0.316 | **-0.668** | **-0.539** | **-0.632** | 0.379 | 0.246 | 0.368 | 0.308 |
| TFC | **0.921** | **0.870** | **0.958** | **0.860** | 0.333 | 0.288 | **0.724** | -0.395 | **-0.606** | -0.442 | **-0.589** | 0.329 | 0.394 | 0.418 | 0.388 |
| DPPH | **0.826** | **0.852** | **0.979** | **0.756** | 0.186 | 0.256 | **0.827** | -0.275 | **-0.687** | **-0.549** | **-0.638** | 0.400 | 0.281 | 0.394 | 0.347 |
| FRAP | **0.809** | **0.658** | **0.835** | **0.962** | 0.260 | 0.068 | **0.569** | -0.354 | **-0.531** | -0.389 | **-0.518** | 0.188 | **0.555** | 0.198 | 0.158 |
| ABTS | **0.910** | **0.831** | **0.941** | **0.911** | 0.352 | 0.225 | **0.673** | -0.359 | **-0.533** | -0.350 | **-0.513** | 0.342 | **0.450** | **0.474** | 0.394 |
| L* | -0.200 | -0.406 | **-0.445** | 0.015 | 0.257 | -0.300 | **-0.597** | -0.009 | **0.696** | **0.708** | **0.611** | -0.304 | 0.304 | -0.079 | -0.178 |
| a* | 0.086 | 0.284 | 0.388 | -0.085 | -0.383 | 0.218 | **0.643** | 0.038 | **-0.591** | **-0.629** | **-0.517** | 0.262 | **-0.472** | -0.039 | -0.007 |
| b* | 0.333 | **0.517** | **0.560** | 0.095 | -0.229 | 0.253 | **0.644** | -0.065 | **-0.756** | **-0.779** | **-0.683** | 0.281 | -0.200 | 0.095 | 0.156 |
| Quinic acid | **0.450** | **0.570** | **0.703** | 0.314 | -0.207 | 0.309 | **0.866** | -0.159 | **-0.726** | **-0.702** | **-0.669** | 0.304 | -0.145 | 0.144 | 0.127 |
| Gallic acid | **0.872** | **0.766** | **0.877** | **0.819** | 0.303 | 0.233 | **0.618** | -0.400 | **-0.458** | -0.332 | **-0.469** | 0.267 | 0.338 | 0.372 | 0.273 |
| Chlorogenic acid | **0.849** | **0.789** | **0.935** | **0.902** | 0.302 | 0.198 | **0.739** | -0.327 | **-0.543** | -0.377 | **-0.517** | 0.340 | 0.406 | 0.337 | 0.290 |
| Total phenolic acids | **0.704** | **0.745** | **0.892** | **0.597** | -0.008 | 0.317 | **0.895** | -0.284 | **-0.721** | **-0.644** | **-0.683** | 0.340 | 0.058 | 0.264 | 0.214 |
| Gallocatechin | **0.899** | **0.890** | **0.986** | **0.807** | 0.272 | 0.279 | **0.762** | -0.343 | **-0.685** | **-0.510** | **-0.643** | 0.367 | 0.314 | 0.379 | 0.339 |
| Epigallocatechin | **0.902** | **0.823** | **0.934** | **0.919** | 0.360 | 0.228 | **0.678** | -0.370 | **-0.515** | -0.314 | **-0.496** | 0.333 | **0.445** | 0.429 | 0.344 |
| Procyanidin B1 | **0.959** | **0.903** | **0.950** | **0.836** | 0.377 | 0.312 | **0.682** | -0.420 | **-0.588** | -0.404 | **-0.575** | 0.330 | 0.378 | **0.458** | 0.412 |
| Catechin | **0.850** | **0.912** | **0.991** | **0.685** | 0.211 | 0.414 | **0.881** | -0.286 | **-0.706** | **-0.524** | **-0.647** | **0.470** | 0.152 | **0.486** | 0.418 |
| Procyanidin B2 | **0.646** | 0.393 | **0.579** | **0.865** | 0.170 | -0.245 | 0.217 | -0.407 | -0.392 | -0.364 | -0.435 | -0.094 | **0.660** | -0.016 | 0.020 |
| Epicatechin | **0.775** | **0.869** | **0.818** | **0.708** | **0.551** | 0.165 | **0.501** | -0.198 | -0.396 | -0.219 | -0.355 | 0.427 | 0.342 | 0.318 | 0.363 |
| Epigallocatechin gallate | **0.611** | **0.698** | **0.824** | **0.504** | -0.044 | 0.309 | **0.895** | -0.237 | **-0.700** | **-0.646** | **-0.657** | 0.345 | -0.003 | 0.208 | 0.182 |
| Procyanidin B1 3-O-gallate | **0.649** | **0.640** | **0.661** | **0.680** | 0.385 | 0.272 | **0.491** | -0.299 | **-0.446** | -0.186 | -0.405 | 0.273 | 0.394 | 0.181 | 0.204 |
| Gallocatechin gallate | **0.862** | **0.721** | **0.823** | **0.946** | 0.433 | 0.164 | **0.491** | -0.343 | -0.390 | -0.182 | -0.378 | 0.283 | **0.562** | **0.452** | 0.362 |
| Quercetin 3-O-di-galacoside/glucoside | **0.842** | **0.818** | **0.871** | **0.884** | **0.475** | 0.156 | **0.549** | -0.303 | **-0.461** | -0.252 | -0.431 | 0.343 | **0.515** | 0.356 | 0.338 |
| Myricetin 3-O-galactoside 1 | **0.784** | **0.704** | **0.639** | 0.368 | 0.283 | **0.565** | **0.471** | -0.378 | -0.435 | -0.198 | -0.419 | 0.314 | 0.099 | **0.754** | **0.601** |
| Epicatechin gallate | **0.836** | **0.889** | **0.854** | **0.715** | **0.487** | 0.281 | **0.561** | -0.266 | **-0.481** | -0.279 | -0.441 | 0.440 | 0.319 | 0.442 | 0.413 |
| Rutin | **0.777** | **0.910** | **0.888** | **0.642** | **0.467** | 0.411 | **0.727** | -0.190 | **-0.536** | -0.279 | **-0.458** | **0.554** | 0.193 | **0.497** | **0.496** |
| Quercetin 3-O-galactoside | **0.582** | **0.628** | **0.599** | 0.382 | 0.394 | 0.296 | 0.392 | -0.047 | -0.381 | -0.119 | -0.289 | **0.460** | 0.192 | **0.495** | **0.469** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kaempferol 3-O-rutinoside 2 | **0.826** | **0.781** | **0.666** | **0.523** | 0.438 | 0.366 | 0.356 | -0.393 | -0.415 | -0.218 | -0.414 | 0.286 | 0.264 | **0.594** | **0.519** |
| Kaempferol 3-O-glucoside | 0.441 | **0.495** | 0.396 | 0.135 | 0.211 | 0.251 | 0.255 | -0.209 | -0.376 | -0.216 | -0.345 | 0.206 | 0.028 | 0.261 | 0.287 |
| Unknown quercetin conjugate | **1** | **0.882** | **0.889** | **0.771** | 0.369 | 0.359 | **0.582** | **-0.530** | **-0.574** | -0.400 | **-0.591** | 0.244 | 0.400 | **0.560** | **0.484** |
| Unknown kaempferol conjugate | **0.882** | **1** | **0.911** | **0.591** | **0.446** | **0.450** | **0.725** | -0.346 | **-0.555** | -0.357 | **-0.525** | **0.465** | 0.178 | **0.591** | **0.553** |
| Total flavonoids | **0.889** | **0.911** | **1** | **0.771** | 0.261 | 0.363 | **0.836** | -0.319 | **-0.680** | **-0.491** | **-0.631** | 0.436 | 0.247 | **0.467** | 0.402 |
| Caffeine | **0.771** | **0.591** | **0.771** | **1** | 0.345 | 0.003 | **0.448** | -0.327 | -0.397 | -0.232 | -0.390 | 0.166 | **0.642** | 0.204 | 0.171 |
| Ethoxyacetic acid | 0.369 | **0.446** | 0.261 | 0.345 | **1** | 0.254 | 0.014 | 0.121 | 0.379 | **0.508** | 0.390 | **0.492** | 0.357 | 0.317 | **0.460** |
| Acetic acid | 0.359 | **0.450** | 0.363 | 0.003 | 0.254 | **1** | **0.557** | 0.015 | -0.242 | -0.151 | -0.187 | **0.605** | -0.382 | **0.582** | **0.532** |
| Pterin-6-carboxylic acid | **0.582** | **0.725** | **0.836** | **0.448** | 0.014 | **0.557** | **1** | -0.117 | **-0.662** | **-0.508** | **-0.574** | **0.562** | -0.140 | 0.417 | 0.318 |
| Hexanoic acid | **-0.530** | -0.346 | -0.319 | -0.327 | 0.121 | 0.015 | -0.117 | **1** | **0.528** | 0.369 | **0.666** | **0.567** | -0.233 | -0.147 | -0.046 |
| Octanoic acid | **-0.574** | **-0.555** | **-0.680** | -0.397 | 0.379 | -0.242 | **-0.662** | **0.528** | **1** | **0.896** | **0.980** | 0.017 | -0.020 | -0.196 | -0.098 |
| Nonanoic acid | -0.400 | -0.357 | **-0.491** | -0.232 | **0.508** | -0.151 | **-0.508** | 0.369 | **0.896** | **1** | **0.896** | 0.069 | -0.014 | -0.067 | -0.016 |
| Total acid | **-0.591** | **-0.525** | **-0.631** | -0.390 | 0.390 | -0.187 | **-0.574** | **0.666** | **0.980** | **0.896** | **1** | 0.163 | -0.072 | -0.178 | -0.078 |
| 2-Methyl-1-propanol | 0.244 | **0.465** | 0.436 | 0.166 | **0.492** | **0.605** | **0.562** | **0.567** | 0.017 | 0.069 | 0.163 | **1** | -0.194 | **0.480** | **0.524** |
| 2-Pentanol | 0.400 | 0.178 | 0.247 | **0.642** | 0.357 | -0.382 | -0.140 | -0.233 | -0.020 | -0.014 | -0.072 | -0.194 | **1** | -0.028 | 0.016 |
| 1-Butanol | **0.560** | **0.591** | **0.467** | 0.204 | 0.317 | **0.582** | 0.417 | -0.147 | -0.196 | -0.067 | -0.178 | **0.480** | -0.028 | **1** | **0.913** |
| 2-Hexanol | **0.484** | **0.553** | 0.402 | 0.171 | **0.460** | **0.532** | 0.318 | -0.046 | -0.098 | -0.016 | -0.078 | **0.524** | 0.016 | **0.913** | **1** |
| 3-Methyl-1-butanol | -0.107 | 0.114 | 0.138 | -0.084 | 0.220 | **0.546** | 0.393 | **0.754** | 0.100 | 0.061 | 0.260 | **0.899** | -0.384 | 0.234 | 0.293 |
| 1-(2-Aminoethylamino)-2-propanol | **0.774** | **0.791** | **0.895** | **0.878** | 0.307 | 0.183 | **0.703** | -0.260 | **-0.532** | -0.305 | **-0.479** | 0.355 | 0.419 | 0.335 | 0.264 |
| 2-Octen-4-ol | **0.857** | **0.849** | **0.946** | **0.878** | 0.380 | 0.296 | **0.752** | -0.261 | **-0.520** | -0.312 | **-0.472** | **0.456** | 0.395 | **0.472** | 0.394 |
| 3-Methyl-1-pentanol | -0.225 | 0.005 | -0.010 | -0.206 | 0.268 | 0.419 | 0.216 | **0.805** | 0.194 | 0.203 | 0.364 | **0.809** | -0.315 | 0.123 | 0.222 |
| (E)-3-Hexen-1-ol | 0.186 | 0.067 | 0.082 | 0.282 | 0.081 | -0.221 | -0.119 | -0.198 | -0.020 | -0.016 | -0.064 | -0.196 | 0.335 | -0.040 | -0.015 |
| 1-Hexanol | 0.219 | 0.204 | 0.116 | 0.392 | **0.535** | **-0.459** | -0.312 | 0.082 | 0.191 | 0.133 | 0.174 | -0.023 | **0.725** | -0.143 | 0.022 |
| 2-Methyl-4-heptanol | 0.286 | 0.228 | 0.116 | 0.238 | 0.381 | -0.239 | -0.190 | -0.208 | 0.037 | 0.135 | 0.004 | -0.108 | 0.398 | -0.098 | 0.021 |
| 2-Ethyl-1-hexanol | 0.038 | 0.198 | 0.317 | -0.133 | -0.396 | **0.558** | **0.732** | 0.220 | **-0.500** | **-0.530** | -0.392 | **0.491** | **-0.534** | 0.207 | 0.131 |
| Linalool | **0.672** | **0.806** | **0.922** | **0.573** | 0.112 | 0.388 | **0.942** | -0.154 | **-0.654** | **-0.516** | **-0.580** | **0.509** | 0.020 | 0.343 | 0.287 |
| 1-Octanol | **-0.613** | **-0.502** | **-0.580** | **-0.526** | 0.161 | 0.190 | -0.321 | **0.737** | **0.705** | **0.649** | **0.782** | 0.396 | -0.389 | -0.053 | 0.007 |
| 2,3-Butanediol | 0.170 | 0.272 | 0.228 | -0.062 | 0.159 | **0.879** | **0.456** | 0.165 | -0.222 | -0.179 | -0.145 | **0.530** | -0.335 | 0.282 | 0.205 |
| Phenylethyl alcohol | **-0.497** | -0.305 | -0.299 | -0.440 | 0.046 | 0.388 | 0.061 | **0.843** | 0.391 | 0.302 | **0.525** | **0.652** | **-0.541** | 0.022 | 0.075 |
| Total alcohol | -0.020 | 0.187 | 0.167 | -0.064 | 0.320 | **0.598** | 0.379 | **0.710** | 0.138 | 0.120 | 0.287 | **0.931** | -0.327 | 0.433 | **0.493** |
| 3-Hydroxybutanal | 0.082 | 0.290 | 0.234 | 0.119 | -0.023 | 0.013 | 0.229 | 0.042 | -0.234 | -0.093 | -0.165 | 0.115 | -0.042 | 0.034 | -0.014 |
| Octanal | 0.337 | 0.293 | 0.241 | 0.270 | **0.597** | **0.562** | 0.249 | -0.216 | 0.133 | 0.293 | 0.102 | 0.298 | 0.048 | 0.211 | 0.217 |
| Total aldehyde | 0.338 | 0.295 | 0.243 | 0.271 | **0.598** | **0.562** | 0.251 | -0.214 | 0.133 | 0.293 | 0.102 | 0.301 | 0.049 | 0.211 | 0.217 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzaldehyde | -0.349 | -0.296 | -0.232 | -0.355 | **-0.671** | -0.004 | -0.013 | 0.129 | -0.240 | -0.280 | -0.189 | -0.157 | -0.358 | -0.115 | -0.255 |
| Myristicin | **-0.655** | **-0.591** | **-0.466** | **-0.515** | **-0.537** | 0.041 | -0.032 | **0.544** | 0.232 | 0.044 | 0.292 | 0.148 | **-0.573** | -0.198 | -0.271 |
| Benzeneacetaldehyde | 0.396 | **0.467** | **0.485** | 0.196 | -0.073 | 0.289 | 0.443 | -0.170 | **-0.584** | **-0.522** | **-0.539** | 0.310 | -0.038 | **0.546** | **0.575** |
| Naphthalene | **0.786** | **0.819** | **0.944** | **0.677** | 0.069 | 0.321 | **0.838** | -0.261 | **-0.788** | **-0.683** | **-0.729** | 0.379 | 0.224 | 0.379 | 0.338 |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | **0.786** | **0.819** | **0.944** | **0.677** | 0.069 | 0.321 | **0.838** | -0.261 | **-0.788** | **-0.683** | **-0.729** | 0.379 | 0.224 | 0.379 | 0.338 |
| Benzyl alcohol | 0.132 | 0.094 | 0.024 | 0.280 | 0.237 | **-0.694** | -0.396 | -0.177 | 0.109 | 0.058 | 0.042 | -0.373 | **0.555** | -0.260 | -0.155 |
| Total benzenoid | 0.072 | 0.054 | 0.004 | 0.226 | 0.093 | **-0.727** | -0.384 | -0.135 | 0.036 | -0.043 | -0.019 | -0.375 | **0.492** | -0.253 | -0.161 |
| Ethyl butanoate | 0.330 | 0.435 | 0.256 | 0.385 | **0.855** | -0.056 | -0.049 | 0.155 | 0.314 | 0.375 | 0.326 | 0.369 | **0.498** | 0.203 | 0.354 |
| Ethyl 3-methylbutanoate | -0.043 | 0.088 | -0.032 | 0.095 | **0.791** | 0.145 | -0.097 | **0.499** | **0.539** | **0.561** | **0.597** | **0.535** | 0.201 | 0.030 | 0.138 |
| 3-Methylbutyl acetate | 0.372 | 0.361 | 0.197 | 0.417 | **0.758** | -0.256 | -0.235 | -0.114 | 0.272 | 0.338 | 0.226 | 0.011 | **0.643** | 0.086 | 0.220 |
| 3-Hydroxymandelic acid ethyl ester | 0.329 | 0.324 | 0.138 | 0.162 | **0.755** | 0.398 | -0.051 | -0.220 | 0.242 | **0.445** | 0.205 | 0.157 | 0.120 | 0.297 | 0.418 |
| Ethyl hexanoate | -0.116 | 0.014 | -0.179 | 0.006 | **0.737** | -0.048 | -0.258 | 0.424 | **0.714** | **0.690** | **0.723** | 0.393 | 0.184 | 0.076 | 0.224 |
| Hexyl acetate | 0.233 | 0.204 | 0.043 | 0.303 | **0.724** | -0.320 | -0.344 | -0.089 | 0.431 | **0.477** | 0.367 | -0.084 | **0.609** | 0.023 | 0.147 |
| Ethyl (E)-3-hexenoate | 0.333 | 0.376 | 0.322 | 0.262 | **0.572** | 0.402 | 0.152 | 0.326 | 0.060 | 0.091 | 0.138 | **0.552** | 0.137 | 0.330 | **0.482** |
| Ethyl lactate | -0.249 | -0.116 | -0.119 | -0.286 | 0.095 | **0.694** | 0.230 | **0.546** | 0.183 | 0.164 | 0.287 | **0.656** | **-0.547** | 0.233 | 0.230 |
| Propyl hexanoate | -0.034 | 0.161 | 0.004 | -0.010 | **0.744** | 0.364 | 0.088 | **0.481** | **0.544** | **0.647** | **0.615** | **0.687** | -0.064 | 0.233 | 0.336 |
| Ethyl octanoate | -0.356 | -0.338 | **-0.520** | -0.283 | **0.554** | 0.016 | **-0.505** | 0.233 | **0.877** | **0.874** | **0.825** | 0.056 | -0.044 | -0.048 | 0.031 |
| Ethyl 3-hydroxybutanoate | **-0.615** | **-0.653** | **-0.612** | -0.414 | -0.191 | -0.097 | -0.436 | **0.455** | **0.485** | 0.348 | **0.504** | 0.055 | -0.273 | -0.237 | -0.211 |
| Ethyl nonanoate | -0.091 | 0.059 | -0.213 | -0.091 | **0.795** | -0.076 | -0.406 | 0.264 | **0.651** | **0.644** | **0.633** | 0.198 | 0.213 | -0.006 | 0.209 |
| Isoamyl lactate | 0.153 | 0.311 | 0.308 | -0.077 | 0.051 | **0.878** | **0.618** | 0.246 | -0.302 | -0.200 | -0.183 | **0.640** | **-0.458** | 0.426 | 0.391 |
| Methyl decanoate | -0.121 | 0.016 | -0.146 | -0.007 | **0.576** | 0.059 | -0.211 | 0.265 | **0.457** | **0.716** | **0.520** | 0.277 | 0.120 | 0.132 | 0.217 |
| Ethyl 2-furancarboxylate | **-0.512** | **-0.464** | -0.396 | -0.420 | -0.367 | 0.178 | -0.061 | **0.497** | 0.184 | 0.123 | 0.266 | 0.256 | **-0.519** | -0.032 | -0.086 |
| Ethyl decanoate | -0.331 | -0.376 | **-0.485** | -0.210 | 0.408 | -0.198 | **-0.528** | 0.082 | **0.816** | **0.834** | **0.740** | -0.173 | -0.006 | -0.148 | -0.150 |
| Diethyl succinate | **-0.529** | **-0.447** | -0.334 | **-0.477** | **-0.507** | 0.164 | 0.069 | **0.493** | 0.091 | -0.044 | 0.168 | 0.234 | **-0.627** | -0.105 | -0.183 |
| Ethyl 9-decenoate | -0.393 | -0.414 | **-0.476** | -0.266 | 0.340 | -0.037 | -0.428 | 0.295 | **0.780** | **0.747** | **0.747** | 0.028 | -0.170 | -0.171 | -0.202 |
| Ethyl benzeneacetate | 0.022 | 0.139 | 0.327 | -0.047 | **-0.545** | 0.211 | **0.592** | 0.150 | **-0.620** | **-0.714** | **-0.528** | 0.219 | -0.345 | -0.008 | -0.077 |
| 2-Phenethyl acetate | -0.130 | -0.007 | -0.104 | -0.208 | 0.285 | 0.157 | -0.045 | 0.222 | 0.266 | 0.292 | 0.292 | 0.221 | -0.130 | 0.065 | 0.111 |
| Ethyl dodecanoate | -0.063 | 0.018 | -0.101 | -0.015 | 0.273 | -0.233 | -0.164 | 0.181 | 0.390 | **0.519** | 0.413 | 0.077 | 0.081 | 0.115 | 0.216 |
| Total ester | 0.293 | 0.293 | 0.102 | 0.137 | **0.771** | 0.393 | -0.077 | -0.182 | 0.295 | **0.491** | 0.259 | 0.171 | 0.105 | 0.288 | 0.411 |
| 3-Hydroxy-2-butanone | -0.214 | -0.206 | -0.262 | -0.147 | 0.153 | -0.303 | -0.273 | 0.100 | **0.575** | **0.613** | **0.536** | -0.167 | -0.096 | -0.065 | -0.069 |
| Limonene | **0.720** | **0.765** | **0.866** | **0.589** | 0.022 | 0.325 | **0.780** | -0.236 | **-0.798** | **-0.727** | **-0.740** | 0.342 | 0.235 | 0.357 | 0.348 |
| Terpinolene | **0.631** | **0.606** | **0.746** | **0.898** | 0.259 | -0.041 | **0.519** | -0.218 | -0.420 | -0.234 | -0.380 | 0.211 | **0.542** | 0.158 | 0.113 |
| Total terpene | **0.761** | **0.792** | **0.910** | **0.711** | 0.108 | 0.274 | **0.783** | -0.237 | **-0.757** | **-0.658** | **-0.698** | 0.362 | 0.328 | 0.342 | 0.333 |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S6** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated Chardonnay wines

(continued 4/7)

| Variables | 3-Methyl-1-butanol | 1-(2-Aminoethylamino)-2-propanol | 2-Octen-4-ol | 3-Methyl-1-pentanol | (E)-3-Hexen-1-ol | 1-Hexanol | 2-Methyl-4-heptanol | 2-Ethyl-1-hexanol | Linalool | 1-Octanol | 2,3-Butanediol | Phenylethyl alcohol | Total alcohol | 3-Hydroxybutanal | Octanal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | -0.145 | **-0.680** | **-0.718** | -0.133 | -0.176 | -0.418 | -0.201 | -0.201 | **-0.687** | **0.551** | -0.147 | 0.220 | -0.141 | -0.134 | 0.101 |
| pH | 0.180 | **0.748** | **0.776** | 0.154 | 0.171 | 0.399 | 0.286 | 0.225 | **0.745** | **-0.541** | 0.113 | -0.214 | 0.167 | 0.178 | -0.089 |
| TPC | 0.105 | **0.873** | **0.916** | -0.091 | 0.089 | 0.084 | -0.003 | 0.372 | **0.944** | **-0.598** | 0.133 | -0.305 | 0.114 | 0.192 | 0.232 |
| TFC | 0.011 | **0.902** | **0.950** | -0.128 | 0.271 | 0.251 | 0.166 | 0.157 | **0.829** | **-0.607** | 0.130 | -0.419 | 0.051 | 0.142 | 0.321 |
| DPPH | 0.120 | **0.866** | **0.910** | -0.031 | 0.051 | 0.144 | 0.063 | 0.341 | **0.937** | **-0.621** | 0.139 | -0.303 | 0.137 | 0.243 | 0.143 |
| FRAP | -0.065 | **0.891** | **0.898** | -0.198 | 0.307 | 0.331 | 0.183 | 0.035 | **0.670** | **-0.592** | 0.007 | -0.442 | -0.060 | 0.097 | 0.250 |
| ABTS | 0.023 | **0.925** | **0.974** | -0.147 | 0.171 | 0.256 | 0.131 | 0.076 | **0.786** | **-0.575** | 0.075 | -0.400 | 0.077 | 0.175 | 0.284 |
| L* | -0.307 | -0.207 | -0.201 | -0.293 | 0.264 | 0.189 | -0.039 | **-0.691** | **-0.577** | 0.338 | -0.325 | -0.102 | -0.248 | -0.286 | 0.287 |
| a* | 0.288 | 0.124 | 0.138 | 0.219 | -0.280 | -0.393 | -0.100 | **0.775** | **0.615** | -0.286 | 0.234 | 0.172 | 0.197 | 0.169 | -0.226 |
| b* | 0.230 | 0.308 | 0.315 | 0.185 | -0.226 | -0.086 | 0.037 | **0.645** | **0.670** | **-0.474** | 0.279 | -0.027 | 0.172 | 0.275 | -0.288 |
| Quinic acid | 0.187 | **0.514** | **0.539** | 0.058 | -0.051 | -0.226 | -0.183 | **0.731** | **0.851** | **-0.475** | 0.240 | -0.074 | 0.137 | 0.157 | 0.015 |
| Gallic acid | -0.019 | **0.802** | **0.875** | -0.254 | 0.143 | 0.150 | 0.118 | 0.057 | **0.759** | **-0.564** | 0.079 | -0.391 | 0.008 | 0.056 | 0.371 |
| Chlorogenic acid | 0.042 | **0.921** | **0.956** | -0.123 | 0.195 | 0.209 | 0.107 | 0.171 | **0.841** | **-0.560** | 0.057 | -0.357 | 0.064 | 0.149 | 0.320 |
| Total phenolic acids | 0.128 | **0.732** | **0.778** | -0.060 | 0.034 | -0.084 | -0.076 | **0.547** | **0.944** | **-0.585** | 0.201 | -0.224 | 0.105 | 0.145 | 0.172 |
| Gallocatechin | 0.070 | **0.882** | **0.924** | -0.055 | 0.102 | 0.213 | 0.211 | 0.234 | **0.877** | **-0.642** | 0.177 | -0.366 | 0.088 | 0.222 | 0.195 |
| Epigallocatechin | 0.019 | **0.938** | **0.980** | -0.149 | 0.207 | 0.239 | 0.144 | 0.067 | **0.785** | **-0.545** | 0.080 | -0.396 | 0.062 | 0.160 | 0.342 |
| Procyanidin B1 | -0.006 | **0.876** | **0.932** | -0.137 | 0.184 | 0.264 | 0.217 | 0.105 | **0.787** | **-0.595** | 0.146 | -0.432 | 0.044 | 0.156 | 0.319 |
| Catechin | 0.187 | **0.852** | **0.908** | 0.042 | 0.034 | 0.040 | 0.062 | 0.411 | **0.950** | **-0.555** | 0.278 | -0.240 | 0.213 | 0.250 | 0.216 |
| Procyanidin B2 | -0.293 | **0.650** | **0.635** | -0.391 | 0.391 | **0.458** | 0.319 | -0.203 | 0.371 | **-0.619** | -0.299 | **-0.556** | -0.291 | -0.007 | 0.104 |
| Epicatechin | 0.124 | **0.791** | **0.807** | 0.043 | 0.067 | **0.495** | 0.438 | -0.080 | **0.676** | **-0.461** | 0.086 | -0.299 | 0.150 | 0.316 | 0.176 |
| Epigallocatechin gallate | 0.158 | **0.674** | **0.703** | -0.022 | -0.010 | -0.116 | -0.097 | **0.612** | **0.918** | **-0.532** | 0.200 | -0.162 | 0.124 | 0.176 | 0.145 |
| Procyanidin B1 3-O-gallate | 0.073 | **0.718** | **0.699** | 0.088 | 0.146 | 0.225 | **0.572** | 0.018 | **0.509** | -0.343 | 0.288 | -0.249 | 0.072 | 0.186 | 0.312 |
| Gallocatechin gallate | -0.017 | **0.891** | **0.929** | -0.161 | 0.224 | 0.337 | 0.192 | -0.117 | **0.598** | **-0.476** | 0.042 | -0.404 | 0.049 | 0.136 | 0.323 |
| Quercetin 3-O-di-galacoside/glucoside | 0.044 | **0.893** | **0.911** | -0.071 | 0.063 | 0.412 | 0.365 | -0.081 | **0.696** | **-0.540** | 0.086 | -0.384 | 0.078 | 0.259 | 0.230 |
| Myricetin 3-O-galactoside 1 | 0.026 | **0.449** | **0.577** | 0.032 | 0.069 | -0.093 | 0.179 | 0.158 | 0.440 | -0.279 | 0.379 | -0.224 | 0.157 | -0.006 | 0.308 |
| Epicatechin gallate | 0.136 | **0.804** | **0.845** | 0.050 | 0.116 | 0.359 | **0.454** | 0.004 | **0.684** | **-0.482** | 0.220 | -0.296 | 0.177 | 0.267 | 0.204 |
| Rutin | 0.262 | **0.809** | **0.855** | 0.212 | 0.029 | 0.205 | 0.338 | 0.207 | **0.791** | -0.409 | 0.333 | -0.159 | 0.306 | 0.267 | 0.243 |
| Quercetin 3-O-galactoside | 0.221 | **0.481** | **0.548** | 0.354 | 0.008 | 0.200 | 0.355 | 0.105 | 0.426 | -0.197 | 0.266 | -0.060 | 0.297 | 0.151 | 0.069 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kaempferol 3-O-rutinoside 2 | -0.019 | **0.540** | **0.628** | -0.041 | 0.041 | 0.240 | **0.550** | -0.089 | 0.412 | -0.439 | 0.282 | -0.345 | 0.081 | 0.118 | 0.171 |
| Kaempferol 3-O-glucoside | 0.038 | 0.199 | 0.246 | 0.189 | -0.023 | 0.065 | **0.730** | 0.082 | 0.275 | -0.284 | 0.283 | -0.124 | 0.076 | 0.121 | -0.022 |
| Unknown quercetin conjugate | -0.107 | **0.774** | **0.857** | -0.225 | 0.186 | 0.219 | 0.286 | 0.038 | **0.672** | **-0.613** | 0.170 | **-0.497** | -0.020 | 0.082 | 0.337 |
| Unknown kaempferol conjugate | 0.114 | **0.791** | **0.849** | 0.005 | 0.067 | 0.204 | 0.228 | 0.198 | **0.806** | **-0.502** | 0.272 | -0.305 | 0.187 | 0.290 | 0.293 |
| Total flavonoids | 0.138 | **0.895** | **0.946** | -0.010 | 0.082 | 0.116 | 0.116 | 0.317 | **0.922** | **-0.580** | 0.228 | -0.299 | 0.167 | 0.234 | 0.241 |
| Caffeine | -0.084 | **0.878** | **0.878** | -0.206 | 0.282 | 0.392 | 0.238 | -0.133 | **0.573** | **-0.526** | -0.062 | -0.440 | -0.064 | 0.119 | 0.270 |
| Ethoxyacetic acid | 0.220 | 0.307 | 0.380 | 0.268 | 0.081 | **0.535** | 0.381 | -0.396 | 0.112 | 0.161 | 0.159 | 0.046 | 0.320 | -0.023 | **0.597** |
| Acetic acid | **0.546** | 0.183 | 0.296 | 0.419 | -0.221 | **-0.459** | -0.239 | **0.558** | 0.388 | 0.190 | **0.879** | 0.388 | **0.598** | 0.013 | **0.562** |
| Pterin-6-carboxylic acid | 0.393 | **0.703** | **0.752** | 0.216 | -0.119 | -0.312 | -0.190 | **0.732** | **0.942** | -0.321 | **0.456** | 0.061 | 0.379 | 0.229 | 0.249 |
| Hexanoic acid | **0.754** | -0.260 | -0.261 | **0.805** | -0.198 | 0.082 | -0.208 | 0.220 | -0.154 | **0.737** | 0.165 | **0.843** | **0.710** | 0.042 | -0.216 |
| Octanoic acid | 0.100 | **-0.532** | **-0.520** | 0.194 | -0.020 | 0.191 | 0.037 | **-0.500** | **-0.654** | **0.705** | -0.222 | 0.391 | 0.138 | -0.234 | 0.133 |
| Nonanoic acid | 0.061 | -0.305 | -0.312 | 0.203 | -0.016 | 0.133 | 0.135 | **-0.530** | **-0.516** | **0.649** | -0.179 | 0.302 | 0.120 | -0.093 | 0.293 |
| Total acid | 0.260 | **-0.479** | **-0.472** | 0.364 | -0.064 | 0.174 | 0.004 | -0.392 | **-0.580** | **0.782** | -0.145 | **0.525** | 0.287 | -0.165 | 0.102 |
| 2-Methyl-1-propanol | **0.899** | 0.355 | **0.456** | **0.809** | -0.196 | -0.023 | -0.108 | **0.491** | **0.509** | 0.396 | **0.530** | **0.652** | **0.931** | 0.115 | 0.298 |
| 2-Pentanol | -0.384 | 0.419 | 0.395 | -0.315 | 0.335 | **0.725** | 0.398 | **-0.534** | 0.020 | -0.389 | -0.335 | **-0.541** | -0.327 | -0.042 | 0.048 |
| 1-Butanol | 0.234 | 0.335 | **0.472** | 0.123 | -0.040 | -0.143 | -0.098 | 0.207 | 0.343 | -0.053 | 0.282 | 0.022 | 0.433 | 0.034 | 0.211 |
| 2-Hexanol | 0.293 | 0.264 | 0.394 | 0.222 | -0.015 | 0.022 | 0.021 | 0.131 | 0.287 | 0.007 | 0.205 | 0.075 | **0.493** | -0.014 | 0.217 |
| 3-Methyl-1-butanol | **1** | 0.085 | 0.153 | **0.897** | -0.296 | -0.191 | -0.291 | **0.573** | 0.295 | **0.598** | **0.572** | **0.870** | **0.969** | 0.058 | 0.139 |
| 1-(2-Aminoethylamino)-2-propanol | 0.085 | **1** | **0.960** | -0.043 | 0.215 | 0.264 | 0.114 | 0.133 | **0.783** | **-0.480** | 0.086 | -0.312 | 0.106 | 0.418 | 0.235 |
| 2-Octen-4-ol | 0.153 | **0.960** | **1** | -0.006 | 0.183 | 0.223 | 0.099 | 0.167 | **0.831** | **-0.472** | 0.170 | -0.284 | 0.194 | 0.206 | 0.325 |
| 3-Methyl-1-pentanol | **0.897** | -0.043 | -0.006 | **1** | -0.173 | -0.072 | -0.075 | **0.455** | 0.110 | **0.672** | **0.501** | **0.853** | **0.877** | 0.100 | 0.065 |
| (E)-3-Hexen-1-ol | -0.296 | 0.215 | 0.183 | -0.173 | **1** | 0.381 | 0.233 | -0.282 | -0.062 | -0.138 | -0.277 | -0.356 | -0.262 | -0.100 | 0.092 |
| 1-Hexanol | -0.191 | 0.264 | 0.223 | -0.072 | 0.381 | **1** | **0.491** | **-0.639** | -0.074 | -0.215 | -0.378 | -0.364 | -0.162 | 0.082 | -0.138 |
| 2-Methyl-4-heptanol | -0.291 | 0.114 | 0.099 | -0.075 | 0.233 | **0.491** | **1** | **-0.447** | -0.088 | -0.248 | -0.176 | -0.354 | -0.263 | 0.014 | -0.033 |
| 2-Ethyl-1-hexanol | **0.573** | 0.133 | 0.167 | **0.455** | -0.282 | **-0.639** | **-0.447** | **1** | **0.545** | 0.076 | **0.542** | **0.484** | **0.518** | 0.147 | -0.027 |
| Linalool | 0.295 | **0.783** | **0.831** | 0.110 | -0.062 | -0.074 | -0.088 | **0.545** | **1** | **-0.466** | 0.286 | -0.097 | 0.274 | 0.229 | 0.203 |
| 1-Octanol | **0.598** | **-0.480** | **-0.472** | **0.672** | -0.138 | -0.215 | -0.248 | 0.076 | **-0.466** | **1** | 0.190 | **0.845** | **0.601** | -0.090 | 0.172 |
| 2,3-Butanediol | **0.572** | 0.086 | 0.170 | **0.501** | -0.277 | -0.378 | -0.176 | **0.542** | 0.286 | 0.190 | **1** | **0.447** | **0.547** | 0.006 | 0.405 |
| Phenylethyl alcohol | **0.870** | -0.312 | -0.284 | **0.853** | -0.356 | -0.364 | -0.354 | **0.484** | -0.097 | **0.845** | **0.447** | **1** | **0.836** | 0.014 | 0.063 |
| Total alcohol | **0.969** | 0.106 | 0.194 | **0.877** | -0.262 | -0.162 | -0.263 | **0.518** | 0.274 | **0.601** | **0.547** | **0.836** | **1** | 0.057 | 0.173 |
| 3-Hydroxybutanal | 0.058 | 0.418 | 0.206 | 0.100 | -0.100 | 0.082 | 0.014 | 0.147 | 0.229 | -0.090 | 0.006 | 0.014 | 0.057 | **1** | -0.217 |
| Octanal | 0.139 | 0.235 | 0.325 | 0.065 | 0.092 | -0.138 | -0.033 | -0.027 | 0.203 | 0.172 | 0.405 | 0.063 | 0.173 | -0.217 | **1** |
| Total aldehyde | 0.141 | 0.237 | 0.327 | 0.067 | 0.092 | -0.136 | -0.032 | -0.027 | 0.204 | 0.172 | 0.406 | 0.064 | 0.175 | -0.216 | **1.000** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzaldehyde | 0.061 | -0.163 | -0.317 | 0.079 | -0.260 | -0.419 | -0.329 | 0.403 | -0.150 | 0.099 | 0.091 | 0.214 | 0.008 | **0.589** | **-0.517** |
| Myristicin | **0.462** | **-0.454** | **-0.465** | 0.349 | -0.346 | **-0.599** | **-0.625** | **0.502** | -0.201 | **0.597** | 0.090 | **0.707** | 0.382 | -0.039 | -0.209 |
| Benzeneacetaldehyde | 0.216 | 0.327 | 0.378 | 0.160 | 0.022 | -0.107 | 0.142 | 0.369 | 0.436 | -0.326 | 0.172 | -0.058 | 0.281 | 0.167 | -0.184 |
| Naphthalene | 0.143 | **0.815** | **0.842** | 0.018 | 0.061 | 0.095 | 0.066 | **0.457** | **0.907** | **-0.642** | 0.249 | -0.278 | 0.149 | 0.295 | 0.039 |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | 0.143 | **0.815** | **0.842** | 0.018 | 0.061 | 0.095 | 0.066 | **0.457** | **0.907** | **-0.642** | 0.249 | -0.278 | 0.149 | 0.295 | 0.039 |
| Benzyl alcohol | **-0.505** | 0.123 | 0.081 | -0.440 | 0.282 | **0.834** | **0.489** | **-0.722** | -0.134 | **-0.468** | **-0.603** | **-0.619** | **-0.506** | -0.012 | -0.356 |
| Total benzenoid | **-0.465** | 0.102 | 0.040 | -0.413 | 0.238 | **0.780** | 0.439 | **-0.633** | -0.134 | **-0.477** | **-0.624** | **-0.579** | **-0.475** | 0.082 | **-0.518** |
| Ethyl butanoate | 0.093 | 0.353 | 0.381 | 0.176 | 0.185 | **0.787** | **0.526** | **-0.478** | 0.102 | -0.026 | -0.073 | -0.131 | 0.173 | 0.102 | 0.201 |
| Ethyl 3-methylbutanoate | 0.419 | 0.058 | 0.108 | **0.538** | 0.033 | **0.466** | 0.231 | -0.251 | -0.061 | 0.416 | 0.252 | 0.349 | 0.441 | -0.009 | 0.389 |
| 3-Methylbutyl acetate | -0.274 | 0.291 | 0.303 | -0.161 | 0.292 | **0.854** | **0.641** | **-0.711** | -0.030 | -0.260 | -0.257 | **-0.449** | -0.191 | 0.016 | 0.138 |
| 3-Hydroxymandelic acid ethyl ester | -0.048 | 0.102 | 0.181 | 0.045 | 0.172 | 0.174 | 0.422 | -0.373 | -0.027 | 0.046 | 0.284 | -0.120 | 0.050 | -0.183 | **0.673** |
| Ethyl hexanoate | 0.275 | -0.033 | 0.003 | 0.311 | 0.040 | **0.485** | 0.201 | -0.417 | -0.203 | **0.491** | -0.115 | 0.265 | 0.336 | -0.057 | 0.308 |
| Hexyl acetate | -0.345 | 0.150 | 0.166 | -0.212 | 0.311 | **0.785** | **0.592** | **-0.762** | -0.157 | -0.175 | -0.318 | -0.426 | -0.258 | -0.075 | 0.167 |
| Ethyl (E)-3-hexenoate | **0.446** | 0.242 | 0.327 | **0.489** | 0.095 | 0.353 | 0.357 | -0.008 | 0.200 | 0.067 | 0.441 | 0.200 | **0.498** | -0.056 | 0.133 |
| Ethyl lactate | **0.828** | -0.151 | -0.093 | **0.709** | -0.353 | **-0.519** | **-0.527** | **0.546** | 0.030 | **0.726** | **0.660** | **0.873** | **0.817** | -0.010 | 0.373 |
| Propyl hexanoate | **0.574** | 0.087 | 0.142 | **0.617** | -0.034 | 0.131 | 0.036 | -0.029 | 0.043 | **0.658** | 0.251 | **0.537** | **0.627** | 0.008 | **0.583** |
| Ethyl octanoate | 0.050 | -0.394 | -0.352 | 0.089 | -0.013 | 0.084 | 0.003 | **-0.489** | **-0.526** | **0.628** | -0.064 | 0.274 | 0.106 | -0.266 | **0.530** |
| Ethyl 3-hydroxybutanoate | 0.332 | **-0.500** | **-0.520** | 0.292 | -0.205 | -0.248 | -0.368 | -0.023 | **-0.513** | **0.739** | -0.118 | **0.572** | 0.285 | -0.100 | -0.009 |
| Ethyl nonanoate | 0.060 | -0.119 | -0.112 | 0.180 | 0.027 | **0.620** | 0.323 | **-0.573** | -0.288 | 0.312 | -0.117 | 0.061 | 0.124 | 0.030 | 0.269 |
| Isoamyl lactate | **0.669** | 0.163 | 0.228 | **0.630** | -0.236 | **-0.509** | -0.268 | **0.749** | 0.407 | 0.250 | **0.874** | **0.543** | **0.676** | 0.100 | 0.285 |
| Methyl decanoate | 0.210 | 0.081 | 0.014 | 0.402 | -0.046 | 0.236 | 0.211 | -0.361 | -0.235 | **0.520** | -0.001 | 0.249 | 0.279 | 0.277 | 0.270 |
| Ethyl 2-furancarboxylate | **0.544** | -0.330 | -0.346 | **0.495** | -0.115 | **-0.515** | **-0.527** | 0.401 | -0.246 | **0.738** | 0.153 | **0.733** | **0.504** | -0.031 | -0.057 |
| Ethyl decanoate | -0.205 | -0.371 | -0.336 | -0.138 | 0.151 | 0.073 | 0.093 | **-0.577** | **-0.508** | 0.386 | -0.214 | 0.054 | -0.162 | -0.301 | 0.410 |
| Diethyl succinate | **0.542** | -0.379 | -0.376 | 0.384 | **-0.522** | **-0.654** | **-0.631** | **0.565** | -0.088 | **0.552** | 0.191 | **0.731** | **0.463** | -0.014 | -0.183 |
| Ethyl 9-decenoate | 0.081 | -0.401 | -0.365 | 0.081 | -0.097 | -0.088 | -0.077 | -0.345 | -0.439 | **0.543** | -0.003 | 0.365 | 0.092 | -0.209 | 0.408 |
| Ethyl benzeneacetate | 0.321 | 0.128 | 0.137 | 0.242 | -0.209 | -0.383 | -0.292 | **0.808** | **0.525** | -0.288 | 0.358 | 0.196 | 0.228 | 0.158 | -0.393 |
| 2-Phenethyl acetate | 0.221 | -0.203 | -0.154 | 0.176 | **-0.896** | -0.083 | 0.026 | -0.028 | -0.039 | 0.154 | 0.217 | 0.263 | 0.227 | 0.050 | 0.038 |
| Ethyl dodecanoate | -0.015 | 0.046 | 0.003 | 0.080 | 0.047 | 0.227 | 0.303 | -0.266 | -0.165 | 0.243 | -0.372 | 0.020 | 0.058 | 0.059 | -0.116 |
| Total ester | -0.025 | 0.074 | 0.154 | 0.065 | 0.154 | 0.171 | 0.406 | -0.385 | -0.056 | 0.096 | 0.279 | -0.081 | 0.073 | -0.192 | **0.686** |
| 3-Hydroxy-2-butanone | -0.229 | -0.222 | -0.200 | -0.196 | -0.054 | 0.024 | 0.209 | -0.354 | -0.246 | 0.098 | -0.323 | -0.071 | -0.196 | -0.180 | -0.059 |
| Limonene | 0.134 | **0.745** | **0.750** | 0.046 | 0.052 | 0.114 | 0.069 | **0.482** | **0.829** | **-0.621** | 0.268 | -0.265 | 0.143 | 0.357 | -0.036 |
| Terpinolene | -0.009 | **0.953** | **0.862** | -0.113 | 0.303 | 0.380 | 0.158 | -0.021 | **0.619** | **-0.458** | -0.087 | -0.348 | -0.004 | **0.459** | 0.135 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total terpene | 0.131 | **0.842** | **0.841** | 0.031 | 0.117 | 0.196 | 0.104 | 0.399 | **0.852** | **-0.622** | 0.215 | -0.294 | 0.139 | 0.350 | 0.025 |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S6** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated Chardonnay wines

(continued 5/7)

| Variables | Total aldehyde | Benzaldehyde | Myristicin | Benzeneacetaldehyde | Naphthalene | 1,2-Dihydro-1,1,6-trimethyl-naphthalene | Benzyl alcohol | Total benzenoid | Ethyl butanoate | Ethyl 3-methylbutanoate | 3-Methylbutyl acetate | 3-Hydroxymandelic acid ethyl ester | Ethyl hexanoate | Hexyl acetate | Ethyl (E)-3-hexenoate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | 0.099 | 0.253 | 0.426 | -0.330 | **-0.815** | **-0.815** | -0.298 | -0.289 | -0.387 | -0.195 | -0.342 | 0.016 | 0.116 | -0.209 | **-0.464** |
| pH | -0.087 | -0.216 | -0.438 | 0.416 | **0.869** | **0.869** | 0.273 | 0.276 | 0.380 | 0.139 | 0.333 | -0.006 | -0.130 | 0.186 | **0.502** |
| TPC | 0.233 | -0.240 | -0.354 | 0.396 | **0.928** | **0.928** | 0.021 | 0.002 | 0.176 | -0.105 | 0.117 | 0.004 | -0.188 | -0.013 | 0.170 |
| TFC | 0.323 | -0.371 | **-0.557** | 0.368 | **0.887** | **0.887** | 0.134 | 0.079 | 0.342 | 0.010 | 0.320 | 0.215 | -0.087 | 0.180 | 0.318 |
| DPPH | 0.145 | -0.199 | -0.400 | **0.482** | **0.964** | **0.964** | 0.065 | 0.063 | 0.226 | -0.058 | 0.169 | 0.008 | -0.204 | 0.020 | 0.253 |
| FRAP | 0.251 | -0.338 | **-0.502** | 0.214 | **0.772** | **0.772** | 0.231 | 0.178 | 0.299 | 0.001 | 0.326 | 0.104 | -0.107 | 0.204 | 0.245 |
| ABTS | 0.285 | -0.324 | **-0.513** | 0.374 | **0.842** | **0.842** | 0.160 | 0.121 | 0.361 | 0.038 | 0.342 | 0.167 | -0.049 | 0.206 | 0.289 |
| L* | 0.285 | -0.276 | -0.002 | **-0.606** | **-0.636** | **-0.636** | 0.187 | 0.086 | 0.166 | 0.252 | 0.281 | 0.219 | 0.442 | 0.424 | -0.202 |
| a* | -0.224 | 0.229 | 0.225 | 0.423 | **0.547** | **0.547** | -0.290 | -0.203 | -0.340 | -0.316 | **-0.453** | -0.340 | **-0.469** | **-0.529** | -0.023 |
| b* | -0.287 | 0.198 | -0.088 | **0.561** | **0.734** | **0.734** | -0.071 | 0.016 | -0.110 | -0.262 | -0.196 | -0.257 | **-0.449** | -0.351 | 0.174 |
| Quinic acid | 0.017 | 0.004 | -0.001 | 0.324 | **0.803** | **0.803** | -0.229 | -0.208 | -0.168 | -0.272 | -0.282 | -0.255 | -0.388 | -0.379 | -0.009 |
| Gallic acid | 0.372 | -0.362 | **-0.455** | 0.297 | **0.753** | **0.753** | 0.127 | 0.076 | 0.236 | -0.048 | 0.275 | 0.199 | -0.109 | 0.175 | 0.231 |
| Chlorogenic acid | 0.322 | -0.366 | -0.432 | 0.277 | **0.852** | **0.852** | 0.108 | 0.054 | 0.309 | 0.029 | 0.264 | 0.110 | -0.049 | 0.141 | 0.211 |
| Total phenolic acids | 0.174 | -0.161 | -0.203 | 0.358 | **0.909** | **0.909** | -0.105 | -0.113 | -0.003 | -0.204 | -0.074 | -0.097 | -0.313 | -0.189 | 0.096 |
| Gallocatechin | 0.197 | -0.262 | **-0.539** | **0.454** | **0.939** | **0.939** | 0.134 | 0.109 | 0.292 | -0.028 | 0.272 | 0.149 | -0.192 | 0.109 | 0.350 |
| Epigallocatechin | 0.344 | -0.351 | **-0.513** | 0.322 | **0.815** | **0.815** | 0.139 | 0.087 | 0.349 | 0.038 | 0.331 | 0.194 | -0.036 | 0.203 | 0.267 |
| Procyanidin B1 | 0.321 | -0.372 | **-0.595** | 0.331 | **0.852** | **0.852** | 0.156 | 0.094 | 0.376 | 0.022 | 0.359 | 0.247 | -0.054 | 0.206 | 0.321 |
| Catechin | 0.217 | -0.179 | -0.408 | **0.520** | **0.954** | **0.954** | -0.047 | -0.055 | 0.199 | -0.059 | 0.120 | 0.107 | -0.219 | -0.032 | 0.311 |
| Procyanidin B2 | 0.105 | -0.329 | **-0.500** | 0.167 | **0.553** | **0.553** | 0.432 | 0.396 | 0.249 | -0.099 | 0.391 | 0.039 | -0.123 | 0.301 | 0.126 |
| Epicatechin | 0.178 | -0.385 | **-0.626** | 0.361 | **0.710** | **0.710** | 0.382 | 0.342 | **0.636** | 0.269 | **0.566** | 0.290 | 0.203 | 0.380 | 0.439 |
| Epigallocatechin gallate | 0.147 | -0.122 | -0.125 | 0.320 | **0.865** | **0.865** | -0.140 | -0.143 | -0.023 | -0.203 | -0.126 | -0.153 | -0.279 | -0.236 | 0.034 |
| Procyanidin B1 3-O-gallate | 0.314 | -0.279 | **-0.571** | 0.352 | **0.575** | **0.575** | 0.072 | 0.019 | 0.389 | 0.151 | 0.351 | 0.396 | 0.005 | 0.207 | 0.416 |
| Gallocatechin gallate | 0.324 | -0.344 | **-0.558** | 0.294 | **0.684** | **0.684** | 0.217 | 0.165 | 0.422 | 0.115 | 0.435 | 0.257 | 0.036 | 0.312 | 0.328 |
| Quercetin 3-O-di-galacoside/glucoside | 0.232 | -0.344 | **-0.616** | 0.382 | **0.764** | **0.764** | 0.303 | 0.265 | **0.530** | 0.178 | **0.503** | 0.256 | 0.076 | 0.336 | 0.387 |
| Myricetin 3-O-galactoside 1 | 0.308 | -0.155 | **-0.492** | 0.441 | **0.526** | **0.526** | -0.198 | -0.242 | 0.123 | -0.055 | 0.143 | 0.419 | -0.207 | 0.055 | 0.378 |
| Epicatechin | 0.206 | -0.306 | **-0.635** | **0.521** | **0.751** | **0.751** | 0.258 | 0.236 | **0.532** | 0.198 | **0.487** | 0.333 | 0.053 | 0.309 | **0.498** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| gallate | | | | | | | | | | | | | | | |
| Rutin | 0.245 | -0.311 | **-0.559** | **0.538** | **0.799** | **0.799** | 0.069 | 0.038 | **0.459** | 0.196 | 0.349 | 0.353 | 0.013 | 0.177 | **0.508** |
| Quercetin 3-O-galactoside | 0.071 | -0.131 | **-0.540** | **0.532** | **0.534** | **0.534** | 0.033 | 0.025 | 0.329 | 0.181 | 0.304 | 0.361 | -0.108 | 0.174 | **0.565** |
| Kaempferol 3-O-rutinoside 2 | 0.172 | -0.267 | **-0.655** | **0.489** | **0.556** | **0.556** | 0.181 | 0.149 | **0.446** | 0.121 | **0.459** | 0.428 | 0.000 | 0.304 | **0.474** |
| Kaempferol 3-O-glucoside | -0.021 | -0.092 | **-0.475** | **0.564** | 0.390 | 0.390 | 0.034 | 0.043 | 0.226 | 0.055 | 0.239 | 0.354 | -0.167 | 0.123 | 0.434 |
| Unknown quercetin conjugate | 0.338 | -0.349 | **-0.655** | 0.396 | **0.786** | **0.786** | 0.132 | 0.072 | 0.330 | -0.043 | 0.372 | 0.329 | -0.116 | 0.233 | 0.333 |
| Unknown kaempferol conjugate | 0.295 | -0.296 | **-0.591** | **0.467** | **0.819** | **0.819** | 0.094 | 0.054 | 0.435 | 0.088 | 0.361 | 0.324 | 0.014 | 0.204 | 0.376 |
| Total flavonoids | 0.243 | -0.232 | **-0.466** | **0.485** | **0.944** | **0.944** | 0.024 | 0.004 | 0.256 | -0.032 | 0.197 | 0.138 | -0.179 | 0.043 | 0.322 |
| Caffeine | 0.271 | -0.355 | **-0.515** | 0.196 | **0.677** | **0.677** | 0.280 | 0.226 | 0.385 | 0.095 | 0.417 | 0.162 | 0.006 | 0.303 | 0.262 |
| Ethoxyacetic acid | **0.598** | **-0.671** | **-0.537** | -0.073 | 0.069 | 0.069 | 0.237 | 0.093 | **0.855** | **0.791** | **0.758** | **0.755** | **0.737** | **0.724** | **0.572** |
| Acetic acid | **0.562** | -0.004 | 0.041 | 0.289 | 0.321 | 0.321 | **-0.694** | **-0.727** | -0.056 | 0.145 | -0.256 | 0.398 | -0.048 | -0.320 | 0.402 |
| Pterin-6-carboxylic acid | 0.251 | -0.013 | -0.032 | 0.443 | **0.838** | **0.838** | -0.396 | -0.384 | -0.049 | -0.097 | -0.235 | -0.051 | -0.258 | -0.344 | 0.152 |
| Hexanoic acid | -0.214 | 0.129 | **0.544** | -0.170 | -0.261 | -0.261 | -0.177 | -0.135 | 0.155 | **0.499** | -0.114 | -0.220 | 0.424 | -0.089 | 0.326 |
| Octanoic acid | 0.133 | -0.240 | 0.232 | **-0.584** | **-0.788** | **-0.788** | 0.109 | 0.036 | 0.314 | **0.539** | 0.272 | 0.242 | **0.714** | 0.431 | 0.060 |
| Nonanoic acid | 0.293 | -0.280 | 0.044 | **-0.522** | **-0.683** | **-0.683** | 0.058 | -0.043 | 0.375 | **0.561** | 0.338 | **0.445** | **0.690** | **0.477** | 0.091 |
| Total acid | 0.102 | -0.189 | 0.292 | **-0.539** | **-0.729** | **-0.729** | 0.042 | -0.019 | 0.326 | **0.597** | 0.226 | 0.205 | **0.723** | 0.367 | 0.138 |
| 2-Methyl-1-propanol | 0.301 | -0.157 | 0.148 | 0.310 | 0.379 | 0.379 | -0.373 | -0.375 | 0.369 | **0.535** | 0.011 | 0.157 | 0.393 | -0.084 | **0.552** |
| 2-Pentanol | 0.049 | -0.358 | **-0.573** | -0.038 | 0.224 | 0.224 | **0.555** | **0.492** | **0.498** | 0.201 | **0.643** | 0.120 | 0.184 | **0.609** | 0.137 |
| 1-Butanol | 0.211 | -0.115 | -0.198 | **0.546** | 0.379 | 0.379 | -0.260 | -0.253 | 0.203 | 0.030 | 0.086 | 0.297 | 0.076 | 0.023 | 0.330 |
| 2-Hexanol | 0.217 | -0.255 | -0.271 | **0.575** | 0.338 | 0.338 | -0.155 | -0.161 | 0.354 | 0.138 | 0.220 | 0.418 | 0.224 | 0.147 | **0.482** |
| 3-Methyl-1-butanol | 0.141 | 0.061 | **0.462** | 0.216 | 0.143 | 0.143 | **-0.505** | **-0.465** | 0.093 | 0.419 | -0.274 | -0.048 | 0.275 | -0.345 | **0.446** |
| 1-(2-Aminoethylamino)-2-propanol | 0.237 | -0.163 | **-0.454** | 0.327 | **0.815** | **0.815** | 0.123 | 0.102 | 0.353 | 0.058 | 0.291 | 0.102 | -0.033 | 0.150 | 0.242 |
| 2-Octen-4-ol | 0.327 | -0.317 | **-0.465** | 0.378 | **0.842** | **0.842** | 0.081 | 0.040 | 0.381 | 0.108 | 0.303 | 0.181 | 0.003 | 0.166 | 0.327 |
| 3-Methyl-1-pentanol | 0.067 | 0.079 | 0.349 | 0.160 | 0.018 | 0.018 | -0.440 | -0.413 | 0.176 | **0.538** | -0.161 | 0.045 | 0.311 | -0.212 | **0.489** |
| (E)-3-Hexen-1-ol | 0.092 | -0.260 | -0.346 | 0.022 | 0.061 | 0.061 | 0.282 | 0.238 | 0.185 | 0.033 | 0.292 | 0.172 | 0.040 | 0.311 | 0.095 |
| 1-Hexanol | -0.136 | -0.419 | **-0.599** | -0.107 | 0.095 | 0.095 | **0.834** | **0.780** | **0.787** | **0.466** | **0.854** | 0.174 | **0.485** | **0.785** | 0.353 |
| 2-Methyl-4-heptanol | -0.032 | -0.329 | **-0.625** | 0.142 | 0.066 | 0.066 | **0.489** | 0.439 | **0.526** | 0.231 | **0.641** | 0.422 | 0.201 | **0.592** | 0.357 |
| 2-Ethyl-1-hexanol | -0.027 | 0.403 | **0.502** | 0.369 | **0.457** | **0.457** | **-0.722** | **-0.633** | **-0.478** | -0.251 | **-0.711** | -0.373 | -0.417 | **-0.762** | -0.008 |
| Linalool | 0.204 | -0.150 | -0.201 | 0.436 | **0.907** | **0.907** | -0.134 | -0.134 | 0.102 | -0.061 | -0.030 | -0.027 | -0.203 | -0.157 | 0.200 |
| 1-Octanol | 0.172 | 0.099 | **0.597** | -0.326 | **-0.642** | **-0.642** | **-0.468** | **-0.477** | -0.026 | 0.416 | -0.260 | 0.046 | **0.491** | -0.175 | 0.067 |
| 2,3-Butanediol | 0.406 | 0.091 | 0.090 | 0.172 | 0.249 | 0.249 | **-0.603** | **-0.624** | -0.073 | 0.252 | -0.257 | 0.284 | -0.115 | -0.318 | 0.441 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phenylethyl alcohol | 0.064 | 0.214 | **0.707** | -0.058 | -0.278 | -0.278 | **-0.619** | **-0.579** | -0.131 | 0.349 | **-0.449** | -0.120 | 0.265 | -0.426 | 0.200 |
| Total alcohol | 0.175 | 0.008 | 0.382 | 0.281 | 0.149 | 0.149 | **-0.506** | **-0.475** | 0.173 | 0.441 | -0.191 | 0.050 | 0.336 | -0.258 | **0.498** |
| 3-Hydroxybutanal | -0.216 | **0.589** | -0.039 | 0.167 | 0.295 | 0.295 | -0.012 | 0.082 | 0.102 | -0.009 | 0.016 | -0.183 | -0.057 | -0.075 | -0.056 |
| Octanal | **1.000** | **-0.517** | -0.209 | -0.184 | 0.039 | 0.039 | -0.356 | **-0.518** | 0.201 | 0.389 | 0.138 | **0.673** | 0.308 | 0.167 | 0.133 |
| Total aldehyde | **1** | **-0.518** | -0.210 | -0.183 | 0.041 | 0.041 | -0.356 | **-0.518** | 0.203 | 0.391 | 0.139 | **0.673** | 0.309 | 0.167 | 0.134 |
| Benzaldehyde | **-0.518** | **1** | **0.476** | 0.195 | -0.038 | -0.038 | -0.351 | -0.168 | **-0.564** | -0.433 | **-0.583** | **-0.569** | **-0.501** | **-0.594** | -0.282 |
| Myristicin | -0.210 | **0.476** | **1** | -0.194 | -0.375 | -0.375 | **-0.591** | **-0.492** | **-0.576** | -0.140 | **-0.789** | **-0.641** | -0.046 | **-0.716** | -0.430 |
| Benzeneacetaldehyde | -0.183 | 0.195 | -0.194 | **1** | **0.580** | **0.580** | -0.109 | 0.021 | -0.012 | -0.228 | -0.059 | 0.020 | -0.348 | -0.188 | 0.350 |
| Naphthalene | 0.041 | -0.038 | -0.375 | **0.580** | **1** | **1.000** | 0.008 | 0.037 | 0.148 | -0.121 | 0.089 | -0.040 | -0.327 | -0.072 | 0.315 |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | 0.041 | -0.038 | -0.375 | **0.580** | **1.000** | **1** | 0.008 | 0.037 | 0.148 | -0.121 | 0.089 | -0.040 | -0.327 | -0.072 | 0.315 |
| Benzyl alcohol | -0.356 | -0.351 | **-0.591** | -0.109 | 0.008 | 0.008 | **1** | **0.974** | **0.568** | 0.137 | **0.767** | 0.052 | 0.255 | **0.735** | 0.110 |
| Total benzenoid | **-0.518** | -0.168 | **-0.492** | 0.021 | 0.037 | 0.037 | **0.974** | **1** | **0.479** | 0.043 | **0.665** | -0.099 | 0.161 | **0.619** | 0.076 |
| Ethyl butanoate | 0.203 | **-0.564** | **-0.576** | -0.012 | 0.148 | 0.148 | **0.568** | **0.479** | **1** | **0.772** | **0.904** | **0.486** | **0.775** | **0.843** | **0.544** |
| Ethyl 3-methylbutanoate | 0.391 | -0.433 | -0.140 | -0.228 | -0.121 | -0.121 | 0.137 | 0.043 | **0.772** | **1** | **0.560** | 0.436 | **0.807** | **0.560** | **0.478** |
| 3-Methylbutyl acetate | 0.139 | **-0.583** | **-0.789** | -0.059 | 0.089 | 0.089 | **0.767** | **0.665** | **0.904** | **0.560** | **1** | **0.556** | **0.570** | **0.969** | **0.473** |
| 3-Hydroxymandelic acid ethyl ester | **0.673** | **-0.569** | **-0.641** | 0.020 | -0.040 | -0.040 | 0.052 | -0.099 | **0.486** | 0.436 | **0.556** | **1** | 0.328 | **0.576** | **0.568** |
| Ethyl hexanoate | 0.309 | **-0.501** | -0.046 | -0.348 | -0.327 | -0.327 | 0.255 | 0.161 | **0.775** | **0.807** | **0.570** | 0.328 | **1** | **0.594** | 0.227 |
| Hexyl acetate | 0.167 | **-0.594** | **-0.716** | -0.188 | -0.072 | -0.072 | **0.735** | **0.619** | **0.843** | **0.560** | **0.969** | **0.576** | **0.594** | **1** | 0.398 |
| Ethyl (E)-3-hexenoate | 0.134 | -0.282 | -0.430 | 0.350 | 0.315 | 0.315 | 0.110 | 0.076 | **0.544** | **0.478** | **0.473** | **0.568** | 0.227 | 0.398 | **1** |
| Ethyl lactate | 0.373 | 0.182 | **0.606** | 0.015 | -0.144 | -0.144 | **-0.793** | **-0.779** | -0.220 | 0.256 | **-0.524** | 0.040 | 0.152 | **-0.529** | 0.168 |
| Propyl hexanoate | **0.584** | -0.412 | 0.062 | -0.216 | -0.171 | -0.171 | -0.222 | -0.326 | **0.569** | **0.787** | 0.272 | **0.448** | **0.828** | 0.284 | 0.308 |
| Ethyl octanoate | **0.530** | -0.403 | 0.084 | **-0.568** | **-0.708** | **-0.708** | -0.018 | -0.144 | 0.344 | **0.572** | 0.294 | **0.492** | **0.748** | 0.434 | -0.006 |
| Ethyl 3-hydroxybutanoate | -0.010 | 0.274 | **0.735** | -0.264 | **-0.628** | **-0.628** | -0.344 | -0.287 | -0.279 | 0.083 | -0.432 | -0.344 | 0.274 | -0.382 | -0.355 |
| Ethyl nonanoate | 0.270 | **-0.459** | -0.355 | -0.306 | -0.325 | -0.325 | 0.439 | 0.337 | **0.806** | **0.747** | **0.742** | **0.543** | **0.851** | **0.763** | 0.356 |
| Isoamyl lactate | 0.286 | 0.190 | 0.180 | 0.338 | 0.351 | 0.351 | **-0.737** | **-0.725** | -0.169 | 0.097 | -0.404 | 0.201 | -0.190 | **-0.464** | **0.445** |
| Methyl decanoate | 0.271 | -0.111 | -0.174 | -0.149 | -0.311 | -0.311 | -0.004 | -0.064 | **0.480** | **0.533** | 0.354 | **0.452** | **0.586** | 0.349 | 0.223 |
| Ethyl 2-furancarboxylate | -0.057 | 0.382 | **0.825** | -0.095 | -0.395 | -0.395 | **-0.645** | **-0.573** | **-0.508** | -0.113 | **-0.732** | -0.420 | -0.007 | **-0.713** | -0.291 |
| Ethyl decanoate | 0.409 | -0.403 | -0.015 | **-0.560** | **-0.665** | **-0.665** | 0.132 | 0.012 | 0.248 | 0.441 | 0.330 | **0.461** | **0.529** | **0.513** | -0.072 |
| Diethyl succinate | -0.183 | **0.475** | **0.932** | -0.089 | -0.278 | -0.278 | **-0.640** | **-0.541** | **-0.634** | -0.242 | **-0.837** | **-0.589** | -0.163 | **-0.811** | -0.369 |
| Ethyl 9-decenoate | 0.408 | -0.256 | 0.264 | **-0.576** | **-0.637** | **-0.637** | -0.115 | -0.211 | 0.088 | **0.455** | 0.077 | 0.286 | **0.459** | 0.227 | -0.102 |
| Ethyl benzeneacetate | -0.393 | **0.449** | 0.310 | **0.463** | **0.559** | **0.559** | -0.314 | -0.184 | -0.437 | -0.328 | **-0.527** | **-0.498** | **-0.623** | **-0.589** | 0.063 |
| 2-Phenethyl | 0.038 | 0.002 | 0.052 | -0.093 | -0.137 | -0.137 | -0.034 | -0.046 | 0.186 | 0.273 | 0.117 | 0.162 | 0.244 | 0.120 | 0.152 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| acetate | | | | | | | | | | | | | | | |
| Ethyl dodecanoate | -0.116 | -0.140 | -0.200 | -0.099 | -0.209 | -0.209 | 0.256 | 0.224 | 0.349 | 0.071 | 0.354 | 0.241 | 0.389 | 0.399 | 0.226 |
| Total ester | **0.686** | **-0.576** | **-0.605** | -0.015 | -0.084 | -0.084 | 0.043 | -0.111 | **0.495** | **0.467** | **0.553** | **0.998** | 0.371 | **0.581** | **0.557** |
| 3-Hydroxy-2-butanone | -0.060 | -0.210 | -0.077 | -0.329 | -0.355 | -0.355 | 0.290 | 0.236 | 0.222 | 0.134 | 0.324 | 0.263 | 0.310 | **0.482** | 0.109 |
| Limonene | -0.034 | 0.080 | -0.367 | **0.618** | **0.975** | **0.975** | -0.005 | 0.045 | 0.132 | -0.141 | 0.074 | -0.068 | -0.352 | -0.089 | 0.335 |
| Terpinolene | 0.136 | -0.113 | -0.412 | 0.240 | **0.690** | **0.690** | 0.249 | 0.242 | 0.373 | 0.077 | 0.342 | 0.014 | 0.017 | 0.220 | 0.166 |
| Total terpene | 0.027 | -0.016 | -0.412 | **0.573** | **0.982** | **0.982** | 0.061 | 0.093 | 0.221 | -0.070 | 0.159 | -0.032 | -0.267 | -0.007 | 0.344 |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S6** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated Chardonnay wines

(continued 6/7)

| Variables | Ethyl lactate | Propyl hexanoate | Ethyl octanoate | Ethyl 3-hydroxybutanoate | Ethyl nonanoate | Isoamyl lactate | Methyl decanoate | Ethyl 2-furancarboxylate | Ethyl decanoate | Diethyl succinate | Ethyl 9-decenoate | Ethyl benzeneacetate | 2-Phenethyl acetate | Ethyl dodecanoate | Total ester |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | 0.256 | 0.105 | **0.571** | **0.660** | 0.112 | -0.174 | 0.253 | **0.470** | 0.439 | 0.391 | 0.413 | **-0.470** | 0.126 | 0.173 | 0.049 |
| pH | -0.258 | -0.089 | **-0.607** | **-0.621** | -0.139 | 0.178 | -0.210 | **-0.453** | **-0.499** | -0.383 | **-0.481** | **0.459** | -0.129 | -0.078 | -0.042 |
| TPC | -0.137 | -0.036 | **-0.514** | **-0.574** | -0.264 | 0.226 | -0.278 | -0.367 | **-0.470** | -0.253 | **-0.457** | 0.373 | -0.153 | -0.124 | -0.029 |
| TFC | -0.214 | 0.020 | -0.420 | **-0.619** | -0.125 | 0.183 | -0.147 | **-0.461** | -0.387 | **-0.479** | -0.444 | 0.165 | -0.245 | -0.076 | 0.179 |
| DPPH | -0.171 | -0.064 | **-0.578** | **-0.590** | -0.244 | 0.230 | -0.236 | -0.410 | **-0.524** | -0.291 | **-0.496** | 0.412 | -0.094 | -0.162 | -0.028 |
| FRAP | -0.275 | -0.078 | -0.403 | **-0.526** | -0.185 | 0.021 | -0.157 | -0.421 | -0.325 | **-0.449** | -0.374 | 0.105 | -0.283 | -0.041 | 0.072 |
| ABTS | -0.202 | 0.024 | -0.373 | **-0.531** | -0.128 | 0.105 | -0.081 | -0.431 | -0.319 | -0.421 | -0.349 | 0.105 | -0.136 | -0.057 | 0.138 |
| L* | -0.075 | 0.253 | **0.724** | 0.350 | 0.335 | **-0.491** | 0.341 | 0.082 | **0.783** | -0.127 | **0.656** | **-0.785** | -0.083 | 0.222 | 0.255 |
| a* | 0.102 | -0.255 | **-0.629** | -0.274 | **-0.464** | 0.405 | **-0.519** | 0.012 | **-0.578** | 0.308 | -0.409 | **0.843** | 0.045 | -0.286 | -0.364 |
| b* | -0.040 | -0.305 | **-0.777** | **-0.455** | -0.338 | 0.402 | -0.434 | -0.195 | **-0.799** | 0.046 | **-0.678** | **0.785** | 0.051 | -0.269 | -0.295 |
| Quinic acid | 0.006 | -0.167 | **-0.648** | **-0.487** | **-0.453** | 0.419 | **-0.494** | -0.144 | **-0.630** | 0.057 | **-0.549** | **0.716** | -0.157 | -0.247 | -0.288 |
| Gallic acid | -0.189 | -0.035 | -0.285 | **-0.483** | -0.162 | 0.032 | -0.248 | -0.437 | -0.173 | -0.346 | -0.165 | 0.092 | -0.116 | -0.144 | 0.175 |
| Chlorogenic acid | -0.186 | 0.051 | -0.380 | **-0.526** | -0.167 | 0.119 | -0.142 | -0.394 | -0.329 | -0.368 | -0.346 | 0.168 | -0.193 | -0.071 | 0.082 |
| Total phenolic acids | -0.081 | -0.124 | **-0.590** | **-0.561** | -0.390 | 0.316 | **-0.446** | -0.293 | **-0.533** | -0.119 | **-0.476** | **0.549** | -0.170 | -0.229 | -0.132 |
| Gallocatechin | -0.211 | -0.060 | **-0.546** | **-0.649** | -0.184 | 0.227 | -0.174 | **-0.473** | **-0.491** | -0.403 | **-0.486** | 0.307 | -0.101 | -0.106 | 0.110 |
| Epigallocatechin | -0.190 | 0.060 | -0.336 | **-0.517** | -0.129 | 0.106 | -0.048 | -0.406 | -0.285 | -0.422 | -0.324 | 0.063 | -0.173 | -0.026 | 0.166 |
| Procyanidin B1 | -0.217 | 0.041 | -0.387 | **-0.608** | -0.073 | 0.172 | -0.088 | **-0.473** | -0.382 | **-0.482** | -0.427 | 0.090 | -0.147 | -0.036 | 0.213 |
| Catechin | -0.068 | 0.002 | **-0.552** | **-0.610** | -0.245 | 0.381 | -0.171 | -0.356 | **-0.526** | -0.271 | **-0.500** | 0.408 | -0.083 | -0.124 | 0.070 |
| Procyanidin B2 | **-0.470** | -0.266 | -0.334 | -0.390 | -0.132 | -0.328 | -0.281 | **-0.467** | -0.202 | **-0.481** | -0.276 | -0.024 | -0.334 | -0.048 | 0.011 |
| Epicatechin | -0.228 | 0.200 | -0.268 | **-0.506** | 0.234 | 0.048 | 0.148 | **-0.490** | -0.305 | **-0.491** | -0.319 | -0.013 | 0.062 | 0.057 | 0.267 |
| Epigallocatechin gallate | -0.044 | -0.091 | **-0.572** | **-0.524** | -0.368 | 0.336 | -0.443 | -0.244 | **-0.553** | -0.055 | **-0.488** | **0.576** | -0.146 | -0.200 | -0.184 |
| Procyanidin B1 3-O-gallate | -0.131 | 0.153 | -0.280 | **-0.464** | -0.024 | 0.271 | 0.264 | -0.336 | -0.327 | **-0.468** | -0.393 | -0.022 | -0.062 | 0.117 | 0.365 |
| Gallocatechin gallate | -0.196 | 0.070 | -0.233 | -0.437 | -0.046 | 0.026 | 0.078 | -0.397 | -0.185 | **-0.470** | -0.241 | -0.096 | -0.135 | 0.032 | 0.234 |
| Quercetin 3-O-di-galacoside/glucoside | -0.248 | 0.093 | -0.322 | **-0.505** | 0.051 | 0.048 | 0.114 | **-0.499** | -0.317 | **-0.493** | -0.344 | -0.002 | 0.040 | 0.012 | 0.229 |
| Myricetin 3-O-galactoside 1 | 0.011 | 0.053 | -0.249 | **-0.478** | -0.153 | 0.432 | 0.080 | -0.238 | -0.240 | -0.334 | -0.285 | 0.029 | -0.032 | 0.020 | 0.389 |
| Epicatechin gallate | -0.181 | 0.120 | -0.340 | **-0.561** | 0.072 | 0.172 | 0.085 | **-0.466** | -0.317 | **-0.490** | -0.337 | 0.073 | -0.006 | 0.006 | 0.305 |
| Rutin | -0.043 | 0.211 | -0.379 | **-0.612** | 0.015 | 0.398 | 0.162 | -0.378 | -0.400 | -0.399 | -0.406 | 0.198 | 0.043 | 0.051 | 0.322 |
| Quercetin 3-O-galactoside | -0.024 | 0.130 | -0.337 | **-0.465** | 0.020 | 0.371 | 0.306 | -0.253 | -0.329 | -0.350 | -0.343 | 0.133 | 0.101 | 0.159 | 0.332 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kaempferol 3-O-rutinoside 2 | -0.197 | 0.037 | -0.262 | **-0.533** | 0.054 | 0.190 | 0.090 | **-0.453** | -0.248 | **-0.503** | -0.284 | -0.059 | 0.080 | 0.005 | 0.399 |
| Kaempferol 3-O-glucoside | -0.176 | -0.038 | -0.349 | **-0.452** | -0.041 | 0.263 | 0.066 | -0.330 | -0.287 | -0.344 | -0.283 | 0.175 | 0.106 | -0.027 | 0.323 |
| Unknown quercetin conjugate | -0.249 | -0.034 | -0.356 | **-0.615** | -0.091 | 0.153 | -0.121 | **-0.512** | -0.331 | **-0.529** | -0.393 | 0.022 | -0.130 | -0.063 | 0.293 |
| Unknown kaempferol conjugate | -0.116 | 0.161 | -0.338 | **-0.653** | 0.059 | 0.311 | 0.016 | **-0.464** | -0.376 | **-0.447** | -0.414 | 0.139 | -0.007 | 0.018 | 0.293 |
| Total flavonoids | -0.119 | 0.004 | **-0.520** | **-0.612** | -0.213 | 0.308 | -0.146 | -0.396 | **-0.485** | -0.334 | **-0.476** | 0.327 | -0.104 | -0.101 | 0.102 |
| Caffeine | -0.286 | -0.010 | -0.283 | -0.414 | -0.091 | -0.077 | -0.007 | -0.420 | -0.210 | **-0.477** | -0.266 | -0.047 | -0.208 | -0.015 | 0.137 |
| Ethoxyacetic acid | 0.095 | **0.744** | **0.554** | -0.191 | **0.795** | 0.051 | **0.576** | -0.367 | 0.408 | **-0.507** | 0.340 | **-0.545** | 0.285 | 0.273 | **0.771** |
| Acetic acid | **0.694** | 0.364 | 0.016 | -0.097 | -0.076 | **0.878** | 0.059 | 0.178 | -0.198 | 0.164 | -0.037 | 0.211 | 0.157 | -0.233 | 0.393 |
| Pterin-6-carboxylic acid | 0.230 | 0.088 | **-0.505** | -0.436 | -0.406 | **0.618** | -0.211 | -0.061 | **-0.528** | 0.069 | -0.428 | **0.592** | -0.045 | -0.164 | -0.077 |
| Hexanoic acid | **0.546** | **0.481** | 0.233 | **0.455** | 0.264 | 0.246 | 0.265 | **0.497** | 0.082 | **0.493** | 0.295 | 0.150 | 0.222 | 0.181 | -0.182 |
| Octanoic acid | 0.183 | **0.544** | **0.877** | **0.485** | **0.651** | -0.302 | **0.457** | 0.184 | **0.816** | 0.091 | **0.780** | **-0.620** | 0.266 | 0.390 | 0.295 |
| Nonanoic acid | 0.164 | **0.647** | **0.874** | 0.348 | **0.644** | -0.200 | **0.716** | 0.123 | **0.834** | -0.044 | **0.747** | **-0.714** | 0.292 | **0.519** | **0.491** |
| Total acid | 0.287 | **0.615** | **0.825** | **0.504** | **0.633** | -0.183 | **0.520** | 0.266 | **0.740** | 0.168 | **0.747** | **-0.528** | 0.292 | 0.413 | 0.259 |
| 2-Methyl-1-propanol | **0.656** | **0.687** | 0.056 | 0.055 | 0.198 | **0.640** | 0.277 | 0.256 | -0.173 | 0.234 | 0.028 | 0.219 | 0.221 | 0.077 | 0.171 |
| 2-Pentanol | **-0.547** | -0.064 | -0.044 | -0.273 | 0.213 | **-0.458** | 0.120 | **-0.519** | -0.006 | **-0.627** | -0.170 | -0.345 | -0.130 | 0.081 | 0.105 |
| 1-Butanol | 0.233 | 0.233 | -0.048 | -0.237 | -0.006 | 0.426 | 0.132 | -0.032 | -0.148 | -0.105 | -0.171 | -0.008 | 0.065 | 0.115 | 0.288 |
| 2-Hexanol | 0.230 | 0.336 | 0.031 | -0.211 | 0.209 | 0.391 | 0.217 | -0.086 | -0.150 | -0.183 | -0.202 | -0.077 | 0.111 | 0.216 | 0.411 |
| 3-Methyl-1-butanol | **0.828** | **0.574** | 0.050 | 0.332 | 0.060 | **0.669** | 0.210 | **0.544** | -0.205 | **0.542** | 0.081 | 0.321 | 0.221 | -0.015 | -0.025 |
| 1-(2-Aminoethylamino)-2-propanol | -0.151 | 0.087 | -0.394 | **-0.500** | -0.119 | 0.163 | 0.081 | -0.330 | -0.371 | -0.379 | -0.401 | 0.128 | -0.203 | 0.046 | 0.074 |
| 2-Octen-4-ol | -0.093 | 0.142 | -0.352 | **-0.520** | -0.112 | 0.228 | 0.014 | -0.346 | -0.336 | -0.376 | -0.365 | 0.137 | -0.154 | 0.003 | 0.154 |
| 3-Methyl-1-pentanol | **0.709** | **0.617** | 0.089 | 0.292 | 0.180 | **0.630** | 0.402 | **0.495** | -0.138 | 0.384 | 0.081 | 0.242 | 0.176 | 0.080 | 0.065 |
| (E)-3-Hexen-1-ol | -0.353 | -0.034 | -0.013 | -0.205 | 0.027 | -0.236 | -0.046 | -0.115 | 0.151 | **-0.522** | -0.097 | -0.209 | **-0.896** | 0.047 | 0.154 |
| 1-Hexanol | **-0.519** | 0.131 | 0.084 | -0.248 | **0.620** | **-0.509** | 0.236 | **-0.515** | 0.073 | **-0.654** | -0.088 | -0.383 | -0.083 | 0.227 | 0.171 |
| 2-Methyl-4-heptanol | **-0.527** | 0.036 | 0.003 | -0.368 | 0.323 | -0.268 | 0.211 | **-0.527** | 0.093 | **-0.631** | -0.077 | -0.292 | 0.026 | 0.303 | 0.406 |
| 2-Ethyl-1-hexanol | **0.546** | -0.029 | **-0.489** | -0.023 | **-0.573** | **0.749** | -0.361 | 0.401 | **-0.577** | **0.565** | -0.345 | **0.808** | -0.028 | -0.266 | -0.385 |
| Linalool | 0.030 | 0.043 | **-0.526** | **-0.513** | -0.288 | 0.407 | -0.235 | -0.246 | **-0.508** | -0.088 | -0.439 | **0.525** | -0.039 | -0.165 | -0.056 |
| 1-Octanol | **0.726** | **0.658** | **0.628** | **0.739** | 0.312 | 0.250 | **0.520** | **0.738** | 0.386 | **0.552** | **0.543** | -0.288 | 0.154 | 0.243 | 0.096 |
| 2,3-Butanediol | **0.660** | 0.251 | -0.064 | -0.118 | -0.117 | **0.874** | -0.001 | 0.153 | -0.214 | 0.191 | -0.003 | 0.358 | 0.217 | -0.372 | 0.279 |
| Phenylethyl alcohol | **0.873** | **0.537** | 0.274 | **0.572** | 0.061 | **0.543** | 0.249 | **0.733** | 0.054 | **0.731** | 0.365 | 0.196 | 0.263 | 0.020 | -0.081 |
| Total alcohol | **0.817** | **0.627** | 0.106 | 0.285 | 0.124 | **0.676** | 0.279 | **0.504** | -0.162 | **0.463** | 0.092 | 0.228 | 0.227 | 0.058 | 0.073 |
| 3-Hydroxybutanal | -0.010 | 0.008 | -0.266 | -0.100 | 0.030 | 0.100 | 0.277 | -0.031 | -0.301 | -0.014 | -0.209 | 0.158 | 0.050 | 0.059 | -0.192 |
| Octanal | 0.373 | **0.583** | **0.530** | -0.009 | 0.269 | 0.285 | 0.270 | -0.057 | 0.410 | -0.183 | 0.408 | -0.393 | 0.038 | -0.116 | **0.686** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total aldehyde | 0.373 | **0.584** | **0.530** | -0.010 | 0.270 | 0.286 | 0.271 | -0.057 | 0.409 | -0.183 | 0.408 | -0.393 | 0.038 | -0.116 | **0.686** |
| Benzaldehyde | 0.182 | -0.412 | -0.403 | 0.274 | **-0.459** | 0.190 | -0.111 | 0.382 | -0.403 | **0.475** | -0.256 | **0.449** | 0.002 | -0.140 | **-0.576** |
| Myristicin | **0.606** | 0.062 | 0.084 | **0.735** | -0.355 | 0.180 | -0.174 | **0.825** | -0.015 | **0.932** | 0.264 | 0.310 | 0.052 | -0.200 | **-0.605** |
| Benzeneacetaldehyde | 0.015 | -0.216 | **-0.568** | -0.264 | -0.306 | 0.338 | -0.149 | -0.095 | **-0.560** | -0.089 | **-0.576** | **0.463** | -0.093 | -0.099 | -0.015 |
| Naphthalene | -0.144 | -0.171 | **-0.708** | **-0.628** | -0.325 | 0.351 | -0.311 | -0.395 | **-0.665** | -0.278 | **-0.637** | **0.559** | -0.137 | -0.209 | -0.084 |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | -0.144 | -0.171 | **-0.708** | **-0.628** | -0.325 | 0.351 | -0.311 | -0.395 | **-0.665** | -0.278 | **-0.637** | **0.559** | -0.137 | -0.209 | -0.084 |
| Benzyl alcohol | **-0.793** | -0.222 | -0.018 | -0.344 | 0.439 | **-0.737** | -0.004 | **-0.645** | 0.132 | **-0.640** | -0.115 | -0.314 | -0.034 | 0.256 | 0.043 |
| Total benzenoid | **-0.779** | -0.326 | -0.144 | -0.287 | 0.337 | **-0.725** | -0.064 | **-0.573** | 0.012 | **-0.541** | -0.211 | -0.184 | -0.046 | 0.224 | -0.111 |
| Ethyl butanoate | -0.220 | **0.569** | 0.344 | -0.279 | **0.806** | -0.169 | **0.480** | **-0.508** | 0.248 | **-0.634** | 0.088 | -0.437 | 0.186 | 0.349 | **0.495** |
| Ethyl 3-methylbutanoate | 0.256 | **0.787** | **0.572** | 0.083 | **0.747** | 0.097 | **0.533** | -0.113 | 0.441 | -0.242 | **0.455** | -0.328 | 0.273 | 0.071 | **0.467** |
| 3-Methylbutyl acetate | **-0.524** | 0.272 | 0.294 | -0.432 | **0.742** | -0.404 | 0.354 | **-0.732** | 0.330 | **-0.837** | 0.077 | **-0.527** | 0.117 | 0.354 | **0.553** |
| 3-Hydroxymandelic acid ethyl ester | 0.040 | **0.448** | **0.492** | -0.344 | **0.543** | 0.201 | **0.452** | -0.420 | **0.461** | **-0.589** | 0.286 | **-0.498** | 0.162 | 0.241 | **0.998** |
| Ethyl hexanoate | 0.152 | **0.828** | **0.748** | 0.274 | **0.851** | -0.190 | **0.586** | -0.007 | **0.529** | -0.163 | **0.459** | **-0.623** | 0.244 | 0.389 | 0.371 |
| Hexyl acetate | **-0.529** | 0.284 | 0.434 | -0.382 | **0.763** | **-0.464** | 0.349 | **-0.713** | **0.513** | **-0.811** | 0.227 | **-0.589** | 0.120 | 0.399 | **0.581** |
| Ethyl (E)-3-hexenoate | 0.168 | 0.308 | -0.006 | -0.355 | 0.356 | **0.445** | 0.223 | -0.291 | -0.072 | -0.369 | -0.102 | 0.063 | 0.152 | 0.226 | **0.557** |
| Ethyl lactate | **1** | **0.527** | 0.273 | **0.523** | -0.032 | **0.709** | 0.221 | **0.718** | -0.007 | **0.683** | 0.301 | 0.142 | 0.216 | -0.154 | 0.071 |
| Propyl hexanoate | **0.527** | **1** | **0.682** | 0.274 | **0.654** | 0.276 | **0.689** | 0.224 | 0.409 | 0.027 | 0.444 | -0.435 | 0.230 | 0.313 | **0.487** |
| Ethyl octanoate | 0.273 | **0.682** | **1** | 0.425 | **0.703** | -0.196 | **0.526** | 0.120 | **0.873** | -0.016 | **0.808** | **-0.765** | 0.267 | 0.286 | **0.542** |
| Ethyl 3-hydroxybutanoate | **0.523** | 0.274 | 0.425 | **1** | 0.046 | -0.131 | 0.239 | **0.789** | 0.204 | **0.687** | 0.396 | -0.266 | 0.071 | -0.072 | -0.299 |
| Ethyl nonanoate | -0.032 | **0.654** | **0.703** | 0.046 | **1** | -0.236 | **0.593** | -0.304 | **0.522** | -0.414 | 0.385 | **-0.642** | 0.348 | 0.395 | **0.572** |
| Isoamyl lactate | **0.709** | 0.276 | -0.196 | -0.131 | -0.236 | **1** | 0.072 | 0.292 | -0.367 | 0.284 | -0.195 | **0.485** | 0.117 | -0.125 | 0.190 |
| Methyl decanoate | 0.221 | **0.689** | **0.526** | 0.239 | **0.593** | 0.072 | **1** | 0.144 | 0.304 | -0.148 | 0.227 | **-0.613** | 0.262 | **0.532** | **0.475** |
| Ethyl 2-furancarboxylate | **0.718** | 0.224 | 0.120 | **0.789** | -0.304 | 0.292 | 0.144 | **1** | -0.072 | **0.841** | 0.186 | 0.070 | -0.161 | -0.070 | -0.389 |
| Ethyl decanoate | -0.007 | 0.409 | **0.873** | 0.204 | **0.522** | -0.367 | 0.304 | -0.072 | **1** | -0.156 | **0.879** | **-0.651** | 0.120 | 0.208 | **0.502** |
| Diethyl succinate | **0.683** | 0.027 | -0.016 | **0.687** | -0.414 | 0.284 | -0.148 | **0.841** | -0.156 | **1** | 0.196 | 0.345 | 0.193 | -0.195 | **-0.559** |
| Ethyl 9-decenoate | 0.301 | 0.444 | **0.808** | 0.396 | 0.385 | -0.195 | 0.227 | 0.186 | **0.879** | 0.196 | **1** | **-0.473** | 0.255 | -0.035 | 0.337 |
| Ethyl benzeneacetate | 0.142 | -0.435 | **-0.765** | -0.266 | **-0.642** | **0.485** | **-0.613** | 0.070 | **-0.651** | 0.345 | **-0.473** | **1** | -0.054 | -0.412 | **-0.527** |
| 2-Phenethyl acetate | 0.216 | 0.230 | 0.267 | 0.071 | 0.348 | 0.117 | 0.262 | -0.161 | 0.120 | 0.193 | 0.255 | -0.054 | **1** | 0.139 | 0.184 |
| Ethyl dodecanoate | -0.154 | 0.313 | 0.286 | -0.072 | 0.395 | -0.125 | **0.532** | -0.070 | 0.208 | -0.195 | -0.035 | -0.412 | 0.139 | **1** | 0.251 |
| Total ester | 0.071 | **0.487** | **0.542** | -0.299 | **0.572** | 0.190 | **0.475** | -0.389 | **0.502** | **-0.559** | 0.337 | **-0.527** | 0.184 | 0.251 | **1** |
| 3-Hydroxy-2-butanone | -0.269 | 0.123 | **0.449** | -0.148 | 0.326 | -0.273 | 0.132 | -0.302 | **0.637** | -0.191 | 0.407 | -0.283 | 0.283 | **0.619** | 0.282 |
| Limonene | -0.141 | -0.209 | **-0.742** | **-0.610** | -0.301 | 0.383 | -0.297 | -0.393 | **-0.742** | -0.285 | **-0.728** | **0.590** | -0.131 | -0.195 | -0.115 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Terpinolene | -0.247 | 0.030 | -0.345 | -0.396 | -0.085 | -0.032 | 0.101 | -0.317 | -0.290 | -0.397 | -0.338 | 0.046 | -0.271 | 0.063 | -0.009 |
| Total terpene | -0.168 | -0.143 | **-0.687** | **-0.608** | -0.256 | 0.319 | -0.232 | -0.410 | **-0.678** | -0.339 | **-0.680** | **0.502** | -0.167 | -0.152 | -0.076 |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S6** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated Chardonnay wines (continued 7/7)

| Variables | 3-Hydroxy-2-butanone | Limonene | Terpinolene | Total terpene |
|---|---|---|---|---|
| TA | 0.195 | **-0.768** | **-0.626** | **-0.809** |
| pH | -0.185 | **0.823** | **0.693** | **0.868** |
| TPC | -0.247 | **0.847** | **0.746** | **0.895** |
| TFC | -0.239 | **0.811** | **0.794** | **0.878** |
| DPPH | -0.280 | **0.893** | **0.742** | **0.932** |
| FRAP | -0.203 | **0.692** | **0.873** | **0.794** |
| ABTS | -0.183 | **0.746** | **0.838** | **0.830** |
| L* | 0.405 | **-0.700** | -0.083 | **-0.607** |
| a* | -0.227 | **0.549** | 0.001 | **0.465** |
| b* | -0.417 | **0.777** | 0.171 | **0.694** |
| Quinic acid | -0.305 | **0.780** | 0.369 | **0.749** |
| Gallic acid | -0.094 | **0.629** | **0.704** | **0.704** |
| Chlorogenic acid | -0.187 | **0.751** | **0.843** | **0.839** |
| Total phenolic acids | -0.265 | **0.841** | **0.589** | **0.854** |
| Gallocatechin | -0.259 | **0.865** | **0.755** | **0.912** |
| Epigallocatechin | -0.170 | **0.711** | **0.853** | **0.805** |
| Procyanidin B1 | -0.224 | **0.774** | **0.747** | **0.835** |
| Catechin | -0.279 | **0.884** | **0.681** | **0.910** |
| Procyanidin B2 | -0.155 | **0.497** | **0.727** | **0.594** |
| Epicatechin | -0.173 | **0.638** | **0.707** | **0.712** |
| Epigallocatechin gallate | -0.269 | **0.813** | **0.537** | **0.817** |
| Procyanidin B1 3-O-gallate | -0.218 | **0.543** | **0.666** | **0.618** |
| Gallocatechin gallate | -0.133 | **0.588** | **0.849** | **0.698** |
| Quercetin 3-O-di-galacoside/glucoside | -0.183 | **0.684** | **0.836** | **0.777** |
| Myricetin 3-O-galactoside 1 | -0.150 | **0.486** | 0.228 | **0.469** |
| Epicatechin gallate | -0.191 | **0.678** | **0.699** | **0.742** |
| Rutin | -0.214 | **0.733** | **0.658** | **0.782** |
| Quercetin 3-O-galactoside | -0.185 | **0.514** | 0.330 | **0.521** |

| | | | | |
|---|---|---|---|---|
| Kaempferol 3-O-rutinoside 2 | -0.137 | **0.507** | 0.403 | **0.528** |
| Kaempferol 3-O-glucoside | -0.140 | 0.390 | 0.086 | 0.355 |
| Unknown quercetin conjugate | -0.214 | **0.720** | **0.631** | **0.761** |
| Unknown kaempferol conjugate | -0.206 | **0.765** | **0.606** | **0.792** |
| Total flavonoids | -0.262 | **0.866** | **0.746** | **0.910** |
| Caffeine | -0.147 | **0.589** | **0.898** | **0.711** |
| Ethoxyacetic acid | 0.153 | 0.022 | 0.259 | 0.108 |
| Acetic acid | -0.303 | 0.325 | -0.041 | 0.274 |
| Pterin-6-carboxylic acid | -0.273 | **0.780** | **0.519** | **0.783** |
| Hexanoic acid | 0.100 | -0.236 | -0.218 | -0.237 |
| Octanoic acid | **0.575** | **-0.798** | -0.420 | **-0.757** |
| Nonanoic acid | **0.613** | **-0.727** | -0.234 | **-0.658** |
| Total acid | **0.536** | **-0.740** | -0.380 | **-0.698** |
| 2-Methyl-1-propanol | -0.167 | 0.342 | 0.211 | 0.362 |
| 2-Pentanol | -0.096 | 0.235 | **0.542** | 0.328 |
| 1-Butanol | -0.065 | 0.357 | 0.158 | 0.342 |
| 2-Hexanol | -0.069 | 0.348 | 0.113 | 0.333 |
| 3-Methyl-1-butanol | -0.229 | 0.134 | -0.009 | 0.131 |
| 1-(2-Aminoethylamino)-2-propanol | -0.222 | **0.745** | **0.953** | **0.842** |
| 2-Octen-4-ol | -0.200 | **0.750** | **0.862** | **0.841** |
| 3-Methyl-1-pentanol | -0.196 | 0.046 | -0.113 | 0.031 |
| (E)-3-Hexen-1-ol | -0.054 | 0.052 | 0.303 | 0.117 |
| 1-Hexanol | 0.024 | 0.114 | 0.380 | 0.196 |
| 2-Methyl-4-heptanol | 0.209 | 0.069 | 0.158 | 0.104 |
| 2-Ethyl-1-hexanol | -0.354 | **0.482** | -0.021 | 0.399 |
| Linalool | -0.246 | **0.829** | **0.619** | **0.852** |
| 1-Octanol | 0.098 | **-0.621** | **-0.458** | **-0.622** |
| 2,3-Butanediol | -0.323 | 0.268 | -0.087 | 0.215 |
| Phenylethyl alcohol | -0.071 | -0.265 | -0.348 | -0.294 |
| Total alcohol | -0.196 | 0.143 | -0.004 | 0.139 |
| 3-Hydroxybutanal | -0.180 | 0.357 | **0.459** | 0.350 |
| Octanal | -0.059 | -0.036 | 0.135 | 0.025 |
| Total aldehyde | -0.060 | -0.034 | 0.136 | 0.027 |

| | | | | |
|---|---|---|---|---|
| Benzaldehyde | -0.210 | 0.080 | -0.113 | -0.016 |
| Myristicin | -0.077 | -0.367 | -0.412 | -0.412 |
| Benzeneacetaldehyde | -0.329 | **0.618** | 0.240 | **0.573** |
| Naphthalene | -0.355 | **0.975** | **0.690** | **0.982** |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | -0.355 | **0.975** | **0.690** | **0.982** |
| Benzyl alcohol | 0.290 | -0.005 | 0.249 | 0.061 |
| Total benzenoid | 0.236 | 0.045 | 0.242 | 0.093 |
| Ethyl butanoate | 0.222 | 0.132 | 0.373 | 0.221 |
| Ethyl 3-methylbutanoate | 0.134 | -0.141 | 0.077 | -0.070 |
| 3-Methylbutyl acetate | 0.324 | 0.074 | 0.342 | 0.159 |
| 3-Hydroxymandelic acid ethyl ester | 0.263 | -0.068 | 0.014 | -0.032 |
| Ethyl hexanoate | 0.310 | -0.352 | 0.017 | -0.267 |
| Hexyl acetate | **0.482** | -0.089 | 0.220 | -0.007 |
| Ethyl (E)-3-hexenoate | 0.109 | 0.335 | 0.166 | 0.344 |
| Ethyl lactate | -0.269 | -0.141 | -0.247 | -0.168 |
| Propyl hexanoate | 0.123 | -0.209 | 0.030 | -0.143 |
| Ethyl octanoate | **0.449** | **-0.742** | -0.345 | **-0.687** |
| Ethyl 3-hydroxybutanoate | -0.148 | **-0.610** | -0.396 | **-0.608** |
| Ethyl nonanoate | 0.326 | -0.301 | -0.085 | -0.256 |
| Isoamyl lactate | -0.273 | 0.383 | -0.032 | 0.319 |
| Methyl decanoate | 0.132 | -0.297 | 0.101 | -0.232 |
| Ethyl 2-furancarboxylate | -0.302 | -0.393 | -0.317 | -0.410 |
| Ethyl decanoate | **0.637** | **-0.742** | -0.290 | **-0.678** |
| Diethyl succinate | -0.191 | -0.285 | -0.397 | -0.339 |
| Ethyl 9-decenoate | 0.407 | **-0.728** | -0.338 | **-0.680** |
| Ethyl benzeneacetate | -0.283 | **0.590** | 0.046 | **0.502** |
| 2-Phenethyl acetate | 0.283 | -0.131 | -0.271 | -0.167 |
| Ethyl dodecanoate | **0.619** | -0.195 | 0.063 | -0.152 |
| Total ester | 0.282 | -0.115 | -0.009 | -0.076 |
| 3-Hydroxy-2-butanone | **1** | -0.408 | -0.187 | -0.381 |
| Limonene | -0.408 | **1** | **0.633** | **0.984** |
| Terpinolene | -0.187 | **0.633** | **1** | **0.751** |
| Total terpene | -0.381 | **0.984** | **0.751** | **1** |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S7** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated model wines (continued 1/7)

| Variables | TA | pH | TPC | TFC | DPPH | FRAP | ABTS | L* | a* | b* | Quinic acid | Gallic acid | Chlorogenic acid | Total phenolic acids | Gallocatechin |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | **1** | **-0.986** | **-0.567** | **-0.596** | **-0.595** | **-0.489** | **-0.517** | **0.682** | **-0.492** | **-0.847** | **-0.476** | **-0.490** | **-0.499** | **-0.719** | **-0.712** |
| pH | **-0.986** | **1** | **0.558** | **0.577** | **0.566** | **0.466** | **0.499** | **-0.714** | **0.550** | **0.863** | **0.500** | **0.483** | **0.468** | **0.724** | **0.703** |
| TPC | **-0.567** | **0.558** | **1** | **0.763** | **0.893** | **0.929** | **0.933** | -0.269 | 0.170 | 0.410 | 0.350 | **0.815** | **0.854** | **0.940** | **0.947** |
| TFC | **-0.596** | **0.577** | **0.763** | **1** | **0.769** | **0.758** | **0.785** | -0.236 | 0.136 | 0.436 | 0.288 | **0.712** | **0.823** | **0.822** | **0.801** |
| DPPH | **-0.595** | **0.566** | **0.893** | **0.769** | **1** | **0.967** | **0.981** | -0.162 | 0.010 | 0.343 | 0.392 | **0.701** | **0.968** | **0.894** | **0.867** |
| FRAP | **-0.489** | **0.466** | **0.929** | **0.758** | **0.967** | **1** | **0.979** | -0.100 | -0.021 | 0.257 | 0.418 | **0.671** | **0.948** | **0.884** | **0.884** |
| ABTS | **-0.517** | **0.499** | **0.933** | **0.785** | **0.981** | **0.979** | **1** | -0.123 | 0.003 | 0.288 | 0.337 | **0.758** | **0.966** | **0.905** | **0.880** |
| L* | **0.682** | **-0.714** | -0.269 | -0.236 | -0.162 | -0.100 | -0.123 | **1** | **-0.959** | **-0.942** | **-0.582** | -0.205 | -0.014 | **-0.500** | **-0.492** |
| a* | **-0.492** | **0.550** | 0.170 | 0.136 | 0.010 | -0.021 | 0.003 | **-0.959** | **1** | **0.849** | **0.530** | 0.135 | -0.127 | 0.397 | 0.369 |
| b* | **-0.847** | **0.863** | 0.410 | 0.436 | 0.343 | 0.257 | 0.288 | **-0.942** | **0.849** | **1** | **0.593** | 0.333 | 0.201 | **0.628** | **0.622** |
| Quinic acid | **-0.476** | **0.500** | 0.350 | 0.288 | 0.392 | 0.418 | 0.337 | **-0.582** | **0.530** | **0.593** | **1** | -0.147 | 0.265 | **0.511** | **0.519** |
| Gallic acid | **-0.490** | **0.483** | **0.815** | **0.712** | **0.701** | **0.671** | **0.758** | -0.205 | 0.135 | 0.333 | -0.147 | **1** | **0.721** | **0.771** | **0.736** |
| Chlorogenic acid | **-0.499** | **0.468** | **0.854** | **0.823** | **0.968** | **0.948** | **0.966** | -0.014 | -0.127 | 0.201 | 0.265 | **0.721** | **1** | **0.839** | **0.808** |
| Total phenolic acids | **-0.719** | **0.724** | **0.940** | **0.822** | **0.894** | **0.884** | **0.905** | **-0.500** | 0.397 | **0.628** | **0.511** | **0.771** | **0.839** | **1** | **0.973** |
| Gallocatechin | **-0.712** | **0.703** | **0.947** | **0.801** | **0.867** | **0.884** | **0.880** | **-0.492** | 0.369 | **0.622** | **0.519** | **0.736** | **0.808** | **0.973** | **1** |
| Epigallocatechin | **-0.500** | **0.477** | **0.938** | **0.820** | **0.961** | **0.981** | **0.977** | -0.085 | -0.037 | 0.262 | 0.384 | **0.705** | **0.959** | **0.891** | **0.878** |
| Procyanidin B1 | **-0.719** | **0.688** | **0.912** | **0.816** | **0.954** | **0.911** | **0.933** | -0.279 | 0.108 | **0.468** | 0.337 | **0.789** | **0.932** | **0.924** | **0.911** |
| Catechin | **-0.727** | **0.696** | **0.908** | **0.773** | **0.910** | **0.883** | **0.884** | -0.443 | 0.293 | **0.592** | **0.453** | **0.739** | **0.843** | **0.942** | **0.957** |
| Procyanidin B2 | **-0.472** | **0.476** | **0.824** | **0.784** | **0.806** | **0.868** | **0.853** | -0.117 | 0.020 | 0.256 | **0.484** | **0.543** | **0.842** | **0.811** | **0.807** |
| Epicatechin | **-0.516** | **0.513** | **0.789** | **0.831** | **0.808** | **0.842** | **0.824** | -0.271 | 0.180 | **0.445** | **0.629** | **0.467** | **0.781** | **0.830** | **0.847** |
| Epigallocatechin gallate | **-0.524** | **0.513** | **0.674** | **0.521** | **0.608** | **0.694** | **0.608** | **-0.489** | 0.398 | **0.530** | **0.758** | 0.267 | **0.532** | **0.720** | **0.813** |
| Procyanidin B1 3-O-gallate | **-0.632** | **0.650** | **0.831** | **0.767** | **0.811** | **0.828** | **0.842** | **-0.507** | 0.427 | **0.609** | **0.585** | **0.626** | **0.758** | **0.922** | **0.923** |
| Gallocatechin gallate | **-0.492** | **0.458** | **0.887** | **0.827** | **0.965** | **0.970** | **0.965** | -0.031 | -0.104 | 0.224 | 0.380 | **0.655** | **0.976** | **0.853** | **0.838** |
| Quercetin 3-O-di-galacoside/glucoside | **-0.471** | **0.490** | **0.832** | **0.763** | **0.720** | **0.796** | **0.809** | -0.236 | 0.176 | 0.355 | 0.344 | **0.678** | **0.739** | **0.818** | **0.825** |
| Myricetin 3-O-galactoside 1 | -0.247 | 0.192 | **0.487** | 0.314 | **0.546** | **0.468** | **0.497** | -0.081 | 0.002 | 0.171 | -0.105 | **0.568** | **0.476** | 0.434 | 0.428 |
| Epicatechin gallate | **-0.706** | **0.699** | **0.850** | **0.789** | **0.887** | **0.869** | **0.884** | -0.396 | 0.252 | **0.540** | 0.422 | **0.719** | **0.858** | **0.911** | **0.913** |
| Rutin | **-0.562** | **0.555** | **0.631** | **0.554** | **0.726** | **0.743** | **0.678** | -0.428 | 0.298 | **0.518** | **0.850** | 0.191 | **0.636** | **0.731** | **0.749** |
| Quercetin 3-O-galactoside | **-0.503** | **0.485** | **0.503** | 0.414 | **0.531** | **0.497** | **0.500** | **-0.476** | 0.358 | **0.496** | 0.365 | 0.422 | **0.461** | **0.598** | **0.576** |
| Kaempferol 3-O-rutinoside 2 | **-0.647** | **0.646** | **0.774** | **0.722** | **0.806** | **0.783** | **0.809** | -0.400 | 0.279 | **0.528** | 0.370 | **0.679** | **0.774** | **0.838** | **0.852** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kaempferol 3-O-glucoside | **-0.530** | **0.528** | **0.512** | 0.429 | **0.600** | **0.625** | **0.555** | **-0.487** | 0.365 | **0.538** | **0.894** | 0.051 | **0.498** | **0.631** | **0.673** |
| Unknown quercetin conjugate | **-0.596** | **0.558** | **0.816** | **0.763** | **0.832** | **0.769** | **0.828** | -0.176 | 0.034 | 0.343 | 0.014 | **0.894** | **0.859** | **0.804** | **0.775** |
| Unknown kaempferol conjugate | **-0.641** | **0.601** | **0.826** | **0.757** | **0.920** | **0.903** | **0.875** | -0.225 | 0.052 | 0.399 | **0.545** | **0.538** | **0.902** | **0.851** | **0.853** |
| Total flavonoids | **-0.694** | **0.668** | **0.942** | **0.813** | **0.941** | **0.931** | **0.930** | -0.381 | 0.237 | **0.538** | **0.469** | **0.743** | **0.890** | **0.961** | **0.972** |
| Caffeine | **-0.453** | **0.451** | **0.866** | **0.745** | **0.869** | **0.919** | **0.910** | -0.055 | -0.053 | 0.200 | 0.431 | **0.592** | **0.893** | **0.824** | **0.813** |
| Ethoxyacetic acid | -0.409 | 0.394 | -0.274 | -0.156 | -0.159 | -0.282 | -0.246 | -0.078 | -0.055 | 0.185 | -0.125 | -0.158 | -0.213 | -0.222 | -0.215 |
| Acetic acid | **-0.813** | **0.735** | 0.392 | 0.374 | 0.379 | 0.269 | 0.289 | **-0.513** | 0.316 | **0.666** | 0.199 | 0.386 | 0.272 | **0.447** | **0.480** |
| Pterin-6-carboxylic acid | **-0.655** | **0.650** | 0.362 | **0.476** | 0.247 | 0.193 | 0.243 | -0.343 | 0.242 | **0.451** | 0.045 | **0.464** | 0.281 | 0.417 | 0.412 |
| Hexanoic acid | -0.343 | 0.415 | -0.126 | -0.089 | -0.157 | -0.194 | -0.212 | **-0.467** | **0.493** | 0.404 | 0.197 | -0.040 | -0.188 | 0.059 | -0.011 |
| Octanoic acid | -0.068 | 0.062 | -0.016 | 0.126 | -0.024 | 0.024 | -0.051 | 0.193 | -0.222 | -0.184 | -0.176 | 0.067 | 0.101 | -0.039 | -0.068 |
| Nonanoic acid | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Total acid | -0.282 | 0.332 | -0.108 | -0.018 | -0.132 | -0.140 | -0.186 | -0.255 | 0.260 | 0.214 | 0.062 | -0.007 | -0.102 | 0.018 | -0.047 |
| 2-Methyl-1-propanol | **-0.756** | **0.748** | 0.438 | 0.421 | **0.521** | 0.402 | **0.459** | -0.410 | 0.262 | **0.545** | 0.221 | **0.477** | **0.484** | **0.558** | **0.507** |
| 2-Pentanol | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| 1-Butanol | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| 2-Hexanol | -0.244 | 0.252 | 0.153 | 0.186 | 0.369 | 0.238 | 0.282 | 0.052 | -0.136 | 0.113 | -0.094 | 0.274 | 0.330 | 0.198 | 0.165 |
| 3-Methyl-1-butanol | **-0.767** | **0.723** | 0.350 | **0.475** | 0.387 | 0.327 | 0.295 | -0.328 | 0.147 | **0.477** | 0.203 | 0.340 | 0.391 | 0.430 | 0.423 |
| 1-(2-Aminoethylamino)-2-propanol | **-0.589** | **0.510** | 0.161 | 0.246 | 0.178 | 0.109 | 0.127 | -0.427 | 0.286 | **0.528** | 0.189 | 0.146 | 0.109 | 0.236 | 0.301 |
| 2-Octen-4-ol | **-0.512** | **0.523** | **0.882** | **0.706** | **0.784** | **0.827** | **0.838** | -0.072 | -0.021 | 0.220 | 0.171 | **0.771** | **0.796** | **0.794** | **0.772** |
| 3-Methyl-1-pentanol | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| (E)-3-Hexen-1-ol | -0.414 | 0.408 | 0.062 | 0.033 | 0.066 | -0.006 | -0.002 | **-0.546** | **0.468** | **0.491** | 0.265 | 0.071 | -0.031 | 0.205 | 0.180 |
| 1-Hexanol | **-0.485** | **0.528** | 0.085 | 0.130 | 0.100 | 0.033 | 0.052 | -0.219 | 0.141 | 0.397 | 0.156 | 0.086 | 0.059 | 0.165 | 0.180 |
| 2-Methyl-4-heptanol | -0.204 | 0.272 | -0.105 | -0.082 | -0.107 | -0.153 | -0.132 | -0.100 | 0.081 | 0.206 | 0.042 | -0.071 | -0.129 | -0.046 | -0.030 |
| 2-Ethyl-1-hexanol | -0.388 | 0.410 | 0.368 | 0.132 | 0.308 | 0.299 | 0.276 | -0.365 | 0.287 | 0.373 | 0.416 | 0.156 | 0.212 | 0.392 | 0.385 |
| Linalool | **-0.490** | **0.526** | **0.877** | **0.617** | **0.752** | **0.807** | **0.816** | -0.380 | 0.352 | **0.467** | **0.451** | **0.675** | **0.674** | **0.869** | **0.844** |
| 1-Octanol | **-0.486** | **0.506** | **0.870** | **0.668** | **0.756** | **0.803** | **0.809** | -0.261 | 0.213 | 0.399 | 0.422 | **0.640** | **0.688** | **0.828** | **0.794** |
| 2,3-Butanediol | **-0.875** | **0.839** | 0.428 | **0.509** | 0.426 | 0.355 | 0.364 | **-0.540** | 0.359 | **0.678** | 0.407 | 0.331 | 0.370 | **0.541** | **0.560** |
| Phenylethyl alcohol | -0.378 | 0.440 | -0.170 | -0.145 | -0.202 | -0.294 | -0.265 | **-0.805** | **0.825** | **0.655** | 0.348 | -0.095 | -0.305 | 0.091 | 0.032 |
| Total alcohol | **-0.534** | **0.608** | 0.084 | 0.062 | 0.091 | -0.020 | 0.023 | **-0.742** | **0.720** | **0.705** | 0.357 | 0.146 | -0.023 | 0.317 | 0.256 |
| 3-Hydroxybutanal | **-0.515** | **0.459** | 0.042 | 0.089 | -0.002 | -0.026 | -0.084 | **-0.620** | **0.512** | **0.645** | **0.563** | -0.186 | -0.102 | 0.176 | 0.257 |
| Octanal | -0.322 | 0.288 | -0.232 | -0.006 | -0.220 | -0.312 | -0.267 | -0.019 | -0.094 | 0.116 | -0.272 | -0.048 | -0.200 | -0.223 | -0.181 |
| Total aldehyde | -0.322 | 0.289 | -0.232 | -0.006 | -0.220 | -0.312 | -0.267 | -0.019 | -0.094 | 0.116 | -0.272 | -0.048 | -0.200 | -0.223 | -0.181 |
| Benzaldehyde | -0.430 | **0.487** | -0.174 | -0.133 | -0.195 | -0.303 | -0.265 | **-0.853** | **0.862** | **0.736** | 0.391 | -0.114 | -0.316 | 0.100 | 0.051 |
| Myristicin | -0.415 | 0.354 | 0.124 | 0.259 | 0.119 | 0.099 | 0.081 | -0.153 | 0.035 | 0.284 | 0.118 | 0.061 | 0.093 | 0.129 | 0.147 |
| Benzeneacetaldehyde | -0.373 | 0.399 | -0.128 | -0.162 | -0.118 | -0.221 | -0.195 | **-0.461** | 0.388 | **0.468** | 0.141 | -0.060 | -0.222 | 0.007 | 0.004 |
| Naphthalene | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Benzyl alcohol | -0.362 | 0.424 | -0.221 | -0.171 | -0.238 | -0.340 | -0.299 | **-0.601** | **0.585** | **0.567** | 0.230 | -0.144 | -0.332 | -0.020 | -0.032 |
| Total benzenoid | -0.370 | 0.432 | -0.220 | -0.174 | -0.236 | -0.341 | -0.299 | **-0.628** | **0.613** | **0.587** | 0.246 | -0.144 | -0.335 | -0.011 | -0.026 |
| Ethyl butanoate | -0.340 | 0.346 | 0.023 | 0.176 | 0.248 | 0.132 | 0.168 | 0.211 | -0.339 | -0.051 | -0.259 | 0.217 | 0.296 | 0.053 | 0.006 |
| Ethyl 3-methylbutanoate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| 3-Methylbutyl acetate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| 3-Hydroxymandelic acid ethyl ester | -0.022 | -0.020 | -0.363 | -0.434 | -0.269 | -0.371 | -0.361 | 0.009 | -0.089 | -0.011 | -0.224 | -0.250 | -0.356 | -0.370 | -0.373 |
| Ethyl hexanoate | -0.314 | 0.352 | **0.688** | **0.464** | 0.418 | **0.461** | **0.528** | -0.219 | 0.237 | 0.306 | 0.001 | **0.714** | 0.381 | **0.595** | **0.557** |
| Hexyl acetate | **-0.563** | **0.571** | **0.461** | **0.504** | 0.317 | 0.375 | 0.319 | -0.285 | 0.230 | 0.418 | 0.403 | 0.255 | 0.311 | **0.473** | **0.517** |
| Ethyl (E)-3-hexenoate | -0.218 | 0.199 | 0.139 | 0.067 | 0.313 | 0.300 | 0.226 | -0.244 | 0.168 | 0.278 | **0.527** | -0.133 | 0.193 | 0.235 | 0.233 |
| Ethyl lactate | **-0.635** | **0.615** | 0.170 | 0.191 | 0.108 | 0.028 | 0.034 | **-0.641** | **0.542** | **0.655** | 0.158 | 0.250 | -0.003 | 0.283 | 0.309 |
| Propyl hexanoate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Ethyl octanoate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Ethyl 3-hydroxybutanoate | **-0.635** | **0.623** | 0.103 | 0.060 | 0.052 | 0.020 | -0.021 | **-0.527** | 0.422 | **0.514** | 0.195 | 0.121 | -0.017 | 0.204 | 0.241 |
| Ethyl nonanoate | **-0.873** | **0.844** | 0.335 | 0.425 | 0.333 | 0.204 | 0.246 | **-0.576** | 0.399 | **0.728** | 0.189 | 0.411 | 0.257 | **0.458** | **0.459** |
| Isoamyl lactate | **-0.878** | **0.842** | 0.341 | 0.420 | 0.364 | 0.260 | 0.286 | **-0.660** | **0.462** | **0.758** | 0.347 | 0.322 | 0.286 | **0.487** | **0.513** |
| Methyl decanoate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Ethyl 2-furancarboxylate | **-0.923** | **0.876** | **0.506** | **0.561** | **0.580** | **0.511** | **0.489** | **-0.548** | 0.345 | **0.732** | **0.574** | 0.307 | **0.492** | **0.637** | **0.653** |
| Ethyl decanoate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Diethyl succinate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Ethyl 9-decenoate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Ethyl benzeneacetate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| 2-Phenethyl acetate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Ethyl dodecanoate | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Total ester | -0.031 | -0.011 | -0.355 | -0.427 | -0.254 | -0.356 | -0.349 | 0.000 | -0.083 | 0.000 | -0.203 | -0.251 | -0.344 | -0.357 | -0.361 |
| 3-Hydroxy-2-butanone | **-0.956** | **0.901** | **0.470** | **0.530** | **0.524** | 0.411 | 0.424 | **-0.571** | 0.354 | **0.758** | 0.394 | 0.396 | 0.439 | **0.592** | **0.604** |
| Limonene | **-0.931** | **0.893** | **0.714** | **0.703** | **0.821** | **0.713** | **0.740** | **-0.519** | 0.307 | **0.711** | **0.469** | **0.594** | **0.740** | **0.828** | **0.808** |
| Terpinolene | **-0.496** | 0.422 | -0.042 | 0.027 | -0.084 | -0.155 | -0.137 | **-0.565** | **0.458** | **0.552** | 0.104 | 0.039 | -0.168 | 0.068 | 0.121 |
| Total terpene | **-0.922** | **0.886** | **0.722** | **0.716** | **0.834** | **0.730** | **0.756** | **-0.497** | 0.286 | **0.691** | **0.468** | **0.600** | **0.761** | **0.834** | **0.811** |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S7** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated model wines (continued 2/7)

| Variables | Epigallocatechin | Procyanidin B1 | Catechin | Procyanidin B2 | Epicatechin | Epigallocatechin gallate | Procyanidin B1 3-O-gallate | Gallocatechin gallate | Quercetin 3-O-di-galacoside/glucoside | Myricetin 3-O-galactoside 1 | Epicatechin gallate | Rutin | Quercetin 3-O-galactoside | Kaempferol 3-O-rutinoside 2 | Kaempferol 3-O-glucoside |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | **-0.500** | **-0.719** | **-0.727** | **-0.472** | **-0.516** | **-0.524** | **-0.632** | **-0.492** | **-0.471** | -0.247 | **-0.706** | **-0.562** | **-0.503** | **-0.647** | **-0.530** |
| pH | **0.477** | **0.688** | **0.696** | **0.476** | **0.513** | **0.513** | **0.650** | **0.458** | **0.490** | 0.192 | **0.699** | **0.555** | **0.485** | **0.646** | **0.528** |
| TPC | **0.938** | **0.912** | **0.908** | **0.824** | **0.789** | **0.674** | **0.831** | **0.887** | **0.832** | **0.487** | **0.850** | **0.631** | **0.503** | **0.774** | **0.512** |
| TFC | **0.820** | **0.816** | **0.773** | **0.784** | **0.831** | **0.521** | **0.767** | **0.827** | **0.763** | 0.314 | **0.789** | **0.554** | 0.414 | **0.722** | 0.429 |
| DPPH | **0.961** | **0.954** | **0.910** | **0.806** | **0.808** | **0.608** | **0.811** | **0.965** | **0.720** | **0.546** | **0.887** | **0.726** | **0.531** | **0.806** | **0.600** |
| FRAP | **0.981** | **0.911** | **0.883** | **0.868** | **0.842** | **0.694** | **0.828** | **0.970** | **0.796** | **0.468** | **0.869** | **0.743** | **0.497** | **0.783** | **0.625** |
| ABTS | **0.977** | **0.933** | **0.884** | **0.853** | **0.824** | **0.608** | **0.842** | **0.965** | **0.809** | **0.497** | **0.884** | **0.678** | **0.500** | **0.809** | **0.555** |
| L* | -0.085 | -0.279 | -0.443 | -0.117 | -0.271 | **-0.489** | **-0.507** | -0.031 | -0.236 | -0.081 | -0.396 | -0.428 | **-0.476** | -0.400 | **-0.487** |
| a* | -0.037 | 0.108 | 0.293 | 0.020 | 0.180 | 0.398 | 0.427 | -0.104 | 0.176 | 0.002 | 0.252 | 0.298 | 0.358 | 0.279 | 0.365 |
| b* | 0.262 | **0.468** | **0.592** | 0.256 | **0.445** | **0.530** | **0.609** | 0.224 | 0.355 | 0.171 | **0.540** | **0.518** | **0.496** | **0.528** | **0.538** |
| Quinic acid | 0.384 | 0.337 | **0.453** | **0.484** | **0.629** | **0.758** | **0.585** | 0.380 | 0.344 | -0.105 | 0.422 | **0.850** | 0.365 | 0.370 | **0.894** |
| Gallic acid | **0.705** | **0.789** | **0.739** | **0.543** | **0.467** | 0.267 | **0.626** | **0.655** | **0.678** | **0.568** | **0.719** | 0.191 | 0.422 | **0.679** | 0.051 |
| Chlorogenic acid | **0.959** | **0.932** | **0.843** | **0.842** | **0.781** | **0.532** | **0.758** | **0.976** | **0.739** | **0.476** | **0.858** | **0.636** | **0.461** | **0.774** | **0.498** |
| Total phenolic acids | **0.891** | **0.924** | **0.942** | **0.811** | **0.830** | **0.720** | **0.922** | **0.853** | **0.818** | 0.434 | **0.911** | **0.731** | **0.598** | **0.838** | **0.631** |
| Gallocatechin | **0.878** | **0.911** | **0.957** | **0.807** | **0.847** | **0.813** | **0.923** | **0.838** | **0.825** | 0.428 | **0.913** | **0.749** | **0.576** | **0.852** | **0.673** |
| Epigallocatechin | **1** | **0.926** | **0.869** | **0.890** | **0.861** | **0.626** | **0.801** | **0.989** | **0.803** | **0.448** | **0.847** | **0.713** | **0.486** | **0.749** | **0.575** |
| Procyanidin B1 | **0.926** | **1** | **0.951** | **0.775** | **0.765** | **0.602** | **0.797** | **0.920** | **0.720** | **0.555** | **0.920** | **0.670** | **0.555** | **0.833** | **0.541** |
| Catechin | **0.869** | **0.951** | **1** | **0.694** | **0.780** | **0.741** | **0.849** | **0.855** | **0.672** | **0.619** | **0.906** | **0.721** | **0.580** | **0.845** | **0.618** |
| Procyanidin B2 | **0.890** | **0.775** | **0.694** | **1** | **0.840** | **0.685** | **0.801** | **0.872** | **0.900** | 0.017 | **0.764** | **0.713** | 0.428 | **0.661** | **0.640** |
| Epicatechin | **0.861** | **0.765** | **0.780** | **0.840** | **1** | **0.745** | **0.885** | **0.854** | **0.803** | 0.242 | **0.814** | **0.835** | 0.427 | **0.756** | **0.767** |
| Epigallocatechin gallate | **0.626** | **0.602** | **0.741** | **0.685** | **0.745** | **1** | **0.803** | **0.607** | **0.634** | 0.128 | **0.686** | **0.816** | 0.434 | **0.649** | **0.841** |
| Procyanidin B1 3-O-gallate | **0.801** | **0.797** | **0.849** | **0.801** | **0.885** | **0.803** | **1** | **0.767** | **0.869** | 0.270 | **0.914** | **0.784** | **0.557** | **0.877** | **0.751** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gallocatechin gallate | **0.989** | **0.920** | **0.855** | **0.872** | **0.854** | **0.607** | **0.767** | **1** | **0.746** | **0.457** | **0.828** | **0.711** | **0.449** | **0.735** | **0.572** |
| Quercetin 3-O-di-galacoside/glucoside | **0.803** | **0.720** | **0.672** | **0.900** | **0.803** | **0.634** | **0.869** | **0.746** | **1** | 0.050 | **0.809** | **0.599** | **0.470** | **0.739** | **0.550** |
| Myricetin 3-O-galactoside 1 | **0.448** | **0.555** | **0.619** | 0.017 | 0.242 | 0.128 | 0.270 | **0.457** | 0.050 | **1** | **0.447** | 0.129 | 0.160 | **0.496** | 0.002 |
| Epicatechin gallate | **0.847** | **0.920** | **0.906** | **0.764** | **0.814** | **0.686** | **0.914** | **0.828** | **0.809** | **0.447** | **1** | **0.725** | **0.548** | **0.955** | **0.657** |
| Rutin | **0.713** | **0.670** | **0.721** | **0.713** | **0.835** | **0.816** | **0.784** | **0.711** | **0.599** | 0.129 | **0.725** | **1** | **0.657** | **0.599** | **0.970** |
| Quercetin 3-O-galactoside | **0.486** | **0.555** | **0.580** | 0.428 | 0.427 | 0.434 | **0.557** | **0.449** | **0.470** | 0.160 | **0.548** | **0.657** | **1** | 0.329 | **0.577** |
| Kaempferol 3-O-rutinoside 2 | **0.749** | **0.833** | **0.845** | **0.661** | **0.756** | **0.649** | **0.877** | **0.735** | **0.739** | **0.496** | **0.955** | **0.599** | 0.329 | **1** | **0.570** |
| Kaempferol 3-O-glucoside | **0.575** | **0.541** | **0.618** | **0.640** | **0.767** | **0.841** | **0.751** | **0.572** | **0.550** | 0.002 | **0.657** | **0.970** | **0.577** | **0.570** | **1** |
| Unknown quercetin conjugate | **0.797** | **0.915** | **0.843** | **0.612** | **0.543** | 0.368 | **0.627** | **0.795** | **0.602** | **0.653** | **0.809** | 0.345 | 0.374 | **0.780** | 0.208 |
| Unknown kaempferol conjugate | **0.908** | **0.928** | **0.892** | **0.816** | **0.803** | **0.711** | **0.746** | **0.929** | **0.640** | 0.420 | **0.840** | **0.796** | **0.486** | **0.747** | **0.692** |
| Total flavonoids | **0.925** | **0.965** | **0.990** | **0.782** | **0.837** | **0.754** | **0.878** | **0.909** | **0.747** | **0.558** | **0.921** | **0.751** | **0.574** | **0.850** | **0.644** |
| Caffeine | **0.934** | **0.823** | **0.731** | **0.983** | **0.814** | **0.648** | **0.782** | **0.916** | **0.872** | 0.133 | **0.779** | **0.701** | 0.441 | **0.674** | **0.610** |
| Ethoxyacetic acid | -0.273 | -0.090 | -0.181 | -0.237 | -0.236 | -0.287 | -0.223 | -0.252 | -0.214 | -0.128 | -0.064 | -0.187 | -0.197 | -0.022 | -0.129 |
| Acetic acid | 0.295 | **0.532** | **0.551** | 0.156 | 0.233 | 0.281 | 0.279 | 0.294 | 0.160 | 0.406 | 0.425 | 0.256 | 0.289 | 0.401 | 0.220 |
| Pterin-6-carboxylic acid | 0.267 | **0.453** | 0.395 | 0.332 | 0.185 | 0.228 | 0.273 | 0.261 | 0.291 | 0.011 | 0.345 | 0.071 | 0.138 | 0.288 | 0.025 |
| Hexanoic acid | -0.223 | -0.012 | 0.005 | -0.141 | -0.201 | 0.014 | 0.007 | -0.247 | -0.122 | -0.182 | 0.064 | 0.046 | 0.187 | -0.002 | 0.049 |
| Octanoic acid | 0.034 | 0.077 | -0.055 | 0.114 | -0.184 | -0.130 | -0.202 | 0.043 | 0.016 | -0.120 | 0.032 | -0.125 | -0.020 | -0.053 | -0.197 |
| Nonanoic acid | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.474** | 0.422 | **0.528** | 0.440 |
| Total acid | -0.158 | 0.018 | -0.029 | -0.062 | -0.234 | -0.055 | -0.091 | -0.170 | -0.089 | -0.189 | 0.055 | -0.028 | 0.120 | -0.029 | -0.055 |
| 2-Methyl-1-propanol | 0.398 | **0.628** | **0.555** | 0.388 | 0.272 | 0.287 | **0.446** | 0.409 | 0.333 | 0.240 | **0.593** | 0.282 | 0.191 | **0.599** | 0.252 |
| 2-Pentanol | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.474** | 0.422 | **0.528** | 0.440 |
| 1-Butanol | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.474** | 0.422 | **0.528** | 0.440 |
| 2-Hexanol | 0.212 | 0.357 | 0.339 | -0.053 | 0.170 | -0.067 | 0.164 | 0.256 | -0.069 | **0.568** | 0.336 | 0.106 | 0.019 | 0.382 | 0.017 |
| 3-Methyl-1-butanol | 0.346 | **0.547** | **0.470** | 0.348 | 0.211 | 0.267 | 0.244 | 0.362 | 0.260 | 0.138 | **0.468** | 0.293 | 0.311 | 0.374 | 0.226 |
| 1-(2-Aminoethylamino)-2-propanol | 0.094 | 0.258 | 0.323 | 0.071 | 0.174 | 0.315 | 0.249 | 0.119 | 0.147 | 0.199 | 0.286 | 0.129 | 0.018 | 0.374 | 0.207 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-Octen-4-ol | **0.853** | **0.798** | **0.692** | **0.839** | **0.643** | **0.446** | **0.673** | **0.798** | **0.835** | 0.252 | **0.740** | **0.456** | 0.381 | **0.646** | 0.331 |
| 3-Methyl-1-pentanol | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.474** | 0.422 | **0.528** | 0.440 |
| (E)-3-Hexen-1-ol | -0.005 | 0.159 | 0.217 | -0.028 | -0.005 | 0.156 | 0.144 | -0.033 | -0.021 | -0.043 | 0.124 | 0.346 | **0.777** | -0.083 | 0.308 |
| 1-Hexanol | 0.039 | 0.231 | 0.190 | 0.053 | 0.188 | 0.099 | 0.194 | 0.041 | 0.103 | -0.030 | 0.293 | 0.158 | -0.040 | 0.302 | 0.168 |
| 2-Methyl-4-heptanol | -0.148 | 0.002 | -0.039 | -0.113 | 0.033 | -0.068 | 0.028 | -0.155 | -0.039 | -0.120 | 0.110 | 0.002 | -0.189 | 0.157 | 0.041 |
| 2-Ethyl-1-hexanol | 0.309 | 0.343 | 0.340 | 0.331 | 0.253 | 0.312 | 0.281 | 0.259 | 0.247 | 0.002 | 0.281 | **0.450** | **0.447** | 0.168 | 0.412 |
| Linalool | **0.793** | **0.734** | **0.749** | **0.727** | **0.774** | **0.610** | **0.867** | **0.712** | **0.854** | 0.322 | **0.810** | **0.657** | **0.525** | **0.740** | **0.579** |
| 1-Octanol | **0.832** | **0.726** | **0.694** | **0.767** | **0.789** | **0.504** | **0.761** | **0.758** | **0.830** | 0.289 | **0.723** | **0.624** | **0.460** | **0.636** | **0.515** |
| 2,3-Butanediol | 0.380 | **0.573** | **0.547** | 0.440 | 0.403 | **0.468** | **0.471** | 0.381 | 0.386 | 0.047 | **0.552** | 0.438 | 0.315 | **0.492** | 0.433 |
| Phenylethyl alcohol | -0.311 | -0.073 | 0.041 | -0.264 | -0.169 | 0.079 | 0.085 | -0.343 | -0.199 | -0.078 | 0.045 | 0.110 | 0.274 | 0.049 | 0.178 |
| Total alcohol | -0.040 | 0.213 | 0.290 | -0.080 | 0.081 | 0.162 | 0.308 | -0.074 | 0.002 | 0.140 | 0.333 | 0.261 | 0.314 | 0.338 | 0.278 |
| 3-Hydroxybutanal | -0.029 | 0.128 | 0.257 | 0.024 | 0.170 | **0.481** | 0.165 | -0.015 | -0.022 | -0.067 | 0.124 | 0.381 | 0.233 | 0.100 | **0.463** |
| Octanal | -0.257 | -0.084 | -0.173 | -0.191 | -0.232 | -0.273 | -0.265 | -0.230 | -0.190 | -0.100 | -0.101 | -0.363 | -0.413 | -0.003 | -0.308 |
| Total aldehyde | -0.257 | -0.084 | -0.173 | -0.191 | -0.232 | -0.273 | -0.265 | -0.230 | -0.190 | -0.100 | -0.101 | -0.363 | -0.413 | -0.003 | -0.308 |
| Benzaldehyde | -0.319 | -0.075 | 0.056 | -0.274 | -0.125 | 0.102 | 0.113 | -0.345 | -0.186 | -0.065 | 0.049 | 0.123 | 0.236 | 0.086 | 0.212 |
| Myristicin | 0.151 | 0.193 | 0.119 | 0.129 | 0.202 | 0.012 | 0.069 | 0.144 | 0.207 | 0.041 | 0.212 | 0.152 | 0.099 | 0.182 | 0.149 |
| Benzeneacetaldehyde | -0.217 | 0.023 | 0.041 | -0.240 | -0.111 | -0.049 | 0.001 | -0.244 | -0.166 | -0.081 | 0.062 | 0.159 | 0.414 | -0.040 | 0.171 |
| Naphthalene | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.474** | 0.422 | **0.528** | 0.440 |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.474** | 0.422 | **0.528** | 0.440 |
| Benzyl alcohol | -0.337 | -0.086 | -0.035 | -0.290 | -0.107 | -0.028 | 0.034 | -0.362 | -0.188 | -0.126 | 0.058 | 0.052 | 0.059 | 0.100 | 0.135 |
| Total benzenoid | -0.340 | -0.086 | -0.028 | -0.295 | -0.110 | -0.020 | 0.040 | -0.365 | -0.192 | -0.123 | 0.057 | 0.064 | 0.089 | 0.094 | 0.147 |
| Ethyl butanoate | 0.122 | 0.275 | 0.122 | 0.060 | -0.036 | -0.214 | -0.005 | 0.173 | -0.013 | 0.165 | 0.249 | -0.067 | -0.057 | 0.242 | -0.136 |
| Ethyl 3-methylbutanoate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.474** | 0.422 | **0.528** | 0.440 |
| 3-Methylbutyl acetate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.474** | 0.422 | **0.528** | 0.440 |
| 3-Hydroxymandelic acid ethyl ester | -0.373 | -0.241 | -0.262 | **-0.503** | **-0.463** | -0.421 | **-0.464** | -0.364 | **-0.488** | 0.064 | -0.336 | -0.220 | 0.109 | -0.390 | -0.220 |
| Ethyl hexanoate | **0.528** | **0.471** | 0.419 | **0.484** | 0.434 | 0.152 | **0.490** | 0.418 | **0.690** | 0.200 | **0.450** | 0.14 | 0.272 | 0.406 | 0.057 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 9 | | | |
| Hexyl acetate | 0.400 | 0.443 | **0.462** | **0.447** | **0.482** | **0.528** | 0.421 | 0.388 | 0.403 | 0.055 | 0.443 | 0.34 2 | -0.043 | 0.432 | 0.319 |
| Ethyl (E)-3-hexenoate | 0.228 | 0.197 | 0.286 | 0.138 | 0.326 | 0.355 | 0.298 | 0.238 | 0.115 | 0.101 | 0.241 | **0.65 1** | **0.661** | 0.098 | **0.627** |
| Ethyl lactate | 0.012 | 0.263 | 0.353 | -0.089 | 0.050 | 0.193 | 0.203 | -0.015 | 0.009 | 0.359 | 0.327 | 0.08 1 | 0.088 | 0.399 | 0.099 |
| Propyl hexanoate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.47 4** | 0.422 | **0.528** | 0.440 |
| Ethyl octanoate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.47 4** | 0.422 | **0.528** | 0.440 |
| Ethyl 3-hydroxybutanoate | -0.046 | 0.195 | 0.270 | 0.007 | -0.107 | 0.325 | 0.136 | -0.055 | 0.010 | 0.041 | 0.222 | 0.08 2 | 0.135 | 0.223 | 0.130 |
| Ethyl nonanoate | 0.233 | **0.487** | **0.489** | 0.222 | 0.193 | 0.248 | 0.309 | 0.231 | 0.210 | 0.179 | 0.398 | 0.21 3 | 0.317 | 0.369 | 0.181 |
| Isoamyl lactate | 0.270 | **0.510** | **0.506** | 0.298 | 0.313 | 0.380 | 0.438 | 0.262 | 0.332 | 0.133 | **0.558** | 0.38 4 | 0.359 | **0.552** | 0.415 |
| Methyl decanoate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.47 4** | 0.422 | **0.528** | 0.440 |
| Ethyl 2-furancarboxylate | **0.507** | **0.669** | **0.673** | **0.505** | **0.551** | **0.596** | **0.583** | **0.520** | **0.446** | 0.137 | **0.646** | **0.66 9** | **0.529** | **0.538** | **0.642** |
| Ethyl decanoate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.47 4** | 0.422 | **0.528** | 0.440 |
| Diethyl succinate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.47 4** | 0.422 | **0.528** | 0.440 |
| Ethyl 9-decenoate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.47 4** | 0.422 | **0.528** | 0.440 |
| Ethyl benzeneacetate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.47 4** | 0.422 | **0.528** | 0.440 |
| 2-Phenethyl acetate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.47 4** | 0.422 | **0.528** | 0.440 |
| Ethyl dodecanoate | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.47 4** | 0.422 | **0.528** | 0.440 |
| Total ester | -0.361 | -0.230 | -0.249 | **-0.493** | **-0.447** | -0.405 | **-0.449** | -0.351 | **-0.479** | 0.069 | -0.323 | - 0.19 5 | 0.133 | -0.382 | -0.196 |
| 3-Hydroxy-2-butanone | 0.428 | **0.661** | **0.656** | 0.373 | 0.411 | **0.445** | **0.468** | 0.443 | 0.329 | 0.269 | **0.589** | **0.47 4** | 0.422 | **0.528** | 0.440 |
| Limonene | **0.717** | **0.885** | **0.864** | **0.611** | **0.648** | **0.566** | **0.720** | **0.727** | **0.553** | 0.435 | **0.831** | **0.67 4** | **0.567** | **0.759** | **0.598** |
| Terpinolene | -0.168 | 0.042 | 0.144 | -0.170 | -0.107 | 0.177 | 0.060 | -0.168 | -0.051 | 0.052 | 0.061 | 0.02 0 | 0.254 | 0.064 | 0.101 |
| Total terpene | **0.735** | **0.893** | **0.864** | **0.636** | **0.659** | **0.567** | **0.727** | **0.745** | **0.572** | 0.422 | **0.840** | **0.68 1** | **0.569** | **0.764** | **0.602** |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S7** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated model wines (continued 3/7)

| Variables | Unknown quercetin conjugate | Unknown kaempferol conjugate | Total flavonoids | Caffeine | Ethoxyacetic acid | Acetic acid | Pterin-6-carboxylic acid | Hexanoic acid | Octanoic acid | Nonanoic acid | Total acid | 2-Methyl-1-propanol | 2-Pentanol | 1-Butanol | 2-Hexanol |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | **-0.596** | **-0.641** | **-0.694** | **-0.453** | -0.409 | **-0.813** | **-0.655** | -0.343 | -0.068 | **-0.956** | -0.282 | **-0.756** | **-0.956** | **-0.956** | -0.244 |
| pH | **0.558** | **0.601** | **0.668** | **0.451** | 0.394 | **0.735** | **0.650** | 0.415 | 0.062 | **0.901** | 0.332 | **0.748** | **0.901** | **0.901** | 0.252 |
| TPC | **0.816** | **0.826** | **0.942** | **0.866** | -0.274 | 0.392 | 0.362 | -0.126 | -0.016 | **0.470** | -0.108 | 0.438 | **0.470** | **0.470** | 0.153 |
| TFC | **0.763** | **0.757** | **0.813** | **0.745** | -0.156 | 0.374 | **0.476** | -0.089 | 0.126 | **0.530** | -0.018 | 0.421 | **0.530** | **0.530** | 0.186 |
| DPPH | **0.832** | **0.920** | **0.941** | **0.869** | -0.159 | 0.379 | 0.247 | -0.157 | -0.024 | **0.524** | -0.132 | **0.521** | **0.524** | **0.524** | 0.369 |
| FRAP | **0.769** | **0.903** | **0.931** | **0.919** | -0.282 | 0.269 | 0.193 | -0.194 | 0.024 | 0.411 | -0.140 | 0.402 | 0.411 | 0.411 | 0.238 |
| ABTS | **0.828** | **0.875** | **0.930** | **0.910** | -0.246 | 0.289 | 0.243 | -0.212 | -0.051 | 0.424 | -0.186 | **0.459** | 0.424 | 0.424 | 0.282 |
| L* | -0.176 | -0.225 | -0.381 | -0.055 | -0.078 | **-0.513** | -0.343 | **-0.467** | 0.193 | **-0.571** | -0.255 | -0.410 | **-0.571** | **-0.571** | 0.052 |
| a* | 0.034 | 0.052 | 0.237 | -0.053 | -0.055 | 0.316 | 0.242 | **0.493** | -0.222 | 0.354 | 0.260 | 0.262 | 0.354 | 0.354 | -0.136 |
| b* | 0.343 | 0.399 | **0.538** | 0.200 | 0.185 | **0.666** | **0.451** | 0.404 | -0.184 | **0.758** | 0.214 | **0.545** | **0.758** | **0.758** | 0.113 |
| Quinic acid | 0.014 | **0.545** | **0.469** | 0.431 | -0.125 | 0.199 | 0.045 | 0.197 | -0.176 | 0.394 | 0.062 | 0.221 | 0.394 | 0.394 | -0.094 |
| Gallic acid | **0.894** | **0.538** | **0.743** | **0.592** | -0.158 | 0.386 | **0.464** | -0.040 | 0.067 | 0.396 | -0.007 | **0.477** | 0.396 | 0.396 | 0.274 |
| Chlorogenic acid | **0.859** | **0.902** | **0.890** | **0.893** | -0.213 | 0.272 | 0.281 | -0.188 | 0.101 | 0.439 | -0.102 | **0.484** | 0.439 | 0.439 | 0.330 |
| Total phenolic acids | **0.804** | **0.851** | **0.961** | **0.824** | -0.222 | **0.447** | 0.417 | 0.059 | -0.039 | **0.592** | 0.018 | **0.558** | **0.592** | **0.592** | 0.198 |
| Gallocatechin | **0.775** | **0.853** | **0.972** | **0.813** | -0.215 | **0.480** | 0.412 | -0.011 | -0.068 | **0.604** | -0.047 | **0.507** | **0.604** | **0.604** | 0.165 |
| Epigallocatechin | **0.797** | **0.908** | **0.925** | **0.934** | -0.273 | 0.295 | 0.267 | -0.223 | 0.034 | 0.428 | -0.158 | 0.398 | 0.428 | 0.428 | 0.212 |
| Procyanidin B1 | **0.915** | **0.928** | **0.965** | **0.823** | -0.090 | **0.532** | **0.453** | -0.012 | 0.077 | **0.661** | 0.018 | **0.628** | **0.661** | **0.661** | 0.357 |
| Catechin | **0.843** | **0.892** | **0.990** | **0.731** | -0.181 | **0.551** | 0.395 | 0.005 | -0.055 | **0.656** | -0.029 | **0.555** | **0.656** | **0.656** | 0.339 |
| Procyanidin B2 | **0.612** | **0.816** | **0.782** | **0.983** | -0.237 | 0.156 | 0.332 | -0.141 | 0.114 | 0.373 | -0.062 | 0.388 | 0.373 | 0.373 | -0.053 |
| Epicatechin | **0.543** | **0.803** | **0.837** | **0.814** | -0.236 | 0.233 | 0.185 | -0.201 | -0.184 | 0.411 | -0.234 | 0.272 | 0.411 | 0.411 | 0.170 |
| Epigallocatechin gallate | 0.368 | **0.711** | **0.754** | **0.648** | -0.287 | 0.281 | 0.228 | 0.014 | -0.130 | **0.445** | -0.055 | 0.287 | **0.445** | **0.445** | -0.067 |
| Procyanidin B1 3-O-gallate | **0.627** | **0.746** | **0.878** | **0.782** | -0.223 | 0.279 | 0.273 | 0.007 | -0.202 | **0.468** | -0.091 | **0.446** | **0.468** | **0.468** | 0.164 |
| Gallocatechin gallate | **0.795** | **0.929** | **0.909** | **0.916** | -0.252 | 0.294 | 0.261 | -0.247 | 0.043 | 0.443 | -0.170 | 0.409 | 0.443 | 0.443 | 0.256 |
| Quercetin 3-O-di-galacoside/glucoside | **0.602** | **0.640** | **0.747** | **0.872** | -0.214 | 0.160 | 0.291 | -0.122 | 0.016 | 0.329 | -0.089 | 0.333 | 0.329 | 0.329 | -0.069 |
| Myricetin 3-O-galactoside 1 | **0.653** | 0.420 | **0.558** | 0.133 | -0.128 | 0.406 | 0.011 | -0.182 | -0.120 | 0.269 | -0.189 | 0.240 | 0.269 | 0.269 | **0.568** |
| Epicatechin gallate | **0.809** | **0.840** | **0.921** | **0.779** | -0.064 | 0.425 | 0.345 | 0.064 | 0.032 | **0.589** | 0.055 | **0.593** | **0.589** | **0.589** | 0.336 |
| Rutin | 0.345 | **0.796** | **0.751** | **0.701** | -0.187 | 0.256 | 0.071 | 0.046 | -0.125 | **0.474** | -0.028 | 0.282 | **0.474** | **0.474** | 0.106 |
| Quercetin 3-O-galactoside | 0.374 | **0.486** | **0.574** | 0.441 | -0.197 | 0.289 | 0.138 | 0.187 | -0.020 | 0.422 | 0.120 | 0.191 | 0.422 | 0.422 | 0.019 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kaempferol 3-O-rutinoside 2 | **0.780** | **0.747** | **0.850** | **0.674** | -0.022 | 0.401 | 0.288 | -0.002 | -0.053 | **0.528** | -0.029 | **0.599** | **0.528** | **0.528** | 0.382 |
| Kaempferol 3-O-glucoside | 0.208 | **0.692** | **0.644** | **0.610** | -0.129 | 0.220 | 0.025 | 0.049 | -0.197 | 0.440 | -0.055 | 0.252 | 0.440 | 0.440 | 0.017 |
| Unknown quercetin conjugate | **1** | **0.779** | **0.841** | **0.672** | -0.101 | **0.516** | **0.475** | -0.045 | 0.177 | **0.566** | 0.038 | **0.655** | **0.566** | **0.566** | 0.377 |
| Unknown kaempferol conjugate | **0.779** | **1** | **0.918** | **0.849** | -0.177 | **0.451** | 0.344 | -0.031 | 0.118 | **0.618** | 0.020 | **0.577** | **0.618** | **0.618** | 0.264 |
| Total flavonoids | **0.841** | **0.918** | **1** | **0.814** | -0.212 | **0.493** | 0.378 | -0.050 | -0.039 | **0.616** | -0.062 | **0.528** | **0.616** | **0.616** | 0.290 |
| Caffeine | **0.672** | **0.849** | **0.814** | **1** | -0.245 | 0.167 | 0.290 | -0.184 | 0.092 | 0.361 | -0.103 | 0.407 | 0.361 | 0.361 | 0.025 |
| Ethoxyacetic acid | -0.101 | -0.177 | -0.212 | -0.245 | **1** | **0.489** | 0.310 | 0.189 | 0.115 | **0.468** | 0.207 | 0.352 | **0.468** | **0.468** | 0.199 |
| Acetic acid | **0.516** | **0.451** | **0.493** | 0.167 | **0.489** | **1** | **0.556** | 0.123 | 0.053 | **0.910** | 0.118 | **0.661** | **0.910** | **0.910** | 0.147 |
| Pterin-6-carboxylic acid | **0.475** | 0.344 | 0.378 | 0.290 | 0.310 | **0.556** | **1** | 0.345 | 0.233 | **0.648** | 0.354 | **0.535** | **0.648** | **0.648** | -0.066 |
| Hexanoic acid | -0.045 | -0.031 | -0.050 | -0.184 | 0.189 | 0.123 | 0.345 | **1** | 0.439 | 0.256 | **0.921** | 0.408 | 0.256 | 0.256 | 0.161 |
| Octanoic acid | 0.177 | 0.118 | -0.039 | 0.092 | 0.115 | 0.053 | 0.233 | 0.439 | **1** | 0.126 | **0.754** | 0.201 | 0.126 | 0.126 | -0.083 |
| Nonanoic acid | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Total acid | 0.038 | 0.020 | -0.062 | -0.103 | 0.207 | 0.118 | 0.354 | **0.921** | **0.754** | 0.245 | **1** | 0.387 | 0.245 | 0.245 | 0.084 |
| 2-Methyl-1-propanol | **0.655** | **0.577** | **0.528** | 0.407 | 0.352 | **0.661** | **0.535** | 0.408 | 0.201 | **0.739** | 0.387 | **1** | **0.739** | **0.739** | 0.386 |
| 2-Pentanol | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1** | **1.000** | 0.195 |
| 1-Butanol | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1** | 0.195 |
| 2-Hexanol | 0.377 | 0.264 | 0.290 | 0.025 | 0.199 | 0.147 | -0.066 | 0.161 | -0.083 | 0.195 | 0.084 | 0.386 | 0.195 | 0.195 | **1** |
| 3-Methyl-1-butanol | **0.531** | **0.537** | **0.448** | 0.327 | 0.422 | **0.725** | **0.625** | 0.440 | **0.653** | **0.833** | **0.607** | **0.676** | **0.833** | **0.833** | 0.102 |
| 1-(2-Aminoethylamino)-2-propanol | 0.274 | 0.224 | 0.279 | 0.041 | 0.434 | **0.733** | 0.380 | -0.161 | -0.131 | **0.699** | -0.168 | 0.380 | **0.699** | **0.699** | -0.143 |
| 2-Octen-4-ol | **0.729** | **0.681** | **0.757** | **0.871** | -0.032 | 0.288 | 0.433 | -0.060 | 0.248 | 0.402 | 0.059 | 0.428 | 0.402 | 0.402 | 0.089 |
| 3-Methyl-1-pentanol | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| (E)-3-Hexen-1-ol | -0.001 | 0.106 | 0.164 | -0.041 | 0.061 | 0.329 | 0.268 | **0.512** | -0.014 | 0.376 | 0.366 | 0.159 | 0.376 | 0.376 | -0.028 |
| 1-Hexanol | 0.139 | 0.178 | 0.161 | 0.034 | **0.454** | 0.296 | 0.364 | **0.509** | 0.008 | 0.430 | 0.381 | **0.503** | 0.430 | 0.430 | **0.562** |
| 2-Methyl-4-heptanol | -0.056 | -0.041 | -0.062 | -0.130 | 0.361 | 0.024 | 0.148 | **0.469** | -0.050 | 0.125 | 0.327 | 0.295 | 0.125 | 0.125 | **0.543** |
| 2-Ethyl-1-hexanol | 0.197 | 0.386 | 0.347 | 0.348 | -0.035 | 0.305 | 0.085 | 0.250 | 0.053 | 0.319 | 0.202 | 0.369 | 0.319 | 0.319 | 0.051 |
| Linalool | **0.572** | **0.623** | **0.792** | **0.749** | -0.239 | 0.221 | 0.176 | 0.018 | -0.134 | 0.316 | -0.053 | 0.322 | 0.316 | 0.316 | 0.105 |
| 1-Octanol | **0.564** | **0.639** | **0.757** | **0.787** | -0.145 | 0.293 | 0.173 | -0.127 | -0.055 | 0.358 | -0.122 | 0.288 | 0.358 | 0.358 | 0.057 |
| 2,3-Butanediol | **0.466** | **0.554** | **0.529** | 0.395 | **0.477** | **0.824** | **0.745** | 0.322 | 0.155 | **0.892** | 0.307 | **0.763** | **0.892** | **0.892** | 0.027 |
| Phenylethyl alcohol | -0.105 | -0.102 | -0.040 | -0.314 | 0.140 | 0.225 | 0.238 | **0.765** | -0.010 | 0.274 | **0.555** | 0.311 | 0.274 | 0.274 | 0.031 |
| Total alcohol | 0.149 | 0.129 | 0.216 | -0.097 | 0.196 | 0.286 | 0.263 | **0.772** | -0.044 | 0.383 | **0.546** | **0.504** | 0.383 | 0.383 | 0.431 |
| 3-Hydroxybutanal | -0.005 | 0.268 | 0.204 | -0.044 | 0.116 | **0.617** | 0.303 | 0.211 | -0.085 | **0.624** | 0.116 | 0.282 | **0.624** | **0.624** | -0.261 |
| Octanal | 0.030 | -0.159 | -0.198 | -0.230 | **0.849** | **0.524** | **0.487** | 0.038 | 0.191 | 0.426 | 0.127 | 0.353 | 0.426 | 0.426 | 0.044 |
| Total aldehyde | 0.030 | -0.159 | -0.198 | -0.230 | **0.849** | **0.524** | **0.487** | 0.039 | 0.191 | 0.426 | 0.127 | 0.353 | 0.426 | 0.426 | 0.044 |
| Benzaldehyde | -0.109 | -0.101 | -0.029 | -0.328 | 0.180 | 0.279 | 0.196 | **0.666** | -0.123 | 0.339 | 0.434 | 0.313 | 0.339 | 0.339 | 0.048 |
| Myristicin | 0.148 | 0.168 | 0.133 | 0.098 | **0.480** | **0.572** | 0.185 | -0.117 | 0.263 | **0.526** | 0.036 | 0.136 | **0.526** | **0.526** | -0.232 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzeneacetaldehyde | -0.096 | -0.048 | -0.025 | -0.247 | 0.332 | 0.306 | 0.173 | **0.636** | -0.085 | 0.325 | 0.432 | 0.304 | 0.325 | 0.325 | 0.335 |
| Naphthalene | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Benzyl alcohol | -0.135 | -0.129 | -0.104 | -0.337 | 0.372 | 0.252 | 0.189 | **0.679** | -0.121 | 0.277 | **0.449** | 0.388 | 0.277 | 0.277 | 0.312 |
| Total benzenoid | -0.138 | -0.129 | -0.099 | -0.341 | 0.358 | 0.256 | 0.185 | **0.688** | -0.127 | 0.284 | **0.453** | 0.381 | 0.284 | 0.284 | 0.298 |
| Ethyl butanoate | 0.320 | 0.167 | 0.108 | 0.101 | **0.606** | 0.176 | 0.307 | 0.294 | 0.404 | 0.320 | 0.400 | **0.453** | 0.320 | 0.320 | **0.654** |
| Ethyl 3-methylbutanoate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| 3-Methylbutyl acetate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| 3-Hydroxymandelic acid ethyl ester | -0.221 | -0.274 | -0.318 | **-0.449** | **0.448** | 0.328 | -0.183 | 0.072 | 0.003 | 0.150 | 0.063 | 0.030 | 0.150 | 0.150 | 0.087 |
| Ethyl hexanoate | **0.470** | 0.249 | **0.467** | **0.501** | -0.080 | 0.248 | 0.282 | -0.115 | -0.082 | 0.192 | -0.122 | 0.186 | 0.192 | 0.192 | -0.088 |
| Hexyl acetate | 0.324 | **0.458** | **0.472** | 0.387 | 0.178 | 0.416 | **0.713** | 0.258 | 0.235 | **0.540** | 0.289 | 0.320 | **0.540** | **0.540** | -0.065 |
| Ethyl (E)-3-hexenoate | -0.069 | 0.292 | 0.277 | 0.157 | -0.152 | 0.050 | -0.413 | 0.055 | -0.132 | 0.192 | -0.022 | -0.100 | 0.192 | 0.192 | 0.157 |
| Ethyl lactate | 0.304 | 0.157 | 0.273 | -0.112 | **0.496** | **0.766** | 0.391 | 0.396 | 0.152 | **0.639** | 0.362 | **0.572** | **0.639** | **0.639** | 0.215 |
| Propyl hexanoate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Ethyl octanoate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Ethyl 3-hydroxybutanoate | 0.184 | 0.149 | 0.200 | -0.024 | **0.478** | **0.585** | **0.601** | **0.565** | 0.372 | **0.645** | **0.579** | **0.509** | **0.645** | **0.645** | -0.032 |
| Ethyl nonanoate | **0.482** | 0.384 | 0.437 | 0.199 | **0.530** | **0.846** | **0.639** | 0.324 | 0.156 | **0.891** | 0.310 | **0.735** | **0.891** | **0.891** | 0.246 |
| Isoamyl lactate | **0.458** | **0.450** | **0.469** | 0.261 | **0.543** | **0.842** | **0.541** | 0.262 | 0.132 | **0.883** | 0.254 | **0.718** | **0.883** | **0.883** | 0.079 |
| Methyl decanoate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Ethyl 2-furancarboxylate | **0.471** | **0.682** | **0.656** | **0.477** | 0.365 | **0.785** | **0.566** | 0.274 | 0.109 | **0.943** | 0.248 | **0.653** | **0.943** | **0.943** | 0.113 |
| Ethyl decanoate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Diethyl succinate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Ethyl 9-decenoate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Ethyl benzeneacetate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| 2-Phenethyl acetate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Ethyl dodecanoate | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Total ester | -0.220 | -0.261 | -0.304 | -0.439 | 0.441 | 0.328 | -0.195 | 0.075 | -0.001 | 0.157 | 0.063 | 0.028 | 0.157 | 0.157 | 0.094 |
| 3-Hydroxy-2-butanone | **0.566** | **0.618** | **0.616** | 0.361 | **0.468** | **0.910** | **0.648** | 0.256 | 0.126 | **1.000** | 0.245 | **0.739** | **1.000** | **1.000** | 0.195 |
| Limonene | **0.765** | **0.830** | **0.847** | **0.632** | 0.243 | **0.760** | **0.511** | 0.152 | 0.050 | **0.901** | 0.131 | **0.769** | **0.901** | **0.901** | 0.355 |
| Terpinolene | 0.054 | -0.026 | 0.073 | -0.214 | 0.372 | **0.681** | 0.393 | 0.070 | -0.097 | **0.603** | 0.014 | 0.213 | **0.603** | **0.603** | -0.343 |
| Total terpene | **0.773** | **0.843** | **0.852** | **0.658** | 0.232 | **0.740** | **0.507** | 0.148 | 0.070 | **0.890** | 0.137 | **0.770** | **0.890** | **0.890** | 0.351 |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S7** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated model wines (continued 4/7)

| Variables | 3-Methyl-1-butanol | 1-(2-Aminoethylamino)-2-propanol | 2-Octen-4-ol | 3-Methyl-1-pentanol | (E)-3-Hexen-1-ol | 1-Hexanol | 2-Methyl-4-heptanol | 2-Ethyl-1-hexanol | Linalool | 1-Octanol | 2,3-Butanediol | Phenylethyl alcohol | Total alcohol | 3-Hydroxybutanal | Octanal |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | **-0.767** | **-0.589** | **-0.512** | **-0.956** | -0.414 | **-0.485** | -0.204 | -0.388 | **-0.490** | **-0.486** | **-0.875** | -0.378 | **-0.534** | **-0.515** | -0.322 |
| pH | **0.723** | **0.510** | **0.523** | **0.901** | 0.408 | **0.528** | 0.272 | 0.410 | **0.526** | **0.506** | **0.839** | 0.440 | **0.608** | **0.459** | 0.288 |
| TPC | 0.350 | 0.161 | **0.882** | **0.470** | 0.062 | 0.085 | -0.105 | 0.368 | **0.877** | **0.870** | 0.428 | -0.170 | 0.084 | 0.042 | -0.232 |
| TFC | **0.475** | 0.246 | **0.706** | **0.530** | 0.033 | 0.130 | -0.082 | 0.132 | **0.617** | **0.668** | **0.509** | -0.145 | 0.062 | 0.089 | -0.006 |
| DPPH | 0.387 | 0.178 | **0.784** | **0.524** | 0.066 | 0.100 | -0.107 | 0.308 | **0.752** | **0.756** | 0.426 | -0.202 | 0.091 | -0.002 | -0.220 |
| FRAP | 0.327 | 0.109 | **0.827** | 0.411 | -0.006 | 0.033 | -0.153 | 0.299 | **0.807** | **0.803** | 0.355 | -0.294 | -0.020 | -0.026 | -0.312 |
| ABTS | 0.295 | 0.127 | **0.838** | 0.424 | -0.002 | 0.052 | -0.132 | 0.276 | **0.816** | **0.809** | 0.364 | -0.265 | 0.023 | -0.084 | -0.267 |
| L* | -0.328 | -0.427 | -0.072 | **-0.571** | **-0.546** | -0.219 | -0.100 | -0.365 | -0.380 | -0.261 | **-0.540** | **-0.805** | **-0.742** | **-0.620** | -0.019 |
| a* | 0.147 | 0.286 | -0.021 | 0.354 | **0.468** | 0.141 | 0.081 | 0.287 | 0.352 | 0.213 | 0.359 | **0.825** | **0.720** | **0.512** | -0.094 |
| b* | **0.477** | **0.528** | 0.220 | **0.758** | **0.491** | 0.397 | 0.206 | 0.373 | **0.467** | 0.399 | **0.678** | **0.655** | **0.705** | **0.645** | 0.116 |
| Quinic acid | 0.203 | 0.189 | 0.171 | 0.394 | 0.265 | 0.156 | 0.042 | 0.416 | **0.451** | 0.422 | 0.407 | 0.348 | 0.357 | **0.563** | -0.272 |
| Gallic acid | 0.340 | 0.146 | **0.771** | 0.396 | 0.071 | 0.086 | -0.071 | 0.156 | **0.675** | **0.640** | 0.331 | -0.095 | 0.146 | -0.186 | -0.048 |
| Chlorogenic acid | 0.391 | 0.109 | **0.796** | 0.439 | -0.031 | 0.059 | -0.129 | 0.212 | **0.674** | **0.688** | 0.370 | -0.305 | -0.023 | -0.102 | -0.200 |
| Total phenolic acids | 0.430 | 0.236 | **0.794** | **0.592** | 0.205 | 0.165 | -0.046 | 0.392 | **0.869** | **0.828** | **0.541** | 0.091 | 0.317 | 0.176 | -0.223 |
| Gallocatechin | 0.423 | 0.301 | **0.772** | **0.604** | 0.180 | 0.180 | -0.030 | 0.385 | **0.844** | **0.794** | **0.560** | 0.032 | 0.256 | 0.257 | -0.181 |
| Epigallocatechin | 0.346 | 0.094 | **0.853** | 0.428 | -0.005 | 0.039 | -0.148 | 0.309 | **0.793** | **0.832** | 0.380 | -0.311 | -0.040 | -0.029 | -0.257 |
| Procyanidin B1 | **0.547** | 0.258 | **0.798** | **0.661** | 0.159 | 0.231 | 0.002 | 0.343 | **0.734** | **0.726** | **0.573** | -0.073 | 0.213 | 0.128 | -0.084 |
| Catechin | **0.470** | 0.323 | **0.692** | **0.656** | 0.217 | 0.190 | -0.039 | 0.340 | **0.749** | **0.694** | **0.547** | 0.041 | 0.290 | 0.257 | -0.173 |
| Procyanidin B2 | 0.348 | 0.071 | **0.839** | 0.373 | -0.028 | 0.053 | -0.113 | 0.331 | **0.727** | **0.767** | 0.440 | -0.264 | -0.080 | 0.024 | -0.191 |
| Epicatechin | 0.211 | 0.174 | **0.643** | 0.411 | -0.005 | 0.188 | 0.033 | 0.253 | **0.774** | **0.789** | 0.403 | -0.169 | 0.081 | 0.170 | -0.232 |
| Epigallocatechin gallate | 0.267 | 0.315 | **0.446** | **0.445** | 0.156 | 0.099 | -0.068 | 0.312 | **0.610** | **0.504** | **0.468** | 0.079 | 0.162 | **0.481** | -0.273 |
| Procyanidin B1 3-O-gallate | 0.244 | 0.249 | **0.673** | **0.468** | 0.144 | 0.194 | 0.028 | 0.281 | **0.867** | **0.761** | **0.471** | 0.085 | 0.308 | 0.165 | -0.265 |
| Gallocatechin gallate | 0.362 | 0.119 | **0.798** | 0.443 | -0.033 | 0.041 | -0.155 | 0.259 | **0.712** | **0.758** | 0.381 | -0.343 | -0.074 | -0.015 | -0.230 |
| Quercetin 3-O-di-galacoside/glucoside | 0.260 | 0.147 | **0.835** | 0.329 | -0.021 | 0.103 | -0.039 | 0.247 | **0.854** | **0.830** | 0.386 | -0.199 | 0.002 | -0.022 | -0.190 |
| Myricetin 3-O-galactoside 1 | 0.138 | 0.199 | 0.252 | 0.269 | -0.043 | -0.030 | -0.120 | 0.002 | 0.322 | 0.289 | 0.047 | -0.078 | 0.140 | -0.067 | -0.100 |
| Epicatechin gallate | **0.468** | 0.286 | **0.740** | **0.589** | 0.124 | 0.293 | 0.110 | 0.281 | **0.810** | **0.723** | **0.552** | 0.045 | 0.333 | 0.124 | -0.101 |
| Rutin | 0.293 | 0.129 | **0.456** | **0.474** | 0.346 | 0.158 | 0.002 | **0.450** | **0.657** | **0.624** | 0.438 | 0.110 | 0.261 | 0.381 | -0.363 |
| Quercetin 3-O-galactoside | 0.311 | 0.018 | 0.381 | 0.422 | **0.777** | -0.040 | -0.189 | **0.447** | **0.525** | **0.460** | 0.315 | 0.274 | 0.314 | 0.233 | -0.413 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kaempferol 3-O-rutinoside 2 | 0.374 | 0.374 | **0.646** | **0.528** | -0.083 | 0.302 | 0.157 | 0.168 | **0.740** | **0.636** | **0.492** | 0.049 | 0.338 | 0.100 | -0.003 |
| Kaempferol 3-O-glucoside | 0.226 | 0.207 | 0.331 | 0.440 | 0.308 | 0.168 | 0.041 | 0.412 | **0.579** | **0.515** | 0.433 | 0.178 | 0.278 | **0.463** | -0.308 |
| Unknown quercetin conjugate | **0.531** | 0.274 | **0.729** | **0.566** | -0.001 | 0.139 | -0.056 | 0.197 | **0.572** | **0.564** | **0.466** | -0.105 | 0.149 | -0.005 | 0.030 |
| Unknown kaempferol conjugate | **0.537** | 0.224 | **0.681** | **0.618** | 0.106 | 0.178 | -0.041 | 0.386 | **0.623** | **0.639** | **0.554** | -0.102 | 0.129 | 0.268 | -0.159 |
| Total flavonoids | **0.448** | 0.279 | **0.757** | **0.616** | 0.164 | 0.161 | -0.062 | 0.347 | **0.792** | **0.757** | **0.529** | -0.040 | 0.216 | 0.204 | -0.198 |
| Caffeine | 0.327 | 0.041 | **0.871** | 0.361 | -0.041 | 0.034 | -0.130 | 0.348 | **0.749** | **0.787** | 0.395 | -0.314 | -0.097 | -0.044 | -0.230 |
| Ethoxyacetic acid | 0.422 | 0.434 | -0.032 | **0.468** | 0.061 | **0.454** | 0.361 | -0.035 | -0.239 | -0.145 | **0.477** | 0.140 | 0.196 | 0.116 | **0.849** |
| Acetic acid | **0.725** | **0.733** | 0.288 | **0.910** | 0.329 | 0.296 | 0.024 | 0.305 | 0.221 | 0.293 | **0.824** | 0.225 | 0.286 | **0.617** | **0.524** |
| Pterin-6-carboxylic acid | **0.625** | 0.380 | 0.433 | **0.648** | 0.268 | 0.364 | 0.148 | 0.085 | 0.176 | 0.173 | **0.745** | 0.238 | 0.263 | 0.303 | **0.487** |
| Hexanoic acid | 0.440 | -0.161 | -0.060 | 0.256 | **0.512** | **0.509** | **0.469** | 0.250 | 0.018 | -0.127 | 0.322 | **0.765** | **0.772** | 0.211 | 0.038 |
| Octanoic acid | **0.653** | -0.131 | 0.248 | 0.126 | -0.014 | 0.008 | -0.050 | 0.053 | -0.134 | -0.055 | 0.155 | -0.010 | -0.044 | -0.085 | 0.191 |
| Nonanoic acid | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Total acid | **0.607** | -0.168 | 0.059 | 0.245 | 0.366 | 0.381 | 0.327 | 0.202 | -0.053 | -0.122 | 0.307 | **0.555** | **0.546** | 0.116 | 0.127 |
| 2-Methyl-1-propanol | **0.676** | 0.380 | 0.428 | **0.739** | 0.159 | **0.503** | 0.295 | 0.369 | 0.322 | 0.288 | **0.763** | 0.311 | **0.504** | 0.282 | 0.353 |
| 2-Pentanol | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| 1-Butanol | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| 2-Hexanol | 0.102 | -0.143 | 0.089 | 0.195 | -0.028 | **0.562** | **0.543** | 0.051 | 0.105 | 0.057 | 0.027 | 0.031 | 0.431 | -0.261 | 0.044 |
| 3-Methyl-1-butanol | **1** | **0.461** | **0.445** | **0.833** | 0.279 | 0.333 | 0.067 | 0.273 | 0.166 | 0.243 | **0.767** | 0.204 | 0.268 | 0.429 | 0.431 |
| 1-(2-Aminoethylamino)-2-propanol | **0.461** | **1** | 0.045 | **0.699** | -0.047 | 0.073 | -0.150 | -0.122 | 0.052 | 0.072 | **0.595** | 0.069 | -0.006 | **0.639** | **0.513** |
| 2-Octen-4-ol | **0.445** | 0.045 | **1** | 0.402 | -0.024 | 0.101 | -0.072 | 0.320 | **0.787** | **0.848** | 0.422 | -0.269 | -0.017 | -0.212 | -0.025 |
| 3-Methyl-1-pentanol | **0.833** | **0.699** | 0.402 | **1** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| (E)-3-Hexen-1-ol | 0.279 | -0.047 | -0.024 | 0.376 | **1** | 0.096 | -0.014 | 0.426 | 0.121 | 0.041 | 0.375 | **0.606** | **0.517** | 0.371 | -0.150 |
| 1-Hexanol | 0.333 | 0.073 | 0.101 | 0.430 | 0.096 | **1** | **0.936** | 0.160 | 0.160 | 0.091 | 0.428 | 0.266 | **0.585** | 0.204 | 0.323 |
| 2-Methyl-4-heptanol | 0.067 | -0.150 | -0.072 | 0.125 | -0.014 | **0.936** | **1** | 0.096 | 0.036 | -0.056 | 0.154 | 0.271 | **0.566** | 0.034 | 0.242 |
| 2-Ethyl-1-hexanol | 0.273 | -0.122 | 0.320 | 0.319 | 0.426 | 0.160 | 0.096 | **1** | 0.360 | 0.397 | 0.409 | 0.273 | 0.346 | 0.237 | -0.172 |
| Linalool | 0.166 | 0.052 | **0.787** | 0.316 | 0.121 | 0.160 | 0.036 | 0.360 | **1** | **0.936** | 0.322 | 0.001 | 0.253 | -0.026 | -0.347 |
| 1-Octanol | 0.243 | 0.072 | **0.848** | 0.358 | 0.041 | 0.091 | -0.056 | 0.397 | **0.936** | **1** | 0.343 | -0.161 | 0.081 | -0.044 | -0.222 |
| 2,3-Butanediol | **0.767** | **0.595** | 0.422 | **0.892** | 0.375 | 0.428 | 0.154 | 0.409 | 0.322 | 0.343 | **1** | 0.306 | 0.371 | **0.584** | **0.507** |
| Phenylethyl alcohol | 0.204 | 0.069 | -0.269 | 0.274 | **0.606** | 0.266 | 0.271 | 0.273 | 0.001 | -0.161 | 0.306 | **1** | **0.878** | 0.415 | 0.035 |
| Total alcohol | 0.268 | -0.006 | -0.017 | 0.383 | **0.517** | **0.585** | **0.566** | 0.346 | 0.253 | 0.081 | 0.371 | **0.878** | **1** | 0.259 | 0.024 |
| 3-Hydroxybutanal | 0.429 | **0.639** | -0.212 | **0.624** | 0.371 | 0.204 | 0.034 | 0.237 | -0.026 | -0.044 | **0.584** | 0.415 | 0.259 | **1** | 0.169 |
| Octanal | 0.431 | **0.513** | -0.025 | 0.426 | -0.150 | 0.323 | 0.242 | -0.172 | -0.347 | -0.222 | **0.507** | 0.035 | 0.024 | 0.169 | **1** |
| Total aldehyde | 0.432 | **0.512** | -0.024 | 0.426 | -0.150 | 0.323 | 0.242 | -0.172 | -0.347 | -0.222 | **0.507** | 0.035 | 0.024 | 0.169 | **1.000** |
| Benzaldehyde | 0.190 | 0.218 | -0.309 | 0.339 | **0.513** | 0.306 | 0.299 | 0.232 | -0.004 | -0.147 | 0.298 | **0.965** | **0.853** | **0.503** | 0.065 |
| Myristicin | **0.548** | **0.620** | 0.211 | **0.526** | -0.030 | 0.061 | -0.092 | 0.012 | 0.154 | 0.326 | 0.442 | -0.097 | -0.127 | 0.390 | **0.460** |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzeneacetaldehyde | 0.201 | -0.109 | -0.188 | 0.325 | **0.734** | **0.629** | **0.618** | 0.408 | 0.014 | -0.088 | 0.334 | **0.647** | **0.742** | 0.322 | 0.099 |
| Naphthalene | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Benzyl alcohol | 0.144 | 0.035 | -0.289 | 0.277 | 0.403 | **0.696** | **0.742** | 0.269 | -0.025 | -0.158 | 0.338 | **0.800** | **0.871** | 0.365 | 0.259 |
| Total benzenoid | 0.146 | 0.040 | -0.296 | 0.284 | 0.432 | **0.673** | **0.716** | 0.277 | -0.022 | -0.157 | 0.335 | **0.825** | **0.883** | 0.380 | 0.236 |
| Ethyl butanoate | **0.470** | -0.020 | 0.287 | 0.320 | -0.032 | **0.490** | 0.405 | -0.066 | -0.069 | -0.044 | 0.261 | -0.047 | 0.227 | -0.364 | **0.456** |
| Ethyl 3-methylbutanoate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| 3-Methylbutyl acetate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| 3-Hydroxymandelic acid ethyl ester | 0.116 | 0.114 | -0.351 | 0.150 | 0.354 | 0.016 | -0.003 | 0.010 | -0.352 | -0.274 | 0.021 | 0.132 | 0.054 | 0.181 | 0.282 |
| Ethyl hexanoate | 0.101 | 0.044 | **0.732** | 0.192 | -0.009 | 0.071 | -0.005 | 0.264 | **0.772** | **0.829** | 0.214 | -0.118 | 0.050 | -0.171 | -0.047 |
| Hexyl acetate | **0.543** | 0.379 | **0.471** | **0.540** | -0.047 | 0.428 | 0.234 | 0.032 | 0.392 | 0.395 | **0.621** | 0.059 | 0.166 | 0.371 | 0.297 |
| Ethyl (E)-3-hexenoate | 0.073 | -0.009 | -0.020 | 0.192 | **0.460** | -0.022 | -0.104 | 0.365 | 0.260 | 0.238 | -0.017 | 0.102 | 0.153 | 0.256 | **-0.542** |
| Ethyl lactate | **0.573** | **0.526** | 0.114 | **0.639** | 0.270 | 0.292 | 0.152 | 0.236 | 0.153 | 0.131 | **0.660** | **0.536** | **0.566** | 0.425 | **0.545** |
| Propyl hexanoate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Ethyl octanoate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Ethyl 3-hydroxybutanoate | **0.700** | **0.520** | 0.158 | **0.645** | 0.340 | 0.252 | 0.050 | 0.121 | 0.016 | -0.064 | **0.651** | **0.480** | 0.411 | 0.442 | **0.445** |
| Ethyl nonanoate | **0.767** | **0.564** | 0.346 | **0.891** | 0.376 | 0.414 | 0.155 | 0.345 | 0.163 | 0.232 | **0.797** | 0.349 | 0.437 | **0.458** | **0.531** |
| Isoamyl lactate | **0.747** | **0.698** | 0.323 | **0.883** | 0.336 | 0.350 | 0.131 | 0.415 | 0.272 | 0.289 | **0.883** | 0.410 | **0.453** | **0.577** | **0.532** |
| Methyl decanoate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Ethyl 2-furancarboxylate | **0.781** | **0.616** | 0.433 | **0.943** | 0.435 | 0.421 | 0.108 | 0.344 | 0.427 | **0.444** | **0.877** | 0.230 | 0.340 | **0.642** | 0.246 |
| Ethyl decanoate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Diethyl succinate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Ethyl 9-decenoate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Ethyl benzeneacetate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| 2-Phenethyl acetate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Ethyl dodecanoate | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Total ester | 0.120 | 0.113 | -0.347 | 0.157 | 0.368 | 0.017 | -0.005 | 0.023 | -0.339 | -0.262 | 0.021 | 0.134 | 0.060 | 0.187 | 0.261 |
| 3-Hydroxy-2-butanone | **0.833** | **0.699** | 0.402 | **1.000** | 0.376 | 0.430 | 0.125 | 0.319 | 0.316 | 0.358 | **0.892** | 0.274 | 0.383 | **0.624** | 0.426 |
| Limonene | **0.716** | **0.513** | **0.616** | **0.901** | 0.321 | 0.350 | 0.067 | 0.387 | **0.578** | **0.589** | **0.781** | 0.179 | 0.396 | 0.386 | 0.157 |
| Terpinolene | 0.406 | **0.838** | -0.161 | **0.603** | 0.390 | -0.071 | -0.263 | -0.043 | -0.091 | -0.121 | **0.537** | 0.353 | 0.120 | **0.704** | 0.401 |
| Total terpene | **0.718** | **0.493** | **0.636** | **0.890** | 0.309 | 0.341 | 0.059 | 0.388 | **0.585** | **0.600** | **0.775** | 0.161 | 0.381 | 0.363 | 0.146 |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S7** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated model wines (continued 5/7)

| Variables | Total aldehyde | Benzaldehyde | Myristicin | Benzeneacetaldehyde | Naphthalene | 1,2-Dihydro-1,1,6-trimethyl-naphthalene | Benzyl alcohol | Total benzenoid | Ethyl butanoate | Ethyl 3-methylbutanoate | 3-Methylbutyl acetate | 3-Hydroxymandelic acid ethyl ester | Ethyl hexanoate | Hexyl acetate | Ethyl (E)-3-hexenoate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | -0.322 | -0.430 | -0.415 | -0.373 | **-0.956** | **-0.956** | -0.362 | -0.370 | -0.340 | **-0.956** | **-0.956** | -0.022 | -0.314 | **-0.563** | -0.218 |
| pH | 0.289 | **0.487** | 0.354 | 0.399 | **0.901** | **0.901** | 0.424 | 0.432 | 0.346 | **0.901** | **0.901** | -0.020 | 0.352 | **0.571** | 0.199 |
| TPC | -0.232 | -0.174 | 0.124 | -0.128 | **0.470** | **0.470** | -0.221 | -0.220 | 0.023 | **0.470** | **0.470** | -0.363 | **0.688** | **0.461** | 0.139 |
| TFC | -0.006 | -0.133 | 0.259 | -0.162 | **0.530** | **0.530** | -0.171 | -0.174 | 0.176 | **0.530** | **0.530** | -0.434 | **0.464** | **0.504** | 0.067 |
| DPPH | -0.220 | -0.195 | 0.119 | -0.118 | **0.524** | **0.524** | -0.238 | -0.236 | 0.248 | **0.524** | **0.524** | -0.269 | 0.418 | 0.317 | 0.313 |
| FRAP | -0.312 | -0.303 | 0.099 | -0.221 | 0.411 | 0.411 | -0.340 | -0.341 | 0.132 | 0.411 | 0.411 | -0.371 | **0.461** | 0.375 | 0.300 |
| ABTS | -0.267 | -0.265 | 0.081 | -0.195 | 0.424 | 0.424 | -0.299 | -0.299 | 0.168 | 0.424 | 0.424 | -0.361 | **0.528** | 0.319 | 0.226 |
| L* | -0.019 | **-0.853** | -0.153 | **-0.461** | **-0.571** | **-0.571** | **-0.601** | **-0.628** | 0.211 | **-0.571** | **-0.571** | 0.009 | -0.219 | -0.285 | -0.244 |
| a* | -0.094 | **0.862** | 0.035 | 0.388 | 0.354 | 0.354 | **0.585** | **0.613** | -0.339 | 0.354 | 0.354 | -0.089 | 0.237 | 0.230 | 0.168 |
| b* | 0.116 | **0.736** | 0.284 | **0.468** | **0.758** | **0.758** | **0.567** | **0.587** | -0.051 | **0.758** | **0.758** | -0.011 | 0.306 | 0.418 | 0.278 |
| Quinic acid | -0.272 | 0.391 | 0.118 | 0.141 | 0.394 | 0.394 | 0.230 | 0.246 | -0.259 | 0.394 | 0.394 | -0.224 | 0.001 | 0.403 | **0.527** |
| Gallic acid | -0.048 | -0.114 | 0.061 | -0.060 | 0.396 | 0.396 | -0.144 | -0.144 | 0.217 | 0.396 | 0.396 | -0.250 | **0.714** | 0.255 | -0.133 |
| Chlorogenic acid | -0.200 | -0.316 | 0.093 | -0.222 | 0.439 | 0.439 | -0.332 | -0.335 | 0.296 | 0.439 | 0.439 | -0.356 | 0.381 | 0.311 | 0.193 |
| Total phenolic acids | -0.223 | 0.100 | 0.129 | 0.007 | **0.592** | **0.592** | -0.020 | -0.011 | 0.053 | **0.592** | **0.592** | -0.370 | **0.595** | **0.473** | 0.235 |
| Gallocatechin | -0.181 | 0.051 | 0.147 | 0.004 | **0.604** | **0.604** | -0.032 | -0.026 | 0.006 | **0.604** | **0.604** | -0.373 | **0.557** | **0.517** | 0.233 |
| Epigallocatechin | -0.257 | -0.319 | 0.151 | -0.217 | 0.428 | 0.428 | -0.337 | -0.340 | 0.122 | 0.428 | 0.428 | -0.373 | **0.528** | 0.400 | 0.228 |
| Procyanidin B1 | -0.084 | -0.075 | 0.193 | 0.023 | **0.661** | **0.661** | -0.086 | -0.086 | 0.275 | **0.661** | **0.661** | -0.241 | **0.471** | 0.443 | 0.197 |
| Catechin | -0.173 | 0.056 | 0.119 | 0.041 | **0.656** | **0.656** | -0.035 | -0.028 | 0.122 | **0.656** | **0.656** | -0.262 | 0.419 | **0.462** | 0.286 |
| Procyanidin B2 | -0.191 | -0.274 | 0.129 | -0.240 | 0.373 | 0.373 | -0.290 | -0.295 | 0.060 | 0.373 | 0.373 | **-0.503** | **0.484** | **0.447** | 0.138 |
| Epicatechin | -0.232 | -0.125 | 0.202 | -0.111 | 0.411 | 0.411 | -0.107 | -0.110 | -0.036 | 0.411 | 0.411 | **-0.463** | 0.434 | **0.482** | 0.326 |
| Epigallocatechin gallate | -0.273 | 0.102 | 0.012 | -0.049 | **0.445** | **0.445** | -0.028 | -0.020 | -0.214 | **0.445** | **0.445** | -0.421 | 0.152 | **0.528** | 0.355 |
| Procyanidin B1 3-O-gallate | -0.265 | 0.113 | 0.069 | 0.001 | **0.468** | **0.468** | 0.034 | 0.040 | -0.005 | **0.468** | **0.468** | **-0.464** | **0.490** | 0.421 | 0.298 |
| Gallocatechin gallate | -0.230 | -0.345 | 0.144 | -0.244 | 0.443 | 0.443 | -0.362 | -0.365 | 0.173 | 0.443 | 0.443 | -0.364 | 0.418 | 0.388 | 0.238 |
| Quercetin 3-O-di-galacoside/glucoside | -0.190 | -0.186 | 0.207 | -0.166 | 0.329 | 0.329 | -0.188 | -0.192 | -0.013 | 0.329 | 0.329 | **-0.488** | **0.690** | 0.403 | 0.115 |
| Myricetin 3-O-galactoside 1 | -0.100 | -0.065 | 0.041 | -0.081 | 0.269 | 0.269 | -0.126 | -0.123 | 0.165 | 0.269 | 0.269 | 0.064 | 0.200 | 0.055 | 0.101 |
| Epicatechin | -0.101 | 0.049 | 0.212 | 0.062 | **0.589** | **0.589** | 0.058 | 0.057 | 0.249 | **0.589** | **0.589** | -0.336 | **0.450** | 0.443 | 0.241 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| gallate | | | | | | | | | | | | | | | |
| Rutin | -0.363 | 0.123 | 0.152 | 0.159 | **0.474** | **0.474** | 0.052 | 0.064 | -0.067 | **0.474** | **0.474** | -0.220 | 0.149 | 0.342 | **0.651** |
| Quercetin 3-O-galactoside | -0.413 | 0.236 | 0.099 | 0.414 | 0.422 | 0.422 | 0.059 | 0.089 | -0.057 | 0.422 | 0.422 | 0.109 | 0.272 | -0.043 | **0.661** |
| Kaempferol 3-O-rutinoside 2 | -0.003 | 0.086 | 0.182 | -0.040 | **0.528** | **0.528** | 0.100 | 0.094 | 0.242 | **0.528** | **0.528** | -0.390 | 0.406 | 0.432 | 0.098 |
| Kaempferol 3-O-glucoside | -0.308 | 0.212 | 0.149 | 0.171 | 0.440 | 0.440 | 0.135 | 0.147 | -0.136 | 0.440 | 0.440 | -0.220 | 0.057 | 0.319 | **0.627** |
| Unknown quercetin conjugate | 0.030 | -0.109 | 0.148 | -0.096 | **0.566** | **0.566** | -0.135 | -0.138 | 0.320 | **0.566** | **0.566** | -0.221 | **0.470** | 0.324 | -0.069 |
| Unknown kaempferol conjugate | -0.159 | -0.101 | 0.168 | -0.048 | **0.618** | **0.618** | -0.129 | -0.129 | 0.167 | **0.618** | **0.618** | -0.274 | 0.249 | **0.458** | 0.292 |
| Total flavonoids | -0.198 | -0.029 | 0.133 | -0.025 | **0.616** | **0.616** | -0.104 | -0.099 | 0.108 | **0.616** | **0.616** | -0.318 | **0.467** | **0.472** | 0.277 |
| Caffeine | -0.230 | -0.328 | 0.098 | -0.247 | 0.361 | 0.361 | -0.337 | -0.341 | 0.101 | 0.361 | 0.361 | **-0.449** | **0.501** | 0.387 | 0.157 |
| Ethoxyacetic acid | **0.849** | 0.180 | **0.480** | 0.332 | **0.468** | **0.468** | 0.372 | 0.358 | **0.606** | **0.468** | **0.468** | **0.448** | -0.080 | 0.178 | -0.152 |
| Acetic acid | **0.524** | 0.279 | **0.572** | 0.306 | **0.910** | **0.910** | 0.252 | 0.256 | 0.176 | **0.910** | **0.910** | 0.328 | 0.248 | 0.416 | 0.050 |
| Pterin-6-carboxylic acid | **0.487** | 0.196 | 0.185 | 0.173 | **0.648** | **0.648** | 0.189 | 0.185 | 0.307 | **0.648** | **0.648** | -0.183 | 0.282 | **0.713** | -0.413 |
| Hexanoic acid | 0.039 | **0.666** | -0.117 | **0.636** | 0.256 | 0.256 | **0.679** | **0.688** | 0.294 | 0.256 | 0.256 | 0.072 | -0.115 | 0.258 | 0.055 |
| Octanoic acid | 0.191 | -0.123 | 0.263 | -0.085 | 0.126 | 0.126 | -0.121 | -0.127 | 0.404 | 0.126 | 0.126 | 0.003 | -0.082 | 0.235 | -0.132 |
| Nonanoic acid | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| Total acid | 0.127 | 0.434 | 0.036 | 0.432 | 0.245 | 0.245 | **0.449** | **0.453** | 0.400 | 0.245 | 0.245 | 0.063 | -0.122 | 0.289 | -0.022 |
| 2-Methyl-1-propanol | 0.353 | 0.313 | 0.136 | 0.304 | **0.739** | **0.739** | 0.388 | 0.381 | **0.453** | **0.739** | **0.739** | 0.030 | 0.186 | 0.320 | -0.100 |
| 2-Pentanol | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| 1-Butanol | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| 2-Hexanol | 0.044 | 0.048 | -0.232 | 0.335 | 0.195 | 0.195 | 0.312 | 0.298 | **0.654** | 0.195 | 0.195 | 0.087 | -0.088 | -0.065 | 0.157 |
| 3-Methyl-1-butanol | 0.432 | 0.190 | **0.548** | 0.201 | **0.833** | **0.833** | 0.144 | 0.146 | **0.470** | **0.833** | **0.833** | 0.116 | 0.101 | **0.543** | 0.073 |
| 1-(2-Aminoethylamino)-2-propanol | **0.512** | 0.218 | **0.620** | -0.109 | **0.699** | **0.699** | 0.035 | 0.040 | -0.020 | **0.699** | **0.699** | 0.114 | 0.044 | 0.379 | -0.009 |
| 2-Octen-4-ol | -0.024 | -0.309 | 0.211 | -0.188 | 0.402 | 0.402 | -0.289 | -0.296 | 0.287 | 0.402 | 0.402 | -0.351 | **0.732** | **0.471** | -0.020 |
| 3-Methyl-1-pentanol | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| (E)-3-Hexen-1-ol | -0.150 | **0.513** | -0.030 | **0.734** | 0.376 | 0.376 | 0.403 | 0.432 | -0.032 | 0.376 | 0.376 | 0.354 | -0.009 | -0.047 | **0.460** |
| 1-Hexanol | 0.323 | 0.306 | 0.061 | **0.629** | 0.430 | 0.430 | **0.696** | **0.673** | **0.490** | 0.430 | 0.430 | 0.016 | 0.071 | 0.428 | -0.022 |
| 2-Methyl-4-heptanol | 0.242 | 0.299 | -0.092 | **0.618** | 0.125 | 0.125 | **0.742** | **0.716** | 0.405 | 0.125 | 0.125 | -0.003 | -0.005 | 0.234 | -0.104 |
| 2-Ethyl-1-hexanol | -0.172 | 0.232 | 0.012 | 0.408 | 0.319 | 0.319 | 0.269 | 0.277 | -0.066 | 0.319 | 0.319 | 0.010 | 0.264 | 0.032 | 0.365 |
| Linalool | -0.347 | -0.004 | 0.154 | 0.014 | 0.316 | 0.316 | -0.025 | -0.022 | -0.069 | 0.316 | 0.316 | -0.352 | **0.772** | 0.392 | 0.260 |
| 1-Octanol | -0.222 | -0.147 | 0.326 | -0.088 | 0.358 | 0.358 | -0.158 | -0.157 | -0.044 | 0.358 | 0.358 | -0.274 | **0.829** | 0.395 | 0.238 |
| 2,3-Butanediol | **0.507** | 0.298 | 0.442 | 0.334 | **0.892** | **0.892** | 0.338 | 0.335 | 0.261 | **0.892** | **0.892** | 0.021 | 0.214 | **0.621** | -0.017 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phenylethyl alcohol | 0.035 | **0.965** | -0.097 | **0.647** | 0.274 | 0.274 | **0.800** | **0.825** | -0.047 | 0.274 | 0.274 | 0.132 | -0.118 | 0.059 | 0.102 |
| Total alcohol | 0.024 | **0.853** | -0.127 | **0.742** | 0.383 | 0.383 | **0.871** | **0.883** | 0.227 | 0.383 | 0.383 | 0.054 | 0.050 | 0.166 | 0.153 |
| 3-Hydroxybutanal | 0.169 | **0.503** | 0.390 | 0.322 | **0.624** | **0.624** | 0.365 | 0.380 | -0.364 | **0.624** | **0.624** | 0.181 | -0.171 | 0.371 | 0.256 |
| Octanal | **1.000** | 0.065 | **0.460** | 0.099 | 0.426 | 0.426 | 0.259 | 0.236 | **0.456** | 0.426 | 0.426 | 0.282 | -0.047 | 0.297 | **-0.542** |
| Total aldehyde | **1** | 0.065 | **0.460** | 0.099 | 0.426 | 0.426 | 0.259 | 0.236 | **0.457** | 0.426 | 0.426 | 0.282 | -0.047 | 0.297 | **-0.541** |
| Benzaldehyde | 0.065 | **1** | -0.010 | **0.605** | 0.339 | 0.339 | **0.805** | **0.831** | -0.089 | 0.339 | 0.339 | 0.141 | -0.106 | 0.056 | 0.153 |
| Myristicin | **0.460** | -0.010 | **1** | -0.044 | **0.526** | **0.526** | -0.034 | -0.036 | 0.037 | **0.526** | **0.526** | 0.251 | 0.287 | 0.345 | 0.118 |
| Benzeneacetaldehyde | 0.099 | **0.605** | -0.044 | **1** | 0.325 | 0.325 | **0.832** | **0.838** | 0.181 | 0.325 | 0.325 | 0.426 | -0.047 | -0.053 | 0.268 |
| Naphthalene | 0.426 | 0.339 | **0.526** | 0.325 | **1** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| Benzyl alcohol | 0.259 | **0.805** | -0.034 | **0.832** | 0.277 | 0.277 | **1** | **0.999** | 0.134 | 0.277 | 0.277 | 0.199 | -0.080 | 0.087 | -0.005 |
| Total benzenoid | 0.236 | **0.831** | -0.036 | **0.838** | 0.284 | 0.284 | **0.999** | **1** | 0.115 | 0.284 | 0.284 | 0.207 | -0.083 | 0.075 | 0.023 |
| Ethyl butanoate | **0.457** | -0.089 | 0.037 | 0.181 | 0.320 | 0.320 | 0.134 | 0.115 | **1** | 0.320 | 0.320 | 0.074 | -0.122 | 0.155 | -0.097 |
| Ethyl 3-methylbutanoate | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| 3-Methylbutyl acetate | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1** | 0.150 | 0.192 | **0.540** | 0.192 |
| 3-Hydroxymandelic acid ethyl ester | 0.282 | 0.141 | 0.251 | 0.426 | 0.150 | 0.150 | 0.199 | 0.207 | 0.074 | 0.150 | 0.150 | **1** | -0.190 | -0.399 | 0.192 |
| Ethyl hexanoate | -0.047 | -0.106 | 0.287 | -0.047 | 0.192 | 0.192 | -0.080 | -0.083 | -0.122 | 0.192 | 0.192 | -0.190 | **1** | 0.283 | -0.139 |
| Hexyl acetate | 0.297 | 0.056 | 0.345 | -0.053 | **0.540** | **0.540** | 0.087 | 0.075 | 0.155 | **0.540** | **0.540** | -0.399 | 0.283 | **1** | -0.196 |
| Ethyl (E)-3-hexenoate | **-0.541** | 0.153 | 0.118 | 0.268 | 0.192 | 0.192 | -0.005 | 0.023 | -0.097 | 0.192 | 0.192 | 0.192 | -0.139 | -0.196 | **1** |
| Ethyl lactate | **0.545** | **0.527** | 0.378 | 0.361 | **0.639** | **0.639** | **0.514** | **0.515** | 0.216 | **0.639** | **0.639** | 0.219 | 0.141 | 0.352 | -0.097 |
| Propyl hexanoate | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| Ethyl octanoate | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| Ethyl 3-hydroxybutanoate | **0.445** | **0.452** | 0.206 | 0.233 | **0.645** | **0.645** | 0.288 | 0.298 | 0.343 | **0.645** | **0.645** | 0.084 | -0.089 | **0.515** | -0.047 |
| Ethyl nonanoate | **0.531** | 0.405 | 0.341 | 0.375 | **0.891** | **0.891** | 0.352 | 0.358 | 0.395 | **0.891** | **0.891** | 0.198 | 0.213 | 0.369 | 0.029 |
| Isoamyl lactate | **0.532** | **0.459** | **0.561** | 0.353 | **0.883** | **0.883** | 0.421 | 0.425 | 0.258 | **0.883** | **0.883** | 0.128 | 0.194 | 0.396 | 0.093 |
| Methyl decanoate | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| Ethyl 2-furancarboxylate | 0.246 | 0.277 | **0.507** | 0.319 | **0.943** | **0.943** | 0.220 | 0.228 | 0.244 | **0.943** | **0.943** | 0.067 | 0.166 | **0.584** | 0.372 |
| Ethyl decanoate | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| Diethyl succinate | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| Ethyl 9-decenoate | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| Ethyl benzeneacetate | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| 2-Phenethyl | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| acetate | | | | | | | | | | | | | | | |
| Ethyl dodecanoate | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| Total ester | 0.261 | 0.146 | 0.254 | 0.433 | 0.157 | 0.157 | 0.197 | 0.206 | 0.074 | 0.157 | 0.157 | **0.999** | -0.193 | -0.403 | 0.227 |
| 3-Hydroxy-2-butanone | 0.426 | 0.339 | **0.526** | 0.325 | **1.000** | **1.000** | 0.277 | 0.284 | 0.320 | **1.000** | **1.000** | 0.150 | 0.192 | **0.540** | 0.192 |
| Limonene | 0.157 | 0.223 | 0.362 | 0.221 | **0.901** | **0.901** | 0.153 | 0.161 | 0.354 | **0.901** | **0.901** | -0.021 | 0.314 | **0.445** | 0.305 |
| Terpinolene | 0.400 | 0.430 | **0.507** | 0.170 | **0.603** | **0.603** | 0.163 | 0.184 | -0.177 | **0.603** | **0.603** | 0.321 | -0.035 | 0.193 | 0.079 |
| Total terpene | 0.146 | 0.201 | 0.358 | 0.202 | **0.890** | **0.890** | 0.133 | 0.140 | 0.365 | **0.890** | **0.890** | -0.037 | 0.318 | 0.442 | 0.304 |

Values in **bold** indicate significant ($p < 0.05$) correlation.

**Table S7** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated model wines (continued 6/7)

| Variables | Ethyl lactate | Propyl hexanoate | Ethyl octanoate | Ethyl 3-hydroxybutanoate | Ethyl nonanoate | Isoamyl lactate | Methyl decanoate | Ethyl 2-furancarboxylate | Ethyl decanoate | Diethyl succinate | Ethyl 9-decenoate | Ethyl benzeneacetate | 2-Phenethyl acetate | Ethyl dodecanoate | Total ester |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | **-0.635** | **-0.956** | **-0.956** | **-0.635** | **-0.873** | **-0.878** | **-0.956** | **-0.923** | **-0.956** | **-0.956** | **-0.956** | **-0.956** | **-0.956** | **-0.956** | -0.031 |
| pH | **0.615** | **0.901** | **0.901** | **0.623** | **0.844** | **0.842** | **0.901** | **0.876** | **0.901** | **0.901** | **0.901** | **0.901** | **0.901** | **0.901** | -0.011 |
| TPC | 0.170 | **0.470** | **0.470** | 0.103 | 0.335 | 0.341 | **0.470** | **0.506** | **0.470** | **0.470** | **0.470** | **0.470** | **0.470** | **0.470** | -0.355 |
| TFC | 0.191 | **0.530** | **0.530** | 0.060 | 0.425 | 0.420 | **0.530** | **0.561** | **0.530** | **0.530** | **0.530** | **0.530** | **0.530** | **0.530** | -0.427 |
| DPPH | 0.108 | **0.524** | **0.524** | 0.052 | 0.333 | 0.364 | **0.524** | **0.580** | **0.524** | **0.524** | **0.524** | **0.524** | **0.524** | **0.524** | -0.254 |
| FRAP | 0.028 | 0.411 | 0.411 | 0.020 | 0.204 | 0.260 | 0.411 | **0.511** | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | -0.356 |
| ABTS | 0.034 | 0.424 | 0.424 | -0.021 | 0.246 | 0.286 | 0.424 | **0.489** | 0.424 | 0.424 | 0.424 | 0.424 | 0.424 | 0.424 | -0.349 |
| L* | **-0.641** | **-0.571** | **-0.571** | **-0.527** | **-0.576** | **-0.660** | **-0.571** | **-0.548** | **-0.571** | **-0.571** | **-0.571** | **-0.571** | **-0.571** | **-0.571** | 0.000 |
| a* | **0.542** | 0.354 | 0.354 | 0.422 | 0.399 | **0.462** | 0.354 | 0.345 | 0.354 | 0.354 | 0.354 | 0.354 | 0.354 | 0.354 | -0.083 |
| b* | **0.655** | **0.758** | **0.758** | **0.514** | **0.728** | **0.758** | **0.758** | **0.732** | **0.758** | **0.758** | **0.758** | **0.758** | **0.758** | **0.758** | 0.000 |
| Quinic acid | 0.158 | 0.394 | 0.394 | 0.195 | 0.189 | 0.347 | 0.394 | **0.574** | 0.394 | 0.394 | 0.394 | 0.394 | 0.394 | 0.394 | -0.203 |
| Gallic acid | 0.250 | 0.396 | 0.396 | 0.121 | 0.411 | 0.322 | 0.396 | 0.307 | 0.396 | 0.396 | 0.396 | 0.396 | 0.396 | 0.396 | -0.251 |
| Chlorogenic acid | -0.003 | 0.439 | 0.439 | -0.017 | 0.257 | 0.286 | 0.439 | **0.492** | 0.439 | 0.439 | 0.439 | 0.439 | 0.439 | 0.439 | -0.344 |
| Total phenolic acids | 0.283 | **0.592** | **0.592** | 0.204 | **0.458** | **0.487** | **0.592** | **0.637** | **0.592** | **0.592** | **0.592** | **0.592** | **0.592** | **0.592** | -0.357 |
| Gallocatechin | 0.309 | **0.604** | **0.604** | 0.241 | **0.459** | **0.513** | **0.604** | **0.653** | **0.604** | **0.604** | **0.604** | **0.604** | **0.604** | **0.604** | -0.361 |
| Epigallocatechin | 0.012 | 0.428 | 0.428 | -0.046 | 0.233 | 0.270 | 0.428 | **0.507** | 0.428 | 0.428 | 0.428 | 0.428 | 0.428 | 0.428 | -0.361 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Procyanidin B1 | 0.263 | **0.661** | **0.661** | 0.195 | **0.487** | **0.510** | **0.661** | **0.669** | **0.661** | **0.661** | **0.661** | **0.661** | **0.661** | **0.661** | -0.230 |
| Catechin | 0.353 | **0.656** | **0.656** | 0.270 | **0.489** | **0.506** | **0.656** | **0.673** | **0.656** | **0.656** | **0.656** | **0.656** | **0.656** | **0.656** | -0.249 |
| Procyanidin B2 | -0.089 | 0.373 | 0.373 | 0.007 | 0.222 | 0.298 | 0.373 | **0.505** | 0.373 | 0.373 | 0.373 | 0.373 | 0.373 | 0.373 | **-0.493** |
| Epicatechin | 0.050 | 0.411 | 0.411 | -0.107 | 0.193 | 0.313 | 0.411 | **0.551** | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | 0.411 | **-0.447** |
| Epigallocatechin gallate | 0.193 | **0.445** | **0.445** | 0.325 | 0.248 | 0.380 | **0.445** | **0.596** | **0.445** | **0.445** | **0.445** | **0.445** | **0.445** | **0.445** | -0.405 |
| Procyanidin B1 3-O-gallate | 0.203 | **0.468** | **0.468** | 0.136 | 0.309 | 0.438 | **0.468** | **0.583** | **0.468** | **0.468** | **0.468** | **0.468** | **0.468** | **0.468** | **-0.449** |
| Gallocatechin gallate | -0.015 | 0.443 | 0.443 | -0.055 | 0.231 | 0.262 | 0.443 | **0.520** | 0.443 | 0.443 | 0.443 | 0.443 | 0.443 | 0.443 | -0.351 |
| Quercetin 3-O-di-galacoside/glucoside | 0.009 | 0.329 | 0.329 | 0.010 | 0.210 | 0.332 | 0.329 | **0.446** | 0.329 | 0.329 | 0.329 | 0.329 | 0.329 | 0.329 | **-0.479** |
| Myricetin 3-O-galactoside 1 | 0.359 | 0.269 | 0.269 | 0.041 | 0.179 | 0.133 | 0.269 | 0.137 | 0.269 | 0.269 | 0.269 | 0.269 | 0.269 | 0.269 | 0.069 |
| Epicatechin gallate | 0.327 | **0.589** | **0.589** | 0.222 | 0.398 | **0.558** | **0.589** | **0.646** | **0.589** | **0.589** | **0.589** | **0.589** | **0.589** | **0.589** | -0.323 |
| Rutin | 0.081 | **0.474** | **0.474** | 0.082 | 0.213 | 0.384 | **0.474** | **0.669** | **0.474** | **0.474** | **0.474** | **0.474** | **0.474** | **0.474** | -0.195 |
| Quercetin 3-O-galactoside | 0.088 | 0.422 | 0.422 | 0.135 | 0.317 | 0.359 | 0.422 | **0.529** | 0.422 | 0.422 | 0.422 | 0.422 | 0.422 | 0.422 | 0.133 |
| Kaempferol 3-O-rutinoside 2 | 0.399 | **0.528** | **0.528** | 0.223 | 0.369 | **0.552** | **0.528** | **0.538** | **0.528** | **0.528** | **0.528** | **0.528** | **0.528** | **0.528** | -0.382 |
| Kaempferol 3-O-glucoside | 0.099 | 0.440 | 0.440 | 0.130 | 0.181 | 0.415 | 0.440 | **0.642** | 0.440 | 0.440 | 0.440 | 0.440 | 0.440 | 0.440 | -0.196 |
| Unknown quercetin conjugate | 0.304 | **0.566** | **0.566** | 0.184 | **0.482** | **0.458** | **0.566** | **0.471** | **0.566** | **0.566** | **0.566** | **0.566** | **0.566** | **0.566** | -0.220 |
| Unknown kaempferol conjugate | 0.157 | **0.618** | **0.618** | 0.149 | 0.384 | **0.450** | **0.618** | **0.682** | **0.618** | **0.618** | **0.618** | **0.618** | **0.618** | **0.618** | -0.261 |
| Total flavonoids | 0.273 | **0.616** | **0.616** | 0.200 | 0.437 | **0.469** | **0.616** | **0.656** | **0.616** | **0.616** | **0.616** | **0.616** | **0.616** | **0.616** | -0.304 |
| Caffeine | -0.112 | 0.361 | 0.361 | -0.024 | 0.199 | 0.261 | 0.361 | **0.477** | 0.361 | 0.361 | 0.361 | 0.361 | 0.361 | 0.361 | -0.439 |
| Ethoxyacetic acid | **0.496** | **0.468** | **0.468** | **0.478** | **0.530** | **0.543** | **0.468** | 0.365 | **0.468** | **0.468** | **0.468** | **0.468** | **0.468** | **0.468** | 0.441 |
| Acetic acid | **0.766** | **0.910** | **0.910** | **0.585** | **0.846** | **0.842** | **0.910** | **0.785** | **0.910** | **0.910** | **0.910** | **0.910** | **0.910** | **0.910** | 0.328 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pterin-6-carboxylic acid | 0.391 | **0.648** | **0.648** | **0.601** | **0.639** | **0.541** | **0.648** | **0.566** | **0.648** | **0.648** | **0.648** | **0.648** | **0.648** | **0.648** | -0.195 |
| Hexanoic acid | 0.396 | 0.256 | 0.256 | **0.565** | 0.324 | 0.262 | 0.256 | 0.274 | 0.256 | 0.256 | 0.256 | 0.256 | 0.256 | 0.256 | 0.075 |
| Octanoic acid | 0.152 | 0.126 | 0.126 | 0.372 | 0.156 | 0.132 | 0.126 | 0.109 | 0.126 | 0.126 | 0.126 | 0.126 | 0.126 | 0.126 | -0.001 |
| Nonanoic acid | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| Total acid | 0.362 | 0.245 | 0.245 | **0.579** | 0.310 | 0.254 | 0.245 | 0.248 | 0.245 | 0.245 | 0.245 | 0.245 | 0.245 | 0.245 | 0.063 |
| 2-Methyl-1-propanol | **0.572** | **0.739** | **0.739** | **0.509** | **0.735** | **0.718** | **0.739** | **0.653** | **0.739** | **0.739** | **0.739** | **0.739** | **0.739** | **0.739** | 0.028 |
| 2-Pentanol | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| 1-Butanol | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| 2-Hexanol | 0.215 | 0.195 | 0.195 | -0.032 | 0.246 | 0.079 | 0.195 | 0.113 | 0.195 | 0.195 | 0.195 | 0.195 | 0.195 | 0.195 | 0.094 |
| 3-Methyl-1-butanol | **0.573** | **0.833** | **0.833** | **0.700** | **0.767** | **0.747** | **0.833** | **0.781** | **0.833** | **0.833** | **0.833** | **0.833** | **0.833** | **0.833** | 0.120 |
| 1-(2-Aminoethylamino)-2-propanol | **0.526** | **0.699** | **0.699** | **0.520** | **0.564** | **0.698** | **0.699** | **0.616** | **0.699** | **0.699** | **0.699** | **0.699** | **0.699** | **0.699** | 0.113 |
| 2-Octen-4-ol | 0.114 | 0.402 | 0.402 | 0.158 | 0.346 | 0.323 | 0.402 | 0.433 | 0.402 | 0.402 | 0.402 | 0.402 | 0.402 | 0.402 | -0.347 |
| 3-Methyl-1-pentanol | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| (E)-3-Hexen-1-ol | 0.270 | 0.376 | 0.376 | 0.340 | 0.376 | 0.336 | 0.376 | 0.435 | 0.376 | 0.376 | 0.376 | 0.376 | 0.376 | 0.376 | 0.368 |
| 1-Hexanol | 0.292 | 0.430 | 0.430 | 0.252 | 0.414 | 0.350 | 0.430 | 0.421 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.430 | 0.017 |
| 2-Methyl-4-heptanol | 0.152 | 0.125 | 0.125 | 0.050 | 0.155 | 0.131 | 0.125 | 0.108 | 0.125 | 0.125 | 0.125 | 0.125 | 0.125 | 0.125 | -0.005 |
| 2-Ethyl-1-hexanol | 0.236 | 0.319 | 0.319 | 0.121 | 0.345 | 0.415 | 0.319 | 0.344 | 0.319 | 0.319 | 0.319 | 0.319 | 0.319 | 0.319 | 0.023 |
| Linalool | 0.153 | 0.316 | 0.316 | 0.016 | 0.163 | 0.272 | 0.316 | 0.427 | 0.316 | 0.316 | 0.316 | 0.316 | 0.316 | 0.316 | -0.339 |
| 1-Octanol | 0.131 | 0.358 | 0.358 | -0.064 | 0.232 | 0.289 | 0.358 | **0.444** | 0.358 | 0.358 | 0.358 | 0.358 | 0.358 | 0.358 | -0.262 |
| 2,3-Butanediol | **0.660** | **0.892** | **0.892** | **0.651** | **0.797** | **0.883** | **0.892** | **0.877** | **0.892** | **0.892** | **0.892** | **0.892** | **0.892** | **0.892** | 0.021 |
| Phenylethyl alcohol | **0.536** | 0.274 | 0.274 | **0.480** | 0.349 | 0.410 | 0.274 | 0.230 | 0.274 | 0.274 | 0.274 | 0.274 | 0.274 | 0.274 | 0.134 |
| Total alcohol | **0.566** | 0.383 | 0.383 | 0.411 | 0.437 | **0.453** | 0.383 | 0.340 | 0.383 | 0.383 | 0.383 | 0.383 | 0.383 | 0.383 | 0.060 |
| 3-Hydroxybutanal | 0.425 | **0.624** | **0.624** | 0.442 | **0.458** | **0.577** | **0.624** | **0.642** | **0.624** | **0.624** | **0.624** | **0.624** | **0.624** | **0.624** | 0.187 |
| Octanal | **0.545** | 0.426 | 0.426 | **0.445** | **0.531** | **0.532** | 0.426 | 0.246 | 0.426 | 0.426 | 0.426 | 0.426 | 0.426 | 0.426 | 0.261 |
| Total aldehyde | **0.545** | 0.426 | 0.426 | **0.445** | **0.531** | **0.532** | 0.426 | 0.246 | 0.426 | 0.426 | 0.426 | 0.426 | 0.426 | 0.426 | 0.261 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzaldehyde | **0.527** | 0.339 | 0.339 | **0.452** | 0.405 | **0.459** | 0.339 | 0.277 | 0.339 | 0.339 | 0.339 | 0.339 | 0.339 | 0.339 | 0.146 |
| Myristicin | 0.378 | **0.526** | **0.526** | 0.206 | 0.341 | **0.561** | **0.526** | **0.507** | **0.526** | **0.526** | **0.526** | **0.526** | **0.526** | **0.526** | 0.254 |
| Benzeneacetaldehyde | 0.361 | 0.325 | 0.325 | 0.233 | 0.375 | 0.353 | 0.325 | 0.319 | 0.325 | 0.325 | 0.325 | 0.325 | 0.325 | 0.325 | 0.433 |
| Naphthalene | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| Benzyl alcohol | **0.514** | 0.277 | 0.277 | 0.288 | 0.352 | 0.421 | 0.277 | 0.220 | 0.277 | 0.277 | 0.277 | 0.277 | 0.277 | 0.277 | 0.197 |
| Total benzenoid | **0.515** | 0.284 | 0.284 | 0.298 | 0.358 | 0.425 | 0.284 | 0.228 | 0.284 | 0.284 | 0.284 | 0.284 | 0.284 | 0.284 | 0.206 |
| Ethyl butanoate | 0.216 | 0.320 | 0.320 | 0.343 | 0.395 | 0.258 | 0.320 | 0.244 | 0.320 | 0.320 | 0.320 | 0.320 | 0.320 | 0.320 | 0.074 |
| Ethyl 3-methylbutanoate | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| 3-Methylbutyl acetate | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| 3-Hydroxymandelic acid ethyl ester | 0.219 | 0.150 | 0.150 | 0.084 | 0.198 | 0.128 | 0.150 | 0.067 | 0.150 | 0.150 | 0.150 | 0.150 | 0.150 | 0.150 | **0.999** |
| Ethyl hexanoate | 0.141 | 0.192 | 0.192 | -0.089 | 0.213 | 0.194 | 0.192 | 0.166 | 0.192 | 0.192 | 0.192 | 0.192 | 0.192 | 0.192 | -0.193 |
| Hexyl acetate | 0.352 | **0.540** | **0.540** | **0.515** | 0.369 | 0.396 | **0.540** | **0.584** | **0.540** | **0.540** | **0.540** | **0.540** | **0.540** | **0.540** | -0.403 |
| Ethyl (E)-3-hexenoate | -0.097 | 0.192 | 0.192 | -0.047 | 0.029 | 0.093 | 0.192 | 0.372 | 0.192 | 0.192 | 0.192 | 0.192 | 0.192 | 0.192 | 0.227 |
| Ethyl lactate | **1** | **0.639** | **0.639** | **0.688** | **0.701** | **0.770** | **0.639** | **0.497** | **0.639** | **0.639** | **0.639** | **0.639** | **0.639** | **0.639** | 0.215 |
| Propyl hexanoate | **0.639** | **1** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| Ethyl octanoate | **0.639** | **1.000** | **1** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| Ethyl 3-hydroxybutanoate | **0.688** | **0.645** | **0.645** | **1** | **0.676** | **0.642** | **0.645** | **0.587** | **0.645** | **0.645** | **0.645** | **0.645** | **0.645** | **0.645** | 0.082 |
| Ethyl nonanoate | **0.701** | **0.891** | **0.891** | **0.676** | **1** | **0.835** | **0.891** | **0.753** | **0.891** | **0.891** | **0.891** | **0.891** | **0.891** | **0.891** | 0.199 |
| Isoamyl lactate | **0.770** | **0.883** | **0.883** | **0.642** | **0.835** | **1** | **0.883** | **0.803** | **0.883** | **0.883** | **0.883** | **0.883** | **0.883** | **0.883** | 0.132 |
| Methyl decanoate | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| Ethyl 2-furancarboxylate | **0.497** | **0.943** | **0.943** | **0.587** | **0.753** | **0.803** | **0.943** | **1** | **0.943** | **0.943** | **0.943** | **0.943** | **0.943** | **0.943** | 0.081 |
| Ethyl decanoate | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| Diethyl succinate | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| Ethyl 9-decenoate | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1** | **1.000** | **1.000** | **1.000** | 0.157 |
| Ethyl benzeneacetate | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1** | **1.000** | **1.000** | 0.157 |
| 2-Phenethyl acetate | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1** | **1.000** | 0.157 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ethyl dodecanoate | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1** | 0.157 |
| Total ester | 0.215 | 0.157 | 0.157 | 0.082 | 0.199 | 0.132 | 0.157 | 0.081 | 0.157 | 0.157 | 0.157 | 0.157 | 0.157 | 0.157 | **1** |
| 3-Hydroxy-2-butanone | **0.639** | **1.000** | **1.000** | **0.645** | **0.891** | **0.883** | **1.000** | **0.943** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | **1.000** | 0.157 |
| Limonene | **0.505** | **0.901** | **0.901** | **0.449** | **0.761** | **0.781** | **0.901** | **0.885** | **0.901** | **0.901** | **0.901** | **0.901** | **0.901** | **0.901** | -0.008 |
| Terpinolene | **0.539** | **0.603** | **0.603** | **0.602** | **0.532** | **0.637** | **0.603** | **0.533** | **0.603** | **0.603** | **0.603** | **0.603** | **0.603** | **0.603** | 0.320 |
| Total terpene | **0.483** | **0.890** | **0.890** | 0.436 | **0.748** | **0.771** | **0.890** | **0.880** | **0.890** | **0.890** | **0.890** | **0.890** | **0.890** | **0.890** | -0.024 |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S7** Correlation matrix of quantified phenolic and volatile compounds, physicochemical properties and tested responses of tea-macerated model wines (continued 7/7)

| Variables | 3-Hydroxy-2-butanone | Limonene | Terpinolene | Total terpene |
|---|---|---|---|---|
| TA | **-0.956** | **-0.931** | **-0.496** | **-0.922** |
| pH | **0.901** | **0.893** | 0.422 | **0.886** |
| TPC | **0.470** | **0.714** | -0.042 | **0.722** |
| TFC | **0.530** | **0.703** | 0.027 | **0.716** |
| DPPH | **0.524** | **0.821** | -0.084 | **0.834** |
| FRAP | 0.411 | **0.713** | -0.155 | **0.730** |
| ABTS | 0.424 | **0.740** | -0.137 | **0.756** |
| L* | **-0.571** | **-0.519** | **-0.565** | **-0.497** |
| a* | 0.354 | 0.307 | **0.458** | 0.286 |
| b* | **0.758** | **0.711** | **0.552** | **0.691** |
| Quinic acid | 0.394 | **0.469** | 0.104 | **0.468** |
| Gallic acid | 0.396 | **0.594** | 0.039 | **0.600** |
| Chlorogenic acid | 0.439 | **0.740** | -0.168 | **0.761** |
| Total phenolic acids | **0.592** | **0.828** | 0.068 | **0.834** |
| Gallocatechin | **0.604** | **0.808** | 0.121 | **0.811** |
| Epigallocatechin | 0.428 | **0.717** | -0.168 | **0.735** |
| Procyanidin B1 | **0.661** | **0.885** | 0.042 | **0.893** |
| Catechin | **0.656** | **0.864** | 0.144 | **0.864** |
| Procyanidin B2 | 0.373 | **0.611** | -0.170 | **0.636** |
| Epicatechin | 0.411 | **0.648** | -0.107 | **0.659** |
| Epigallocatechin gallate | **0.445** | **0.566** | 0.177 | **0.567** |
| Procyanidin B1 3-O-gallate | **0.468** | **0.720** | 0.060 | **0.727** |
| Gallocatechin gallate | 0.443 | **0.727** | -0.168 | **0.745** |
| Quercetin 3-O-di-galacoside/glucoside | 0.329 | **0.553** | -0.051 | **0.572** |
| Myricetin 3-O-galactoside 1 | 0.269 | 0.435 | 0.052 | 0.422 |
| Epicatechin gallate | **0.589** | **0.831** | 0.061 | **0.840** |
| Rutin | **0.474** | **0.674** | 0.020 | **0.681** |
| Quercetin 3-O-galactoside | 0.422 | **0.567** | 0.254 | **0.569** |
| Kaempferol 3-O-rutinoside 2 | **0.528** | **0.759** | 0.064 | **0.764** |

| | | | | |
|---|---|---|---|---|
| Kaempferol 3-O-glucoside | 0.440 | **0.598** | 0.101 | **0.602** |
| Unknown quercetin conjugate | **0.566** | **0.765** | 0.054 | **0.773** |
| Unknown kaempferol conjugate | **0.618** | **0.830** | -0.026 | **0.843** |
| Total flavonoids | **0.616** | **0.847** | 0.073 | **0.852** |
| Caffeine | 0.361 | **0.632** | -0.214 | **0.658** |
| Ethoxyacetic acid | **0.468** | 0.243 | 0.372 | 0.232 |
| Acetic acid | **0.910** | **0.760** | **0.681** | **0.740** |
| Pterin-6-carboxylic acid | **0.648** | **0.511** | 0.393 | **0.507** |
| Hexanoic acid | 0.256 | 0.152 | 0.070 | 0.148 |
| Octanoic acid | 0.126 | 0.050 | -0.097 | 0.070 |
| Nonanoic acid | **1.000** | **0.901** | **0.603** | **0.890** |
| Total acid | 0.245 | 0.131 | 0.014 | 0.137 |
| 2-Methyl-1-propanol | **0.739** | **0.769** | 0.213 | **0.770** |
| 2-Pentanol | **1.000** | **0.901** | **0.603** | **0.890** |
| 1-Butanol | **1.000** | **0.901** | **0.603** | **0.890** |
| 2-Hexanol | 0.195 | 0.355 | -0.343 | 0.351 |
| 3-Methyl-1-butanol | **0.833** | **0.716** | 0.406 | **0.718** |
| 1-(2-Aminoethylamino)-2-propanol | **0.699** | **0.513** | **0.838** | **0.493** |
| 2-Octen-4-ol | 0.402 | **0.616** | -0.161 | **0.636** |
| 3-Methyl-1-pentanol | **1.000** | **0.901** | **0.603** | **0.890** |
| (E)-3-Hexen-1-ol | 0.376 | 0.321 | 0.390 | 0.309 |
| 1-Hexanol | 0.430 | 0.350 | -0.071 | 0.341 |
| 2-Methyl-4-heptanol | 0.125 | 0.067 | -0.263 | 0.059 |
| 2-Ethyl-1-hexanol | 0.319 | 0.387 | -0.043 | 0.388 |
| Linalool | 0.316 | **0.578** | -0.091 | **0.585** |
| 1-Octanol | 0.358 | **0.589** | -0.121 | **0.600** |
| 2,3-Butanediol | **0.892** | **0.781** | **0.537** | **0.775** |
| Phenylethyl alcohol | 0.274 | 0.179 | 0.353 | 0.161 |
| Total alcohol | 0.383 | 0.396 | 0.120 | 0.381 |
| 3-Hydroxybutanal | **0.624** | 0.386 | **0.704** | 0.363 |
| Octanal | 0.426 | 0.157 | 0.401 | 0.146 |
| Total aldehyde | 0.426 | 0.157 | 0.400 | 0.146 |
| Benzaldehyde | 0.339 | 0.223 | 0.430 | 0.201 |
| Myristicin | **0.526** | 0.362 | **0.507** | 0.358 |
| Benzeneacetaldehyde | 0.325 | 0.221 | 0.170 | 0.202 |
| Naphthalene | **1.000** | **0.901** | **0.603** | **0.890** |

| | | | | |
|---|---|---|---|---|
| 1,2-Dihydro-1,1,6-trimethyl-naphthalene | **1.000** | **0.901** | **0.603** | **0.890** |
| Benzyl alcohol | 0.277 | 0.153 | 0.163 | 0.133 |
| Total benzenoid | 0.284 | 0.161 | 0.184 | 0.140 |
| Ethyl butanoate | 0.320 | 0.354 | -0.177 | 0.365 |
| Ethyl 3-methylbutanoate | **1.000** | **0.901** | **0.603** | **0.890** |
| 3-Methylbutyl acetate | **1.000** | **0.901** | **0.603** | **0.890** |
| 3-Hydroxymandelic acid ethyl ester | 0.150 | -0.021 | 0.321 | -0.037 |
| Ethyl hexanoate | 0.192 | 0.314 | -0.035 | 0.318 |
| Hexyl acetate | **0.540** | **0.445** | 0.193 | 0.442 |
| Ethyl (E)-3-hexenoate | 0.192 | 0.305 | 0.079 | 0.304 |
| Ethyl lactate | **0.639** | **0.505** | **0.539** | **0.483** |
| Propyl hexanoate | **1.000** | **0.901** | **0.603** | **0.890** |
| Ethyl octanoate | **1.000** | **0.901** | **0.603** | **0.890** |
| Ethyl 3-hydroxybutanoate | **0.645** | **0.449** | **0.602** | 0.436 |
| Ethyl nonanoate | **0.891** | **0.761** | **0.532** | **0.748** |
| Isoamyl lactate | **0.883** | **0.781** | **0.637** | **0.771** |
| Methyl decanoate | **1.000** | **0.901** | **0.603** | **0.890** |
| Ethyl 2-furancarboxylate | **0.943** | **0.885** | **0.533** | **0.880** |
| Ethyl decanoate | **1.000** | **0.901** | **0.603** | **0.890** |
| Diethyl succinate | **1.000** | **0.901** | **0.603** | **0.890** |
| Ethyl 9-decenoate | **1.000** | **0.901** | **0.603** | **0.890** |
| Ethyl benzeneacetate | **1.000** | **0.901** | **0.603** | **0.890** |
| 2-Phenethyl acetate | **1.000** | **0.901** | **0.603** | **0.890** |
| Ethyl dodecanoate | **1.000** | **0.901** | **0.603** | **0.890** |
| Total ester | 0.157 | -0.008 | 0.320 | -0.024 |
| 3-Hydroxy-2-butanone | **1** | **0.901** | **0.603** | **0.890** |
| Limonene | **0.901** | **1** | 0.340 | **0.999** |
| Terpinolene | **0.603** | 0.340 | **1** | 0.314 |
| Total terpene | **0.890** | **0.999** | 0.314 | **1** |

Values in **bold** indicate significant ($p < 0.05$) correlation

**Table S8** PLS-DA results for bottle-aged tea-macerated Chardonnay wines: variables importance in projection (VIP > 1) and standardized coefficient (β)

| PLS-DA (Variables) | VIP | β |
|---|---|---|
| Total benzenoid | 1.435 | 0.172 |
| Acetic acid | 0.568 | -0.125 |
| Ethoxyacetic acid | 1.918 | 0.068 |
| Ethyl lactate | 1.186 | -0.156 |
| Total ester | 1.574 | 0.034 |
| Total aldehyde | 0.528 | -0.042 |
| Total alcohol | 0.480 | -0.100 |
| 2-Pentanol | 1.571 | 0.134 |
| Ethyl hexanoate | 1.429 | 0.065 |
| Benzaldehyde | 1.503 | -0.079 |
| 2-Methyl-4-heptanol | 1.566 | 0.104 |
| Ethyl benzeneacetate | 1.482 | -0.083 |
| a* | 1.308 | -0.084 |
| Ethyl dodecanoate | 1.041 | 0.067 |

**Table S9** PLS-DA results for bottle-aged tea-macerated model wines: variables importance in projection (VIP > 1) and standardized coefficient (β)

| PLS-DA (Variables) | VIP | β |
|---|---|---|
| Ethyl butanoate | 2.298 | 0.143 |
| Total aldehyde | 1.783 | 0.111 |
| a* | 1.613 | -0.100 |
| Total ester | 1.409 | 0.088 |
| L* | 1.350 | 0.084 |
| 3-Hydroxybutanal | 1.225 | -0.076 |
| 2-Hexanol | 1.172 | 0.073 |
| b* | 1.170 | -0.073 |
| Ethyl (*E*)-3-hexenoate | 1.143 | -0.071 |
| 2-Ethyl-1-hexanol | 1.044 | -0.065 |
| Total phenolic acids | 1.043 | -0.065 |

**Table S10** Odor active values (OAVs) of volatile compounds in tea-macerated Chardonnay wine at different aging times

| Peak No. | Compound Name | Odor descriptor* | Odor threshold (μg/L) | Reference** | C | | | | 2GC | | | | 4GC | | | | 1BC | | | | 3BC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Aging time (month) | | | | | | | | | | | | | | | | | | | |
| | | | | | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 |
| | **Fruity** | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Ethyl butanoate*** | Sweet, fruity, juicy | 20 | (4) | 13.804 ± 1.441$^{a}$ | 11.816 ± 3.224$^{b}$ | 10.766 ± 1.100$^{c}$ | 8.410 ± 0.572$^{d}$ | 13.419 ± 0.480$^{a}$ | 10.182 ± 1.178$^{c}$ | 12.325 ± 1.068$^{b}$ | 8.345 ± 0.741$^{d}$ | 14.995 ± 1.054$^{a}$ | 13.199 ± 0.841$^{b}$ | 12.696 ± 0.837$^{b}$ | 8.723 ± 0.754$^{c}$ | 14.352 ± 0.585$^{a}$ | 11.707 ± 0.412$^{b}$ | 11.810 ± 1.699$^{b}$ | 8.109 ± 0.493$^{c}$ | 16.237 ± 0.610$^{a}$ | 11.729 ± 2.259$^{b}$ | 8.951 ± 0.866$^{c}$ | 9.234 ± 1.024$^{c}$ |
| 2 | Ethyl 3-methylbutanoate*** | Sweet, estery, fruity | 3 | (4) | 33.138 ± 0.435$^{a}$ | 34.038 ± 0.000$^{a}$ | 33.041 ± 0.463$^{a}$ | 31.593 ± 0.151$^{a}$ | 32.833 ± 0.096$^{a}$ | 32.508 ± 0.000$^{a}$ | 33.291 ± 0.488$^{a}$ | 31.429 ± 0.224$^{a}$ | 33.123 ± 0.309$^{a}$ | 32.769 ± 0.242$^{a}$ | 33.158 ± 0.180$^{a}$ | 31.774 ± 0.288$^{a}$ | 33.170 ± 0.314$^{a}$ | 32.712 ± 0.170$^{a}$ | 33.434 ± 0.562$^{a}$ | 31.482 ± 0.102$^{a}$ | 33.530 ± 0.097$^{a}$ | 32.698 ± 0.773$^{a}$ | 32.499 ± 0.288$^{a}$ | 32.420 ± 0.574$^{a}$ |
| 4 | 3-Methylbutyl acetate*** | Sweet, banana, fruity | 30 | (4) | 19.782 ± 3.585$^{a}$ | 10.203 ± 6.195$^{b}$ | 3.621 ± 0.720$^{c}$ | 1.847 ± 0.261$^{d}$ | 18.738 ± 1.218$^{a}$ | 7.078 ± 1.279$^{b}$ | 4.971 ± 0.720$^{c}$ | 2.100 ± 0.459$^{d}$ | 22.675 ± 2.749$^{a}$ | 11.846 ± 1.281$^{b}$ | 6.709 ± 0.551$^{c}$ | 3.014 ± 0.604$^{d}$ | 20.497 ± 1.860$^{a}$ | 9.318 ± 1.028$^{b}$ | 5.058 ± 1.679$^{c}$ | 1.720 ± 0.272$^{d}$ | 23.335 ± 1.607$^{a}$ | 10.200 ± 4.105$^{b}$ | 3.295 ± 1.024$^{c}$ | 3.279 ± 0.912$^{c}$ |
| 11 | Ethyl hexanoate*** | Sweet, fruity, pineapple | 5 | (4) | 51.223 ± 7.535$^{a}$ | 47.904 ± 15.527$^{b}$ | 49.494 ± 9.280$^{b}$ | 36.460 ± 0.000$^{c}$ | 41.251 ± 2.266$^{b}$ | 34.399 ± 4.762$^{c}$ | 47.997 ± 5.228$^{a}$ | 30.129 ± 5.390$^{d}$ | 41.597 ± 4.483$^{b}$ | 41.151 ± 3.581$^{b}$ | 43.769 ± 3.868$^{a}$ | 27.422 ± 3.200$^{c}$ | 47.560 ± 3.879$^{a}$ | 42.546 ± 2.294$^{a}$ | 47.309 ± 8.501$^{a}$ | 27.410 ± 3.735$^{b}$ | 50.073 ± 2.914$^{a}$ | 35.886 ± 8.651$^{b}$ | 25.359 ± 1.024$^{c}$ | 27.501 ± 4.456$^{c}$ |
| 14 | Hexyl acetate | Fruity, green, apple | 63 | (7) | 0.404 ± 0.069$^{a}$ | 0.207 ± 0.113$^{b}$ | 0.064 ± 0.013$^{c}$ | 0.029 ± 0.004$^{c}$ | 0.314 ± 0.022$^{a}$ | 0.108 ± 0.017$^{b}$ | 0.072 ± 0.003$^{c}$ | 0.037 ± 0.008$^{d}$ | 0.321 ± 0.037$^{a}$ | 0.158 ± 0.028$^{b}$ | 0.085 ± 0.019$^{c}$ | 0.046 ± 0.004$^{d}$ | 0.353 ± 0.031$^{a}$ | 0.153 ± 0.015$^{b}$ | 0.076 ± 0.016$^{c}$ | 0.027 ± 0.006$^{d}$ | 0.318 ± 0.011$^{a}$ | 0.139 ± 0.052$^{b}$ | 0.058 ± 0.016$^{c}$ | 0.048 ± 0.011$^{c}$ |
| 18 | Ethyl (*E*)-3-hexenoate | Green, fruity, passion fruit | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 20 | 2-Octen-4-ol | Fruity, berry | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 22 | Ethyl lactate | Sweet, fruity, acidic | 14000 | (4) | 0.010 ± 0.001$^{b}$ | 0.015 ± 0.001$^{a}$ | 0.016 ± 0.003$^{a}$ | 0.011 ± 0.001$^{b}$ | 0.010 ± 0.001$^{c}$ | 0.014 ± 0.000$^{a}$ | 0.014 ± 0.000$^{a}$ | 0.012 ± 0.002$^{b}$ | 0.011 ± 0.001$^{b}$ | 0.014 ± 0.000$^{a}$ | 0.014 ± 0.008$^{a}$ | 0.011 ± 0.000$^{b}$ | 0.010 ± 0.001$^{c}$ | 0.015 ± 0.000$^{a}$ | 0.015 ± 0.001$^{a}$ | 0.012 ± 0.000$^{b}$ | 0.011 ± 0.000$^{c}$ | 0.012 ± 0.000$^{b}$ | 0.013 ± 0.001$^{a}$ | 0.013 ± 0.001$^{a}$ |
| 23 | Propyl hexanoate | Sweet, fruity, juicy | 15 | (3) | 0.428 ± 0.091$^{b}$ | 0.553 ± 0.154$^{a}$ | 0.545 ± 0.121$^{a}$ | 0.199 ± 0.078$^{c}$ | 0.315 ± 0.037$^{c}$ | 0.401 ± 0.052$^{b}$ | 0.534 ± 0.076$^{a}$ | 0.122 ± 0.051$^{d}$ | 0.279 ± 0.050$^{c}$ | 0.477 ± 0.068$^{b}$ | 0.540 ± 0.081$^{a}$ | 0.102 ± 0.031$^{d}$ | 0.354 ± 0.047$^{c}$ | 0.412 ± 0.035$^{b}$ | 0.491 ± 0.112$^{a}$ | 0.087 ± 0.047$^{d}$ | 0.376 ± 0.028$^{a}$ | 0.357 ± 0.133$^{a}$ | 0.222 ± 0.043$^{b}$ | 0.009 ± 0.000$^{c}$ |
| 31 | Benzaldehyde | Strong, sharp, sweet | 2000 | (4) | 0.004 ± 0.000$^{c}$ | 0.007 ± 0.001$^{b}$ | 0.010 ± 0.002$^{a}$ | 0.011 ± 0.001$^{a}$ | 0.002 ± 0.002$^{c}$ | 0.010 ± 0.001$^{b}$ | 0.010 ± 0.001$^{b}$ | 0.014 ± 0.004$^{a}$ | 0.004 ± 0.004$^{c}$ | 0.010 ± 0.002$^{b}$ | 0.014 ± 0.008$^{a}$ | 0.013 ± 0.006$^{a}$ | 0.007 ± 0.000$^{d}$ | 0.010 ± 0.000$^{c}$ | 0.028 ± 0.002$^{b}$ | 0.047 ± 0.006$^{a}$ | 0.009 ± 0.000$^{c}$ | 0.013 ± 0.001$^{b}$ | 0.020 ± 0.003$^{a}$ | 0.022 ± 0.002$^{a}$ |
| 33 | Ethyl 3-hydroxybutanoate | Fruity, green, grape | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 37 | Isoamyl lactate | Fruity, creamy, nutty | 200 | (2) | -- | 0.084 ± 0.000$^{a}$ | <0.001 | 0.046 ± 0.009$^{b}$ | 0.063 ± 0.003$^{b}$ | 0.137 ± 0.009$^{a}$ | 0.126 ± 0.013$^{a}$ | 0.077 ± 0.006$^{b}$ | 0.065 ± 0.015$^{c}$ | 0.137 ± 0.023$^{a}$ | 0.121 ± 0.007$^{b}$ | 0.077 ± 0.010$^{c}$ | 0.053 ± 0.008$^{d}$ | 0.127 ± 0.030$^{a}$ | 0.104 ± 0.034$^{b}$ | 0.081 ± 0.005$^{c}$ | 0.066 ± 0.012$^{b}$ | 0.117 ± 0.024$^{a}$ | 0.123 ± 0.017$^{a}$ | 0.115 ± 0.027$^{a}$ |
| 42 | Ethyl decanoate*** | Sweet, waxy, fruity | 200 | (4) | 1.603 ± 0.158$^{a}$ | 1.576 ± 0.267$^{a}$ | 0.916 ± 0.064$^{b}$ | 0.676 ± 0.051$^{c}$ | 0.883 ± 0.544$^{a}$ | 0.569 ± 0.030$^{b}$ | 0.458 ± 0.003$^{c}$ | 0.454 ± 0.023$^{c}$ | 0.503 ± 0.018$^{a}$ | 0.522 ± 0.025$^{a}$ | 0.443 ± 0.006$^{b}$ | 0.424 ± 0.000$^{b}$ | 0.687 ± 0.022$^{a}$ | 0.657 ± 0.005$^{a}$ | 0.517 ± 0.010$^{b}$ | 0.459 ± 0.018$^{c}$ | 0.503 ± 0.002$^{a}$ | 0.497 ± 0.026$^{a}$ | 0.435 ± 0.008$^{b}$ | 0.409 ± 0.005$^{b}$ |
| 43 | Diethyl succinate | Fruity, apple, cooked apple | 200000 | (4) | 0.007 ± 0.000$^{d}$ | 0.010 ± 0.001$^{c}$ | 0.014 ± 0.003$^{a}$ | 0.011 ± 0.000$^{b}$ | 0.004 ± 0.003$^{c}$ | 0.009 ± 0.001$^{b}$ | 0.011 ± 0.000$^{a}$ | 0.011 ± 0.002$^{a}$ | 0.006 ± 0.000$^{c}$ | 0.008 ± 0.001$^{b}$ | 0.011 ± 0.001$^{a}$ | 0.010 ± 0.001$^{a}$ | 0.007 ± 0.000$^{c}$ | 0.009 ± 0.000$^{b}$ | 0.012 ± 0.001$^{a}$ | 0.011 ± 0.001$^{a}$ | 0.007 ± 0.000$^{b}$ | 0.008 ± 0.000$^{b}$ | 0.010 ± 0.001$^{a}$ | 0.011 ± 0.001$^{a}$ |
| 44 | Ethyl 9-decenoate*** | Fruity, fatty | 76.20 | (4) | 5.149 ± 0.530$^{c}$ | 8.398 ± 1.678$^{a}$ | 5.642 ± 0.000$^{b}$ | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.368 ± 0.000 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Floral** | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | Linalool*** | Citrus, floral, sweet | 25 | (4) | 0.340 ± 0.244$^{b}$ | 0.402 ± 0.00$^{a}$ | 0.424 ± 0.119$^{a}$ | <0.001 | 5.560 ± 3.855$^{d}$ | 11.784 ± 0.970$^{a}$ | 10.476 ± 0.698$^{b}$ | 8.693 ± 1.156$^{c}$ | 12.722 ± 1.050$^{c}$ | 17.137 ± 0.307$^{b}$ | 23.430 ± 3.358$^{a}$ | 17.971 ± 1.631$^{b}$ | 2.785 ± 0.213$^{b}$ | 2.975 ± 0.223$^{a}$ | 2.598 ± 0.169$^{c}$ | 1.432 ± 0.068$^{d}$ | 6.846 ± 0.459$^{ab}$ | 6.577 ± 0.068$^{ab}$ | 7.114 ± 0.406$^{a}$ | 5.264 ± 0.441$^{b}$ |
| 47 | Ethyl benzeneacetate | Sweet, floral, honey | 650 | (4) | 0.003 ± 0.000$^{b}$ | 0.003 ± 0.000$^{b}$ | 0.005 ± 0.001$^{a}$ | 0.003 ± 0.000$^{b}$ | 0.007 ± 0.000$^{d}$ | 0.014 ± 0.001$^{c}$ | 0.024 ± 0.001$^{b}$ | 0.031 ± 0.004$^{a}$ | 0.009 ± 0.001$^{c}$ | 0.017 ± 0.001$^{b}$ | 0.038 ± 0.005$^{a}$ | 0.037 ± 0.004$^{a}$ | 0.007 ± 0.001$^{c}$ | 0.013 ± 0.001$^{b}$ | 0.023 ± 0.002$^{a}$ | 0.020 ± 0.002$^{a}$ | 0.015 ± 0.001$^{d}$ | 0.020 ± 0.001$^{c}$ | 0.038 ± 0.004$^{b}$ | 0.046 ± 0.005$^{a}$ |
| 48 | 2-Phenethyl acetate | Floral, rose, sweet | 650 | (4) | 0.060 ± 0.000$^{a}$ | 0.059 ± 0.000$^{a}$ | 0.057 ± 0.000$^{a}$ | 0.057 ± 0.000$^{a}$ | 0.049 ± 0.017$^{b}$ | 0.058 ± 0.000$^{a}$ | 0.057 ± 0.000$^{a}$ | 0.057 ± 0.000$^{a}$ | 0.059 ± 0.000$^{a}$ | 0.058 ± 0.000$^{a}$ | 0.057 ± 0.000$^{a}$ | 0.057 ± 0.000$^{a}$ | 0.059 ± 0.000$^{a}$ | 0.058 ± 0.000$^{a}$ | 0.058 ± 0.000$^{a}$ | 0.057 ± 0.000$^{a}$ | 0.059 ± 0.000$^{a}$ | 0.058 ± 0.000$^{a}$ | 0.058 ± 0.000$^{a}$ | 0.057 ± 0.000$^{a}$ |
| 51 | Benzyl alcohol | Floral, rose, phenolic | 200000 | (4) | 0.003 ± 0.000$^{a}$ | <0.001 | 0.001 ± 0.000$^{c}$ | 0.003 ± 0.001$^{b}$ | 0.003 ± 0.000$^{a}$ | 0.002 ± 0.000$^{c}$ | 0.001 ± 0.000$^{c}$ | 0.002 ± 0.000$^{b}$ | 0.003 ± 0.000$^{a}$ | 0.002± 0.000$^{b}$ | 0.002 ± 0.000$^{b}$ | 0.002 ± 0.000$^{b}$ | 0.003 ± 0.000$^{a}$ | 0.002 ± 0.000$^{b}$ | 0.002 ± 0.000$^{b}$ | 0.002 ± 0.000$^{b}$ | 0.004 ± 0.000$^{a}$ | 0.002 ± 0.000$^{c}$ | 0.002 ± 0.000$^{c}$ | 0.002 ± 0.000$^{b}$ |
| 52 | Phenylethyl alcohol*** | Sweet, floral, fresh | 28922.73 | (8) | 0.951 ± 0.070$^{c}$ | 1.061 ± 0.090$^{b}$ | 1.297 ± 0.270$^{a}$ | 0.869 ± 0.034$^{d}$ | 0.792 ± 0.054$^{c}$ | 0.954 ± 0.035$^{b}$ | 1.091 ± 0.055$^{a}$ | 0.948 ± 0.132$^{b}$ | 0.808 ± 0.044$^{c}$ | 0.960 ± 0.056$^{b}$ | 1.141 ± 0.149$^{a}$ | 0.852 ± 0.057$^{c}$ | 0.856 ± 0.049$^{b}$ | 1.070 ± 0.008$^{a}$ | 1.168 ± 0.075$^{a}$ | 0.927 ± 0.080$^{b}$ | 0.944 ± 0.041$^{b}$ | 1.003 ± 0.044$^{a}$ | 1.104 ± 0.119$^{a}$ | 0.996 ± 0.092$^{a}$ |
| | **Fermented** | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 2-Pentanol*** | Mild, green, fusel | 11 | (7) | -- | <0.001 | <0.001 | -- | 64.683 ± 0.000 | <0.001 | <0.001 | <0.001 | 115.980 ± 1.884 | <0.001 | <0.001 | <0.001 | 100.495 ± 14.096 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| 6 | 1-Butanol | Fusel, oil, sweet | 150000 | (4) | 0.005 ± 0.001$^{a}$ | <0.001 | 0.006 ± 0.001$^{a}$ | 0.003 ± 0.001$^{b}$ | 0.006 ± 0.001$^{a}$ | <0.001 | 0.007 ± 0.001$^{a}$ | 0.004 ± 0.001$^{b}$ | 0.010 ± 0.001$^{b}$ | 0.059 ± 0.000$^{a}$ | 0.009 ± 0.000$^{b}$ | 0.005 ± 0.001$^{c}$ | 0.007 ± 0.001$^{b}$ | 0.023 ± 0.004$^{a}$ | 0.007 ± 0.000$^{b}$ | 0.004 ± 0.001$^{c}$ | <0.001 | 0.009 ± 0.001$^{a}$ | 0.005 ± 0.001$^{b}$ | 0.005 ± 0.000$^{b}$ |
| 10 | 3-Methyl-1-butanol*** | Fusel, oily, alcoholic | 30000 | (4) | 2.061 ± 0.145$^{c}$ | 2.246 ± 0.129$^{b}$ | 2.693 ± 0.516$^{a}$ | 2.002 ± 0.000$^{c}$ | 1.993 ± 0.105$^{b}$ | 2.299 ± 0.073$^{a}$ | 2.424 ± 0.126$^{a}$ | 2.177 ± 0.264$^{a}$ | 2.173 ± 0.121$^{c}$ | 2.424 ± 0.130$^{b}$ | 2.746 ± 0.323$^{a}$ | 2.080 ± 0.128$^{c}$ | 2.008 ± 0.085$^{c}$ | 2.434 ± 0.128$^{b}$ | 2.618 ± 0.083$^{a}$ | 1.994 ± 0.087$^{c}$ | 2.326 ± 0.091$^{ab}$ | 2.277 ± 0.038$^{b}$ | 2.423 ± 0.180$^{a}$ | 2.319 ± 0.231$^{ab}$ |
| 21 | 3-Methyl-1-pentanol | Fusel, cognac, wine | 1000 | (4) | 0.020 ± 0.003$^{b}$ | 0.025 ± 0.002$^{b}$ | 0.035 ± 0.008$^{a}$ | 0.016 ± 0.001$^{c}$ | 0.020 ± 0.001$^{c}$ | 0.024 ± 0.001$^{b}$ | 0.031 ± 0.002$^{a}$ | 0.018 ± 0.002$^{c}$ | 0.019 ± 0.002$^{c}$ | 0.026 ± 0.002$^{b}$ | 0.035 ± 0.004$^{a}$ | 0.017 ± 0.001$^{c}$ | 0.021 ± 0.001$^{c}$ | 0.027 ± 0.001$^{b}$ | 0.036 ± 0.003$^{a}$ | 0.018 ± 0.001$^{d}$ | 0.028 ± 0.001$^{b}$ | 0.030 ± 0.003$^{b}$ | 0.035 ± 0.004$^{a}$ | 0.023 ± 0.003$^{d}$ |
| 39 | Methyl decanoate | Oily, wine, fruity | 1200 | (4) | 0.063± 0.000$^{a}$ | 0.063 ± 0.000$^{a}$ | 0.061 ± 0.000$^{a}$ | 0.060 ± 0.000$^{a}$ | 0.047 ± 0.023$^{b}$ | 0.060 ± 0.000$^{a}$ | 0.060 ± 0.000$^{a}$ | <0.001 | 0.060 ± 0.000$^{a}$ | 0.060 ± 0.000$^{a}$ | 0.060 ± 0.000$^{a}$ | <0.001 | 0.061 ± 0.000$^{a}$ | 0.061 ± 0.000$^{a}$ | 0.060 ± 0.000$^{a}$ | 0.060 ± 0.000$^{a}$ | 0.060 ± 0.000$^{a}$ | 0.060 ± 0.000$^{a}$ | 0.060 ± 0.000$^{a}$ | <0.001 |
| | **Waxy** | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3** | 2-Methyl-1-propanol | Ethereal, winey, cortex | 65000 | (4) | 0.003 ± 0.000[b] | 0.003 ± 0.000[b] | 0.003 ± 0.001[a] | 0.002 ± 0.000[c] | 0.002 ± 0.000[c] | 0.003 ± 0.000[ab] | 0.003 ± 0.000[a] | 0.003 ± 0.000[b] | 0.003 ± 0.000[b] | 0.003 ± 0.000[a] | 0.003 ± 0.000[a] | 0.003 ± 0.000[b] | 0.002 ± 0.000[b] | 0.003 ± 0.000[a] | 0.003 ± 0.000[a] | 0.002 ± 0.000[b] | 0.003 ± 0.000[a] | 0.003 ± 0.000[b] | 0.003 ± 0.000[a] | 0.003 ± 0.000[b] |
| **27** | Ethyl octanoate*** | Fruity, wine, waxy | 2 | (4) | 982.564 ± 105.266[b] | 1073.474 ± 170.165[a] | 851.083 ± 118.071[c] | 630.095 ± 82.749[d] | 590.123 ± 36.747[b] | 654.168 ± 11.604[a] | 609.223 ± 34.642[a] | 467.220 ± 58.960[c] | 491.568 ± 49.553[b] | 558.174 ± 29.769[a] | 487.806 ± 56.644[b] | 347.335 ± 24.824[c] | 686.660 ± 26.995[b] | 769.825 ± 24.161[a] | 668.132 ± 54.353[b] | 443.175 ± 45.289[c] | 575.955 ± 13.579[a] | 505.537 ± 0.000[a] | 369.835 ± 25.619[b] | 324.798 ± 32.603[b] |
| **34** | Ethyl nonanoate | Waxy, cognac, estery | 1300 | (4) | 0.008 ± 0.000[a] | 0.007 ± 0.001[b] | <0.001 | 0.004 ± 0.001[c] | 0.006 ± 0.001[a] | 0.006 ± 0.000[a] | 0.006 ± 0.000[a] | 0.004 ± 0.001[b] | 0.006 ± 0.001[a] | 0.006 ± 0.001[a] | 0.005 ± 0.001[b] | 0.004 ± 0.001[c] | 0.008 ± 0.000[a] | 0.007 ± 0.001[b] | 0.006 ± 0.001[c] | 0.004 ± 0.001[d] | 0.009 ± 0.000[a] | 0.005 ± 0.001[b] | 0.004 ± 0.000[c] | 0.003 ± 0.001[d] |
| **36** | 1-Octanol | Waxy, green, orange | 900 | (4) | 0.014 ± 0.001[bc] | 0.015 ± 0.001[bc] | 0.020 ± 0.005[a] | 0.013 ± 0.000[c] | 0.011 ± 0.003[b] | 0.013 ± 0.000[a] | 0.014 ± 0.001[a] | 0.010 ± 0.001[b] | 0.008 ± 0.000[c] | 0.011 ± 0.001[b] | 0.013 ± 0.002[a] | 0.008 ± 0.001[c] | 0.012 ± 0.001[c] | 0.014 ± 0.001[b] | 0.017 ± 0.000[a] | 0.012 ± 0.001[c] | 0.011 ± 0.000[c] | 0.013 ± 0.001[b] | 0.014 ± 0.002[a] | 0.010 ± 0.001[c] |
| **50** | Ethyl dodecanoate | Sweet, waxy, floral | 5900 | (5) | 0.007 ± 0.001[a] | <0.001 | 0.004 ± 0.000[b] | 0.004 ± 0.001[b] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | <0.001 | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | 0.004 ± 0.000[a] | <0.001 |
| **54** | Nonanoic acid | Waxy, dirty, cheese | 3000 | (4) | 0.722 ± 0.019[a] | 0.542 ± 0.048[b] | 0.507 ± 0.107[c] | 0.301 ± 0.002[d] | 0.262 ± 0.009[a] | 0.254 ± 0.006[a] | 0.278 ± 0.016[a] | <0.001 | 0.233 ± 0.003[a] | 0.229 ± 0.012[a] | 0.227 ± 0.014[a] | <0.001 | 0.314 ± 0.009[a] | 0.299 ± 0.008[b] | 0.307 ± 0.025[a] | 0.238 ± 0.007[c] | 0.247 ± 0.003[b] | 0.241 ± 0.010[b] | 0.274 ± 0.006[a] | <0.001 |
| | **Citrus** | | | | | | | | | | | | | | | | | | | | | | | |
| **8** | Limonene*** | Citrus, orange, fresh | 10 | (5) | -- | -- | -- | -- | 2.048 ± 0.036[b] | 2.100 ± 0.031[ab] | 2.150 ± 0.047[a] | 2.150 ± 0.047[a] | 3.138 ± 0.031[a] | 3.135 ± 0.017[a] | 3.154 ± 0.026[a] | 3.154 ± 0.026[a] | 1.773 ± 0.031[a] | 1.786 ± 0.011[a] | 1.751 ± 0.029[a] | 1.785 ± 0.033[a] | 2.059 ± 0.008[a] | 2.073 ± 0.021[a] | 2.038 ± 0.036[b] | 2.038 ± 0.036[b] |
| **30** | 2-Ethyl-1-hexanol | Citrus, fresh, floral | 8000 | (4) | -- | -- | -- | -- | 0.001 ± 0.000[c] | 0.001 ± 0.000[b] | 0.002 ± 0.000[a] | 0.002 ± 0.000[a] | 0.001 ± 0.000[c] | 0.001 ± 0.000[b] | 0.002 ± 0.000[a] | 0.001 ± 0.000[b] | 0.001 ± 0.000[c] | 0.001 ± 0.000[b] | 0.001 ± 0.000[a] | 0.001 ± 0.000[b] | 0.001 ± 0.000[b] | 0.001 ± 0.000[ab] | 0.001 ± 0.000[a] | 0.001 ± 0.000[a] |
| | **Green** | | | | | | | | | | | | | | | | | | | | | | | |
| **24** | (*E*)-3-Hexen-1-ol*** | Green, leafy | 400 | (4) | <0.001 | <0.001 | <0.001 | <0.001 | 1.106 ± 0.000 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.030± 0.000 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **41** | Benzeneacetaldehyde*** | Green, sweet, floral | 4 | (4) | <0.001 | <0.001 | <0.001 | 7.081 ± 1.090 | 8.413 ± 0.609[a] | <0.001 | <0.001 | 8.908 ± 3.731[a] | 9.310 ± 0.658[c] | 16.267 ± 3.669[a] | 14.864 ± 2.549[b] | 9.369 ± 0.825[c] | 5.072 ± 1.947[d] | 14.944 ± 2.715[a] | 9.983 ± 1.490[b] | 7.902 ± 1.630[c] | 8.088 ± 0.937[c] | 14.721 ± 3.454[a] | 11.045 ± 3.623[b] | 10.232 ± 0.000[b] |
| | **Herbal** | | | | | | | | | | | | | | | | | | | | | | | |
| **15** | Terpinolene | Sweet, fresh pine, citrus | 200 | (4) | -- | -- | -- | -- | 0.030 ± 0.003[a] | 0.011 ± 0.001[c] | 0.017 ± 0.001[b] | 0.005 ± 0.001[d] | 0.053 ± 0.009[a] | 0.019 ± 0.000[c] | 0.038 ± 0.006[b] | 0.012 ± 0.001[d] | 0.004 ± 0.001[a] | 0.001 ± 0.000[c] | 0.002 ± 0.000[b] | <0.001 | 0.010 ± 0.001[a] | 0.003 ± 0.000[bc] | 0.003 ± 0.002[bc] | 0.001 ± 0.000[c] |
| **25** | 1-Hexanol | Pungen, ethereal, fusel | 8000 | (4) | 0.256 ± 0.146[a] | 0.196 ± 0.012[b] | 0.248 ± 0.047[a] | 0.168 ± 0.010[b] | 0.403 ± 0.023[a] | 0.190 ± 0.004[c] | 0.209 ± 0.010[b] | 0.187 ± 0.021[c] | 0.412 ± 0.023[a] | 0.188 ± 0.014[c] | 0.222 ± 0.030[b] | 0.165 ± 0.010[d] | 0.423 ± 0.026[a] | 0.203 ± 0.009[bc] | 0.231 ± 0.008[b] | 0.174 ± 0.006[c] | 0.472 ± 0.017[a] | 0.186 ± 0.004[c] | 0.208 ± 0.017[b] | 0.194 ± 0.023[c] |
| | **Acidic** | | | | | | | | | | | | | | | | | | | | | | | |
| **28** | Acetic acid | Pungent, acidic, cheesy | 200000 | (4) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Aldehydic** | | | | | | | | | | | | | | | | | | | | | | | |
| **19** | Octanal*** | Aldehydic, waxy, citrus | 50 | (4) | 41.641 ± 4.502[b] | 51.365 ± 5.887[a] | 42.490 ± 6.356[b] | 40.117 ± 2.231[b] | 43.980 ± 2.570[b] | 49.580 ± 0.790[a] | 43.140 ± 1.346[b] | 41.450 ± 3.474[b] | 44.400 ± 1.749[b] | 45.647 ± 7.081[a] | 43.595 ± 6.034[b] | 42.406 ± 1.478[b] | 40.779 ± 0.944[b] | 45.716 ± 0.905[a] | 41.138 ± 2.102[b] | 37.159 ± 2.037[c] | 38.062 ± 0.387[b] | 43.399 ± 1.692[a] | 38.651 ± 2.487[b] | 36.929 ± 3.301[b] |
| | **Balsamic** | | | | | | | | | | | | | | | | | | | | | | | |
| **40** | Ethyl 2-furancarboxylate | Balsamic, fruity, floral | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | **Buttery** | | | | | | | | | | | | | | | | | | | | | | | |
| **16** | 3-Hydroxy-2-butanone | Sweet, buttery, creamy | 150000 | (4) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Creamy** | | | | | | | | | | | | | | | | | | | | | | | |
| **38** | 2,3-Butanediol | Fruity, creamy, buttery | 120000 | (4) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Fatty** | | | | | | | | | | | | | | | | | | | | | | | |
| **49** | Hexanoic acid*** | Sour, fatty, sweaty | 3000 | (4) | 1.456 ± 0.066[b] | 1.329 ± 0.057[b] | 1.826 ± 0.378[a] | 1.121 ± 0.032[c] | 1.213 ± 0.041[b] | 1.230 ± 0.048[b] | 1.500 ± 0.076[a] | 1.228 ± 0.146[b] | 1.212 ± 0.082[b] | 1.205 ± 0.049[b] | 1.596 ± 0.189[a] | 1.163 ± 0.068[b] | 1.366 ± 0.073[b] | 1.372 ± 0.067[b] | 1.681 ± 0.106[a] | 1.250 ± 0.064[c] | 1.480 ± 0.055[b] | 1.240 ± 0.063[c] | 1.593 ± 0.163[a] | 1.423 ± 0.103[b] |
| **53** | Octanoic acid | Fatty, waxy, rancid | 26000 | (4) | 0.322 ± 0.016[a] | 0.257 ± 0.031[c] | 0.294 ± 0.082[b] | 0.158 ± 0.005[d] | 0.164 ± 0.008[a] | 0.133 ± 0.004[b] | 0.163 ± 0.007[a] | 0.116 ± 0.014[c] | 0.126 ± 0.009[a] | 0.111 ± 0.003[ab] | 0.135 ± 0.019[a] | 0.090 ± 0.004[b] | 0.217 ± 0.007[a] | 0.198 ± 0.005[b] | 0.209 ± 0.011[a] | 0.140 ± 0.014[c] | 0.173 ± 0.008[a] | 0.129 ± 0.002[c] | 0.142 ± 0.016[b] | 0.122 ± 0.006[c] |
| | **Pungent** | | | | | | | | | | | | | | | | | | | | | | | |
| **45** | Naphthalene | Pungent, dry, tarry | 21 | (8) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Spicy** | | | | | | | | | | | | | | | | | | | | | | | |
| **32** | Myristicin | Spicy, warm, balsamic | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | **Winey** | | | | | | | | | | | | | | | | | | | | | | | |
| **7** | 2-Hexanol*** | Chemical, winey, fruity | 6 | (6) | 130.603 ± 24.253[b] | <0.001 | 165.496 ± 9.811[a] | 47.295 ± 11.319[c] | 169.340 ± 18.097[b] | <0.001 | 202.126 ± 27.845[a] | 137.360 ± 57.070[c] | 206.82 ± 13.514[b] | 837.890 ± 0.000[a] | 198.048 ± 39.916[b] | 117.602 ± 42.974[c] | 207.317 ± 34.794[b] | 647.531 ± 175.732[a] | 159.018 ± 30.799[c] | <0.001 | 195.939 ± 5.330[b] | 230.128 ± 10.898[a] | 160.324 ± 10.443[c] | <0.001 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Others** | | | | | | | | | | | | | | | | | | | | | | | | |
| **9** | 3-Hydroxymandelic acid ethyl ester | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **12** | 1-(2-Aminoethylamino)-2-propanol | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **13** | 3-Hydroxybutanal | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **17** | Ethoxyacetic acid | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **26** | 2-Methyl-4-heptanol | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **29** | Pterin-6-carboxylic acid | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **46** | 1,2-dihydro-1,1,6-trimethyl-naphthalene | Licorice | 20 | (1) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |

* = Odor descriptors were obtained from TGSC[25]

** = Reference: (1) = Crandles et al.[26], (2) = Jiang et al.[27], (3) = Li et al.[28], (4) = Liang et al.[29], (5) = Pino & Oscar[30], (6) = Vázquez-Araújo et al.[31], (7) = Wang et al.[32], (8) = Wang et al.[33].

*** = Odor-active compound (OAV >1 under at least one of the treatments)

Samples of C, 2GC, 4GC etc. refer to Table S2.

-- = Not available.

a-d = Values with different superscripts in the same wine group are significantly different ($p \leq 0.05$)

**Table S11** Odor active values (OAVs) of volatile compounds in tea-macerated model wine at different aging times

| Peak No. | Compound Name | Odor descriptor* | Odor threshold (μg/L) | Reference** | M | | | | 2GM | | | | 4GM | | | | 1BM | | | | 3BM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Aging time (month) | | | | | | | | | | | | | | | | | | | |
| | | | | | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 | 1 | 3 | 6 | 9 |
| | **Fruity** | | | | | | | | | | | | | | | | | | | | | | | |
| **1** | Ethyl butanoate*** | Sweet, fruity, juicy | 20 | (4) | -- | -- | -- | -- | 5.527 ± 0.109 | <0.001 | <0.001 | <0.001 | 5.400 ± 0.076$^{a}$ | 5.454 ± 0.000$^{a}$ | <0.001 | <0.001 | 5.504 ± 0.026 | <0.001 | <0.001 | <0.001 | 5.536 ± 0.022 | <0.001 | <0.001 | <0.001 |
| **2** | Ethyl 3-methylbutanoate | Sweet, estery, fruity | 3 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **4** | 3-Methylbutyl acetate | Sweet, banana, fruity | 30 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **11** | Ethyl hexanoate*** | Sweet, fruity, pineapple | 5 | (4) | -- | -- | -- | -- | 0.014 ± 0.000$^{a}$ | <0.001 | 0.001 ± 0.000$^{b}$ | <0.001 | 0.032 ± 0.020$^{b}$ | 0.022 ± 0.000$^{b}$ | 0.052 ± 0.020$^{b}$ | 3.791 ± 0.000$^{a}$ | <0.001 | <0.001 | <0.001 | <0.001 | 0.285 ± 0.023$^{a}$ | 0.117 ± 0.000$^{b}$ | 0.080 ± 0.033$^{c}$ | 0.107 ± 0.043$^{b}$ |
| **14** | Hexyl acetate | Fruity, green, apple | 63 | (7) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 ± 0.001$^{b}$ | 0.009 ± 0.001$^{a}$ | <0.001 | <0.001 | <0.001 | 0.003 ± 0.000$^{a}$ | 0.002 ± 0.001$^{a}$ | <0.001 | <0.001 | 0.006 ± 0.005$^{a}$ | 0.005 ± 0.001$^{a}$ | <0.001 |
| **18** | Ethyl (*E*)-3-hexenoate | Green, fruity, passion fruit | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **20** | 2-Octen-4-ol | Fruity, berry | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **22** | Ethyl lactate | Sweet, fruity, acidic | 14000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **23** | Propyl hexanoate | Sweet, fruity, juicy | 15 | (3) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **31** | Benzaldehyde | Strong, sharp, sweet | 2000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | 0.002 ± 0.000 | <0.001 | 0.002 ± 0.000$^{b}$ | 0.002 ± 0.000$^{b}$ | 0.004 ± 0.000$^{a}$ | 0.002 ± 0.000$^{b}$ | <0.001 | <0.001 | 0.016 ± 0.000$^{a}$ | 0.015 ± 0.003$^{a}$ | 0.032 ± 0.000$^{c}$ | 0.040 ± 0.010$^{b}$ | 0.043 ± 0.009$^{b}$ | 0.052 ± 0.003$^{a}$ |
| **33** | Ethyl 3-hydroxybutanoate | Fruity, green, grape | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **37** | Isoamyl lactate | Fruity, creamy, nutty | 200 | (2) | -- | -- | -- | -- | <0.001 | 0.014 ± 0.000$^{a}$ | 0.013 ± 0.000$^{a}$ | <0.001 | <0.001 | 0.015 ± 0.007 | <0.001 | <0.001 | <0.001 | 0.023 ± 0.013$^{a}$ | 0.015 ± 0.008$^{b}$ | <0.001 | <0.001 | 0.030 ± 0.011$^{a}$ | 0.019 ± 0.000$^{b}$ | <0.001 |
| **42** | Ethyl decanoate | Sweet, waxy, fruity | 200 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **43** | Diethyl succinate | Fruity, apple, cooked apple | 200000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **44** | Ethyl 9-decenoate | Fruity, fatty | 76.20 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Floral** | | | | | | | | | | | | | | | | | | | | | | | |
| **35** | Linalool*** | Citrus, floral, sweet | 25 | (4) | -- | -- | -- | -- | <0.001 | 3.235 ± 0.000$^{b}$ | <0.001 | 5.538 ± 0.000$^{a}$ | 2.878 ± 2.491$^{d}$ | 5.995 ± 0.000$^{c}$ | 13.827 ± 0.000$^{b}$ | 21.967 ± 0.107$^{a}$ | <0.001 | <0.001 | <0.001 | <0.001 | 4.212 ± 0.594$^{b}$ | <0.001 | 4.356 ± 0.000$^{b}$ | 5.528 ± 1.160$^{a}$ |
| **47** | Ethyl benzeneacetate | Sweet, floral, honey | 650 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **48** | 2-Phenethyl acetate | Floral, rose, sweet | 650 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **51** | Benzyl alcohol | Floral, rose, phenolic | 200000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.002 ± 0.000$^{a}$ | <0.001 | 0.001 ± 0.000$^{b}$ | 0.007 ± 0.001$^{a}$ | 0.003 ± 0.001$^{bc}$ | 0.004 ± 0.000$^{b}$ | 0.003 ± 0.000$^{c}$ |
| **52** | Phenylethyl alcohol | Sweet, floral, fresh | 28922.73 | (8) | -- | -- | -- | -- | 0.012 ± 0.011 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 ± 0.000$^{b}$ | 0.015 ± 0.002$^{a}$ | 0.044 ± 0.000$^{c}$ | 0.053 ± 0.000$^{b}$ | 0.077 ± 0.003$^{a}$ | 0.076 ± 0.014$^{a}$ |
| | **Fermented** | | | | | | | | | | | | | | | | | | | | | | | |
| **5** | 2-Pentanol | Mild, green, fusel | 11 | (7) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **6** | 1-Butanol | Fusel, oil, sweet | 150000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **10** | 3-Methyl-1-butanol | Fusel, oily, alcoholic | 30000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **21** | 3-Methyl-1-pentanol | Fusel, cognac, wine | 1000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **39** | Methyl decanoate | Oily, wine, fruity | 1200 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Waxy** | | | | | | | | | | | | | | | | | | | | | | | |
| **3** | 2-Methyl-1-propanol | Ethereal, winey, cortex | 65000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **27** | Ethyl octanoate | Fruity, wine, waxy | 2 | (4) | -- | -- | -- | -- | <0.001 | -- | <0.001 | <0.001 | <0.001 | -- | <0.001 | <0.001 | <0.001 | -- | <0.001 | <0.001 | <0.001 | -- | <0.001 | <0.001 |
| **34** | Ethyl nonanoate | Waxy, cognac, estery | 1300 | (4) | -- | -- | -- | -- | <0.001 | 0.001 ± 0.000 | <0.001 | <0.001 | <0.001 | -- | 0.001 ± 0.000 | <0.001 | <0.001 | -- | <0.001 | <0.001 | <0.001 | -- | <0.001 | <0.001 |
| **36** | 1-Octanol | Waxy, green, orange | 900 | (4) | -- | -- | -- | -- | <0.001 | -- | 0.009 ± 0.004 | <0.001 | <0.001 | 0.012 ± 0.001$^{c}$ | 0.024 ± 0.001$^{b}$ | 0.043 ± 0.000$^{a}$ | <0.001 | -- | <0.001 | <0.001 | <0.001 | 0.003 ± 0.002 | <0.001 | <0.001 |
| **50** | Ethyl dodecanoate | Sweet, waxy, floral | 5900 | (5) | -- | -- | -- | -- | <0.001 | -- | <0.001 | <0.001 | <0.001 | -- | <0.001 | <0.001 | <0.001 | -- | <0.001 | <0.001 | <0.001 | -- | <0.001 | <0.001 |
| **54** | Nonanoic acid | Waxy, dirty, cheese | 3000 | (4) | -- | -- | -- | -- | <0.001 | -- | <0.001 | <0.001 | <0.001 | -- | <0.001 | <0.001 | <0.001 | -- | <0.001 | <0.001 | <0.001 | -- | <0.001 | <0.001 |
| | **Citrus** | | | | | | | | | | | | | | | | | | | | | | | |
| **8** | Limonene*** | Citrus, orange, fresh | 10 | (5) | -- | -- | -- | -- | 1.993 ± 0.068$^{a}$ | 2.057 ± 0.019$^{a}$ | 2.148 ± 0.183$^{a}$ | 2.148 ± 0.183$^{a}$ | 3.002 ± 0.074$^{a}$ | 3.178 ± 0.092$^{a}$ | 3.059 ± 0.069$^{a}$ | 3.059 ± 0.069$^{a}$ | 1.727 ± 0.031$^{a}$ | 1.751 ± 0.041$^{a}$ | 1.795 ± 0.040$^{a}$ | 1.795 ± 0.040$^{a}$ | 2.074 ± 0.036$^{a}$ | 2.220 ± 0.064$^{a}$ | 2.193 ± 0.098$^{a}$ | 2.193 ± 0.098$^{a}$ |
| **30** | 2-Ethyl-1-hexanol | Citrus, fresh, floral | 8000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | 0.001 ± 0.000 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 ± 0.000 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 ± 0.000 | <0.001 |
| | **Green** | | | | | | | | | | | | | | | | | | | | | | | |
| **24** | (*E*)-3-Hexen-1-ol | Green, leafy | 400 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.074 ± 0.000 | <0.001 |
| **41** | Benzeneacetaldehyde*** | Green, sweet, floral | 4 | (4) | -- | -- | -- | -- | <0.001 | 1.583 ± 0.206 | <0.001 | <0.001 | <0.001 | 2.177 ± 2.244$^{a}$ | 0.338 ± 0.000$^{b}$ | <0.001 | <0.001 | 4.473 ± 2.472$^{a}$ | 2.284 ± 2.025$^{b}$ | <0.001 | 12.571 ± 0.000$^{a}$ | 3.800 ± 2.387$^{b}$ | 13.834 ± 17.715$^{a}$ | <0.001 |
| | **Herbal** | | | | | | | | | | | | | | | | | | | | | | | |
| **15** | Terpinolene | Sweet, fresh pine, citrus | 200 | (4) | -- | -- | -- | -- | 0.007 ± 0.002$^{a}$ | <0.001 | 0.002 ± 0.001$^{b}$ | <0.001 | 0.008 ± 0.001$^{a}$ | 0.003 ± 0.000$^{c}$ | 0.007 ± 0.000$^{b}$ | 0.005 ± 0.001$^{b}$ | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **25** | 1-Hexanol | Pungen, ethereal, fusel | 8000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.003± 0.000 | <0.001 | <0.001 | <0.001 |
| | **Acidic** | | | | | | | | | | | | | | | | | | | | | | | |
| **28** | Acetic acid | Pungent, acidic, cheesy | 200000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Aldehydic** | | | | | | | | | | | | | | | | | | | | | | | |
| **19** | Octanal*** | Aldehydic, waxy, citrus | 50 | (4) | 22.210 ± 3.020$^{a}$ | 17.765 ± 1.913$^{b}$ | 12.492 ± 10.300$^{c}$ | 15.211 ± 1.633$^{b}$ | 41.152 ± 10.339$^{a}$ | 27.983 ± 3.470$^{c}$ | 30.464 ± 6.207$^{b}$ | 29.519 ± 5.274$^{b}$ | 33.785 ± 19.579$^{a}$ | 20.322 ± 16.406$^{b}$ | 7.762 ± 11.945$^{c}$ | 20.895 ± 5.274$^{b}$ | 62.836 ± 22.528$^{a}$ | 51.093 ± 21.033$^{b}$ | 20.217 ± 15.814$^{d}$ | 45.037 ± 14.835$^{c}$ | 44.402 ± 24.684$^{a}$ | 46.570 ± 17.717$^{a}$ | 11.352 ± 17.522$^{c}$ | 25.238 ± 22.586$^{b}$ |
| | **Balsamic** | | | | | | | | | | | | | | | | | | | | | | | |
| **40** | Ethyl 2-furancarboxylate | Balsamic, fruity, floral | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | **Buttery** | | | | | | | | | | | | | | | | | | | | | | | |
| **16** | 3-Hydroxy-2-butanone | Sweet, buttery, creamy | 150000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Creamy** | | | | | | | | | | | | | | | | | | | | | | | |
| **38** | 2,3-Butanediol | Fruity, creamy, buttery | 120000 | (4) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Fatty** | | | | | | | | | | | | | | | | | | | | | | | |
| **49** | Hexanoic acid | Sour, fatty, sweaty | 3000 | (4) | -- | -- | -- | -- | 0.193 ± 0.006 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.203 ± 0.002$^{a}$ | <0.001 | 0.206 ± 0.004$^{a}$ | 0.199 ± 0.000$^{a}$ |
| **53** | Octanoic acid | Fatty, waxy, rancid | 26000 | (4) | -- | -- | -- | -- | 0.025 ± 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Pungent** | | | | | | | | | | | | | | | | | | | | | | | |
| **45** | Naphthalene | Pungent, dry, tarry | 21 | (8) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| | **Spicy** | | | | | | | | | | | | | | | | | | | | | | | |
| **32** | Myristicin | Spicy, warm, balsamic | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | **Winey** | | | | | | | | | | | | | | | | | | | | | | | |
| **7** | 2-Hexanol*** | Chemical, winey, fruity | 6 | (6) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | 42.994 ± 8.364$^{b}$ | 154.893 ± 28.120$^{a}$ | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 112.432 ± 25.915 | <0.001 | <0.001 | <0.001 |
| | **Others** | | | | | | | | | | | | | | | | | | | | | | | |
| **9** | 3-Hydroxymandelic acid ethyl ester | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12** | 1-(2-Aminoethylamino)-2-propanol | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **13** | 3-Hydroxybutanal | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **17** | Ethoxyacetic acid | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **26** | 2-Methyl-4-heptanol | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **29** | Pterin-6-carboxylic acid | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **46** | 1,2-dihydro-1,1,6-trimethyl-naphthalene | Licorice | 20 | (1) | -- | -- | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |

* = Odor descriptors were obtained from TGSC[25]

** = Reference: (1) = Crandles et al.[26], (2) = Jiang et al.[27], (3) = Li et al.[28], (4) = Liang et al.[29], (5) = Pino & Oscar[30], (6) = Vázquez-Araújo et al.[31], (7) = Wang et al.[32], (8) = Wang et al.[33].

*** = Odor-active compound (OAV >1 under at least one of the treatments)

Samples of M, 2GM, 4GM etc. refer to Table S3.

-- = Not available.

a-d = Values with different superscripts in the same row are significantly different ($p \leq 0.05$)

**Table S12** The distribution of 62 consumers by different categories in sensory JAR analysis of the wines

| Category | | Control Chardonnay | 2% (w/v) Green tea Chardonnay | 4% (w/v) Green tea Chardonnay | 1% (w/v) Black tea Chardonnay | 3% (w/v) Black tea Chardonnay |
|---|---|---|---|---|---|---|
| *Age* | 18 to 24 | 32 | 32 | 32 | 32 | 32 |
| | 25 to 30 | 26 | 26 | 26 | 26 | 26 |
| | 31 to 40 | 3 | 3 | 3 | 3 | 3 |
| | 41 to 55 | 1 | 1 | 1 | 1 | 1 |
| *Gender* | Male | 25 | 25 | 25 | 25 | 25 |
| | Female | 37 | 37 | 37 | 37 | 37 |
| *Occupation* | Student | 54 | 54 | 54 | 54 | 54 |
| | Wine related work | 1 | 1 | 1 | 1 | 1 |
| | Non-wine related work | 7 | 7 | 7 | 7 | 7 |
| *Visual* | | | | | | |
| Colour intensity | Too pale | 12 | 1 | 0 | 0 | 0 |
| | A little pale | 24 | 9 | 3 | 0 | 0 |
| | Just about right | 24 | 38 | 32 | 12 | 3 |
| | A little dark | 2 | 14 | 26 | 43 | 14 |
| | Too dark | 0 | 0 | 1 | 7 | 45 |
| *Olfactory (aroma)* | | | | | | |
| Fruit smell | Too weak | 8 | 8 | 7 | 2 | 9 |
| | Weak | 20 | 24 | 23 | 18 | 18 |
| | Just about right | 22 | 20 | 24 | 31 | 9 |
| | Strong | 12 | 8 | 7 | 11 | 22 |
| | Too strong | 0 | 1 | 1 | 0 | 4 |
| Vegetal smell | Too weak | 12 | 4 | 2 | 4 | 1 |
| | Weak | 27 | 15 | 8 | 21 | 8 |
| | Just about right | 19 | 23 | 22 | 26 | 19 |
| | Strong | 4 | 19 | 27 | 9 | 21 |
| | Too strong | 0 | 1 | 3 | 2 | 13 |
| Floral smell | Too weak | 14 | 10 | 9 | 5 | 8 |
| | Weak | 22 | 24 | 23 | 20 | 19 |
| | Just about right | 20 | 22 | 22 | 25 | 19 |
| | Strong | 6 | 6 | 8 | 11 | 16 |
| | Too strong | 0 | 0 | 0 | 1 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Odour intensity | Too weak | 4 | 4 | 3 | 3 | 2 |
| | Weak | 17 | 13 | 10 | 8 | 6 |
| | Just about right | 35 | 28 | 33 | 39 | 23 |
| | Strong | 6 | 17 | 15 | 11 | 24 |
| | Too strong | 0 | 0 | 1 | 1 | 7 |
| *Olfactive (taste/flavor)* | | | | | | |
| Fruit flavor | Too weak | 5 | 16 | 26 | 3 | 15 |
| | Weak | 18 | 28 | 23 | 16 | 18 |
| | Just about right | 28 | 16 | 9 | 31 | 13 |
| | Strong | 11 | 2 | 3 | 12 | 15 |
| | Too strong | 0 | 0 | 1 | 0 | 1 |
| Vegetal taste and flavor | Too weak | 11 | 5 | 5 | 4 | 5 |
| | Weak | 29 | 12 | 16 | 18 | 15 |
| | Just about right | 14 | 19 | 4 | 31 | 11 |
| | Strong | 6 | 21 | 22 | 8 | 17 |
| | Too strong | 2 | 5 | 15 | 1 | 14 |
| Floral flavor | Too weak | 16 | 15 | 17 | 4 | 10 |
| | Weak | 19 | 24 | 27 | 19 | 28 |
| | Just about right | 24 | 19 | 9 | 31 | 12 |
| | Strong | 3 | 4 | 9 | 8 | 10 |
| | Too strong | 0 | 0 | 0 | 0 | 2 |
| *Mouthfeel/texture* | | | | | | |
| Sweetness | Too weak | 5 | 25 | 29 | 5 | 16 |
| | Weak | 15 | 27 | 24 | 18 | 24 |
| | Just about right | 24 | 10 | 9 | 28 | 19 |
| | Strong | 18 | 0 | 0 | 11 | 2 |
| | Too strong | 0 | 0 | 0 | 0 | 1 |
| Bitterness | Too weak | 15 | 2 | 0 | 1 | 2 |
| | Weak | 17 | 5 | 2 | 22 | 8 |
| | Just about right | 22 | 15 | 9 | 28 | 22 |
| | Strong | 7 | 27 | 18 | 10 | 18 |
| | Too strong | 1 | 13 | 33 | 1 | 12 |
| Sourness | Too weak | 4 | 1 | 4 | 3 | 3 |
| | Weak | 13 | 9 | 4 | 7 | 5 |
| | Just about right | 29 | 9 | 15 | 32 | 20 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Strong | 14 | 32 | 20 | 16 | 21 |
| | Too strong | 2 | 11 | 19 | 4 | 13 |
| Astringency | Too weak | 2 | 1 | 0 | 0 | 1 |
| | Weak | 14 | 7 | 4 | 11 | 9 |
| | Just about right | 35 | 21 | 15 | 38 | 19 |
| | Strong | 10 | 24 | 29 | 11 | 26 |
| | Too strong | 1 | 8 | 14 | 2 | 7 |
| Viscosity | Too weak | 3 | 3 | 4 | 0 | 2 |
| | Weak | 22 | 24 | 18 | 12 | 14 |
| | Just about right | 32 | 19 | 26 | 38 | 31 |
| | Strong | 5 | 16 | 12 | 11 | 12 |
| | Too strong | 0 | 0 | 2 | 1 | 3 |
| Length | Too weak | 3 | 3 | 1 | 2 | 2 |
| | Weak | 15 | 15 | 11 | 15 | 9 |
| | Just about right | 33 | 21 | 19 | 30 | 22 |
| | Strong | 11 | 19 | 19 | 14 | 25 |
| | Too strong | 0 | 4 | 12 | 1 | 4 |
| *Overall perception* | | | | | | |
| Overall liking | Dislike very much | 0 | 13 | 20 | 3 | 12 |
| | Dislike moderately | 7 | 10 | 10 | 4 | 11 |
| | Dislike slightly | 8 | 12 | 19 | 7 | 11 |
| | Neither like nor dislike | 10 | 17 | 6 | 13 | 7 |
| | Like slightly | 12 | 7 | 6 | 14 | 7 |
| | Like moderately | 14 | 1 | 0 | 7 | 10 |
| | Like very much | 11 | 2 | 1 | 14 | 4 |
| Purchase intention | Extremely unlikely | 1 | 11 | 17 | 3 | 12 |
| | Unlikely | 14 | 30 | 32 | 7 | 22 |
| | Neutral | 23 | 17 | 10 | 24 | 15 |
| | Likely | 21 | 3 | 3 | 22 | 10 |
| | Extremely likely | 3 | 1 | 0 | 6 | 3 |

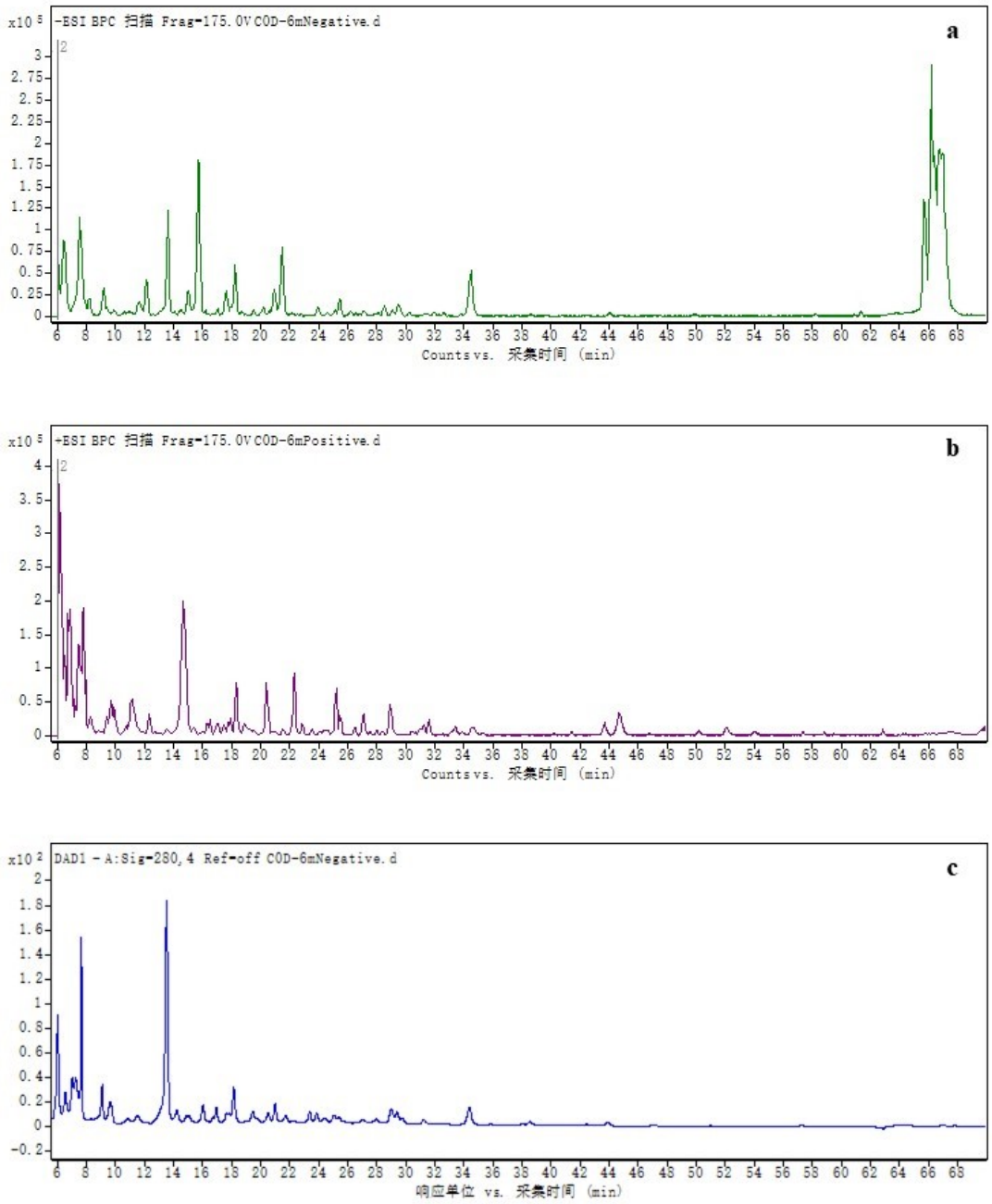


**Figure S1** HPLC-DAD-MS chromatograms of phenolic compounds from 6 month-aged control Chardonnay wine detected at negative (a) and positive (b) model and 280 nm (c)

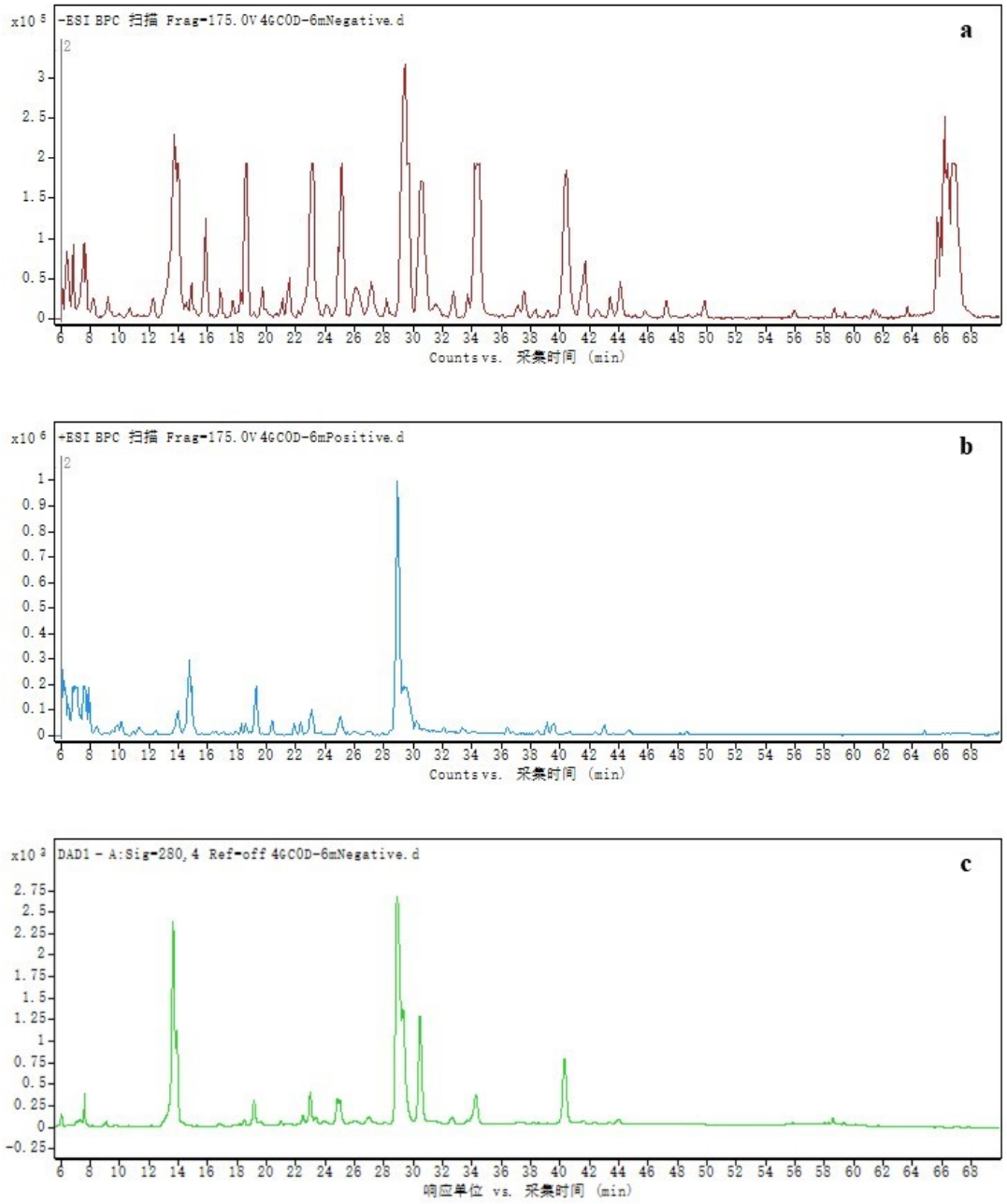


**Figure S2** HPLC-DAD-MS chromatograms of phenolic compounds from 6 month-aged green tea-macerated Chardonnay wine detected at negative (a) and positive (b) model and 280 nm (c)

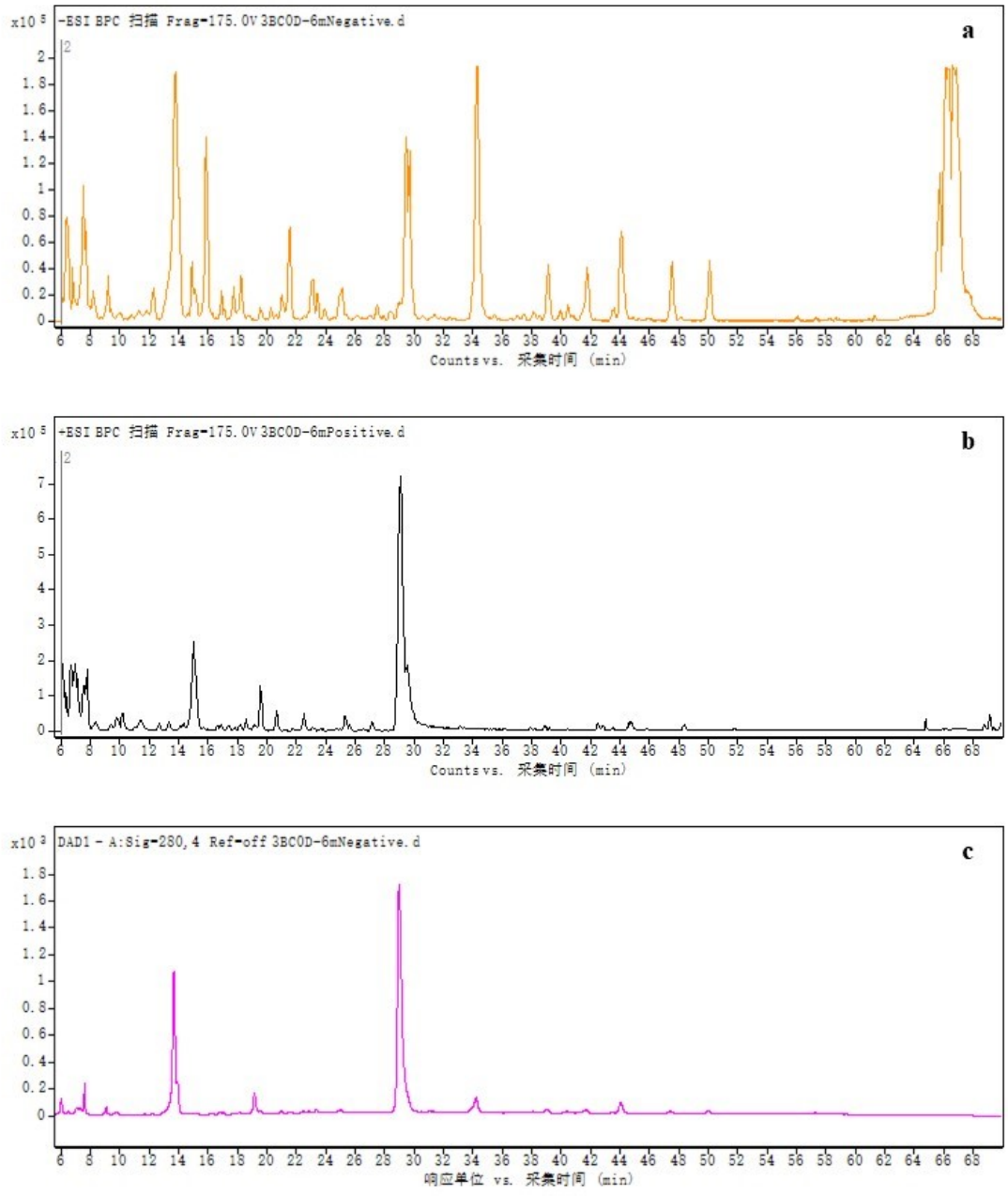


**Figure S3** HPLC-DAD-MS chromatograms of phenolic compounds from 6 month-aged black tea-macerated Chardonnay wine detected at negative (a) and positive (b) model and 280 nm (c)

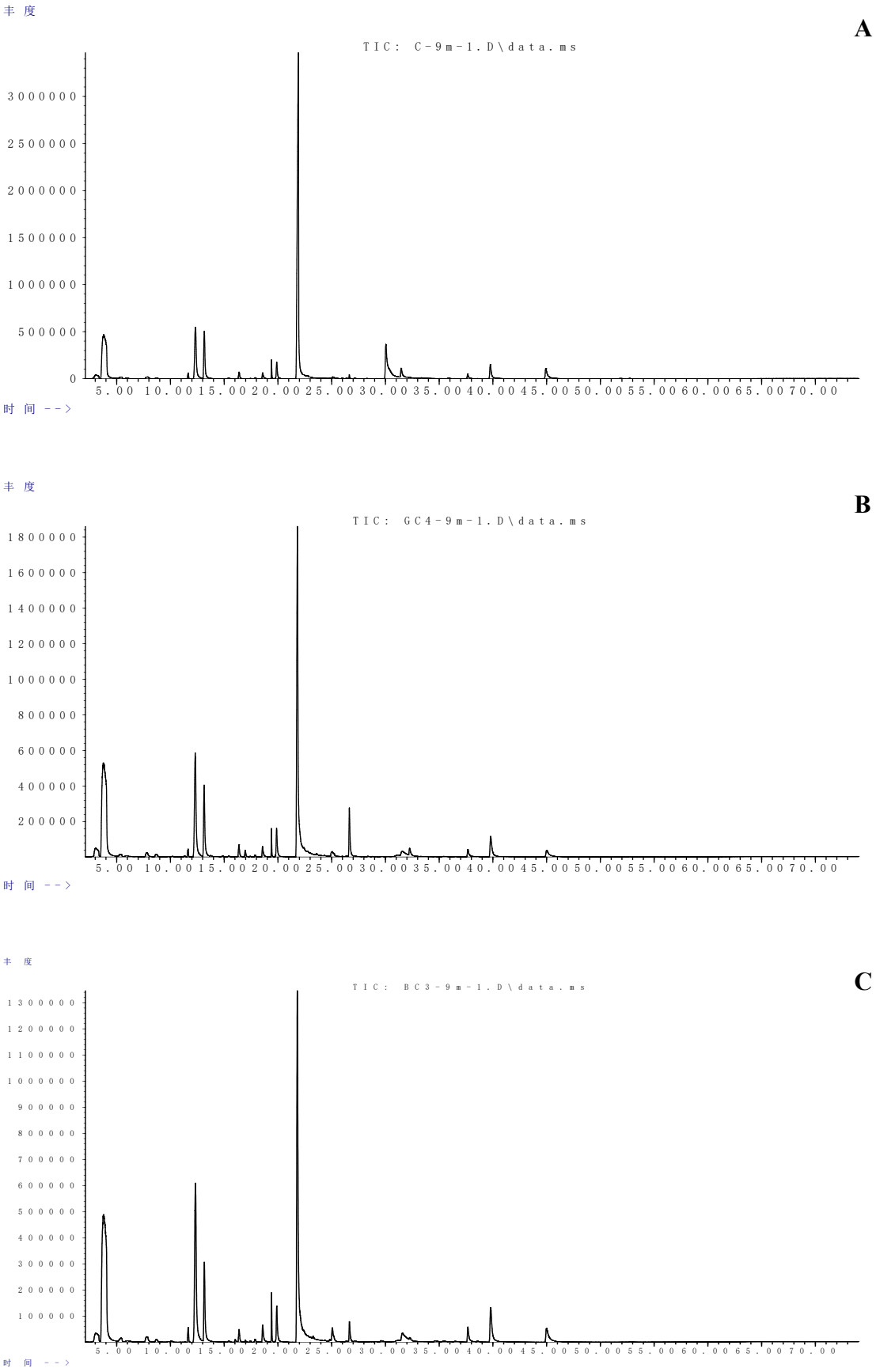


**Figure S4** Gas chromatography-mass spectrometry (GC-MS) chromatograms showing the volatile compound profile of control Chardonnay wine (A), green tea-macerated

Chardonnay wine (B), and black tea-macerated Chardonnay wine (C) after 9 months of aging

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