

**Table S5 Effect of different leaf curtain thickness on non-anthocyanins monomeric phenolic compounds in ‘Merlot’ grapes (mg·L<sup>-1</sup>)**

| NO. | Name of the compounds         | 2023       |            |            |            | 2024       |            |            |            |
|-----|-------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
|     |                               | M40        | M60        | M80        | M100       | M40        | M60        | M80        | M100       |
| 1   | Protocatechuic acid           | 3.85±      | 5.27±      | 6.09±      | 3.40±      | 0.47±      | 0.62±      | 0.00±      | 0.00±      |
|     |                               | 0.35b      | 0.22a      | 0.16a      | 0.14b      | 0.35       | 0.02       | 0.00       | 0.00       |
| 2   | Caffeic acid                  | 12.37±     | 19.22±     | 18.46±     | 14.66±     | 22.50±     | 26.70±     | 19.02±     | 17.42±     |
|     |                               | 0.43b      | 0.41a      | 0.18ab     | 0.06ab     | 0.59b      | 0.64a      | 0.21c      | 0.41c      |
| 3   | <i>p</i> -Coumaric acid       | 12.34±     | 12.53±     | 13.60±     | 14.40±     | 10.36±     | 11.49±     | 9.91±      | 9.66±      |
|     |                               | 0.13b      | 0.15b      | 0.13ab     | 0.07a      | 0.02b      | 0.30a      | 0.03bc     | 0.15c      |
| 4   | <i>trans</i> -Ferulic acid    | 6.70±      | 6.69±      | 6.84±      | 5.42±      | 6.06±      | 7.60±      | 4.83±      | 3.40±      |
|     |                               | 0.38       | 0.25       | 0.09       | 0.04       | 0.17b      | 0.20a      | 0.20c      | 0.09d      |
| 5   | Gallic acid                   | 1.34±0.10d | 3.46±0.01a | 2.66±0.09b | 2.17±0.19c | 2.35±0.11b | 3.23±0.02a | 3.17±0.08a | 2.81±0.20a |
|     |                               |            |            |            |            |            |            |            | b          |
|     | Phenolic acids kinds          | 5          | 5          | 5          | 5          | 5          | 5          | 5          | 5          |
|     | Phenolic acids subtotal       | 36.60±0.49 | 47.17±1.29 | 47.65±0.15 | 40.05±0.36 | 41.75±0.50 | 49.65±1.15 | 36.93±0.37 | 33.29±0.50 |
|     |                               | a          | b          | a          | b          | b          | a          | c          | b          |
|     | Phenolic acids proportion (%) | 54.99      | 61.69      | 62.39      | 53.24      | 62.22      | 69.09      | 72.16      | 71.82      |
| 6   | Catechin                      | 2.76±      | 1.25±      | 3.12±      | 0.36±      | 0.93±      | 0.69±      | 0.00±      | 0.00±      |
|     |                               | 0.12a      | 0.06b      | 0.10a      | 0.10b      | 0.03a      | 0.05b      | 0.00c      | 0.00c      |
| 7   | Epicatechin                   | 2.95±0.18b | 3.53±0.11a | 3.12±0.03a | 2.68±0.20b | 1.45±0.20b | 2.45±0.20a | 0.95±0.10b | 0.43±0.19c |
|     |                               |            |            | b          |            |            |            | c          |            |
|     | Flavanols kinds               | 2          | 2          | 2          | 2          | 2          | 2          | 2          | 2          |

Table S5 (continued)

| NO. | Name of the compounds    | 2023    |         |         |         | 2024    |         |         |         |
|-----|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
|     |                          | M40     | M60     | M80     | M100    | M40     | M60     | M80     | M100    |
|     | Flavanols subtotal       | 5.71 ±  | 4.79 ±  | 6.25 ±  | 3.04 ±  | 2.38 ±  | 3.14 ±  | 0.95 ±  | 0.43 ±  |
|     |                          | 0.24b   | 0.23a   | 0.08a   | 0.30c   | 0.17b   | 0.25a   | 0.10bc  | 0.19c   |
|     | Flavanols proportion (%) | 8.58    | 6.26    | 8.18    | 4.04    | 3.55    | 4.36    | 1.85    | 0.93    |
| 8   | Rutin                    | 10.78 ± | 11.06 ± | 10.43 ± | 19.52 ± | 8.98 ±  | 8.65 ±  | 8.21 ±  | 7.93 ±  |
|     |                          | 0.28b   | 0.19b   | 0.10b   | 0.08a   | 0.04a   | 0.15b   | 0.00c   | 0.03c   |
| 9   | Phloridzin               | 3.07 ±  | 4.27 ±  | 3.31 ±  | 3.25 ±  | 5.16 ±  | 4.59 ±  | 3.07 ±  | 2.63 ±  |
|     |                          | 0.02    | 0.12    | 0.02    | 0.12    | 0.19a   | 0.30a   | 0.47b   | 0.03b   |
| 10  | Quercetin                | 3.21 ±  | 2.47 ±  | 3.04 ±  | 2.64 ±  | 2.47 ±  | 2.40 ±  | 0.00 ±  | 0.00 ±  |
|     |                          | 0.00a   | 0.04b   | 0.09a   | 0.02b   | 0.08a   | 0.02a   | 0.00b   | 0.00b   |
| 11  | Kaempferol               | 3.86 ±  | 3.57 ±  | 3.31 ±  | 3.94 ±  | 2.21 ±  | 0.00 ±  | 0.00 ±  | 0.00 ±  |
|     |                          | 0.02    | 0.09    | 0.01    | 0.25    | 0.02a   | 0.00    | 0.00    | 0.00    |
|     | Flavonols kinds          | 4       | 4       | 4       | 4       | 4       | 4       | 4       | 4       |
|     | Flavonols subtotal       | 20.92 ± | 21.38 ± | 20.09 ± | 29.35 ± | 18.83 ± | 15.64 ± | 11.28 ± | 10.56 ± |
|     |                          | 0.32b   | 0.45b   | 0.00b   | 0.47a   | 0.26    | 0.13    | 0.47    | 0.06    |
|     | Flavonols proportion (%) | 31.43   | 27.96   | 26.31   | 39.02   | 28.05   | 21.77   | 22.04   | 22.78   |
| 12  | Resveratrol              | 3.32 ±  | 3.12 ±  | 2.38 ±  | 2.78 ±  | 4.15 ±  | 3.44 ±  | 2.02 ±  | 2.07 ±  |
|     |                          | 0.22a   | 0.02a   | 0.24a   | 0.04a   | 0.90    | 0.65    | 0.04    | 0.10    |
|     | Stilbenes kinds          | 1       | 1       | 1       | 1       | 1       | 1       | 1       | 1       |

Table S5 (continued)

| NO. | Name of the compound     | 2023   |        |        |        | 2024   |        |        |        |
|-----|--------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
|     |                          | M40    | M60    | M80    | M100   | M40    | M60    | M80    | M100   |
|     | Stilbenes subtotal       | 3.32±  | 3.12±  | 2.38±  | 2.78±  | 4.15±  | 3.44±  | 2.02±  | 2.07±  |
|     |                          | 0.22a  | 0.02a  | 0.24a  | 0.04a  | 0.90   | 0.65   | 0.04   | 0.10   |
|     | Stilbenes proportion (%) | 4.99   | 4.08   | 3.12   | 3.70   | 6.18   | 4.78   | 3.95   | 4.46   |
|     | Total kinds              | 12     | 12     | 12     | 12     | 12     | 12     | 12     | 12     |
|     | Total                    | 66.56± | 76.46± | 76.37± | 75.22± | 67.11± | 71.87± | 51.18± | 46.35± |
|     |                          | 0.72b  | 2.06c  | 0.46ab | 1.16a  | 1.31b  | 0.38a  | 0.78c  | 0.43d  |

a, b, c, and d indicate significant differences at  $P < 0.05$ .