

Figure S1. Use of boxplot to identify outliers in the observed data set (e.g., ethanol (vol %) in wine), where the value of 10.5 vol% alcohol was the minimum (lowest) value, excluding outliers and 15.1 vol% alcohol was the maximum (greatest) value, excluding outliers, which are located within $Q1 \pm 1.5 \times$ interquartile range.

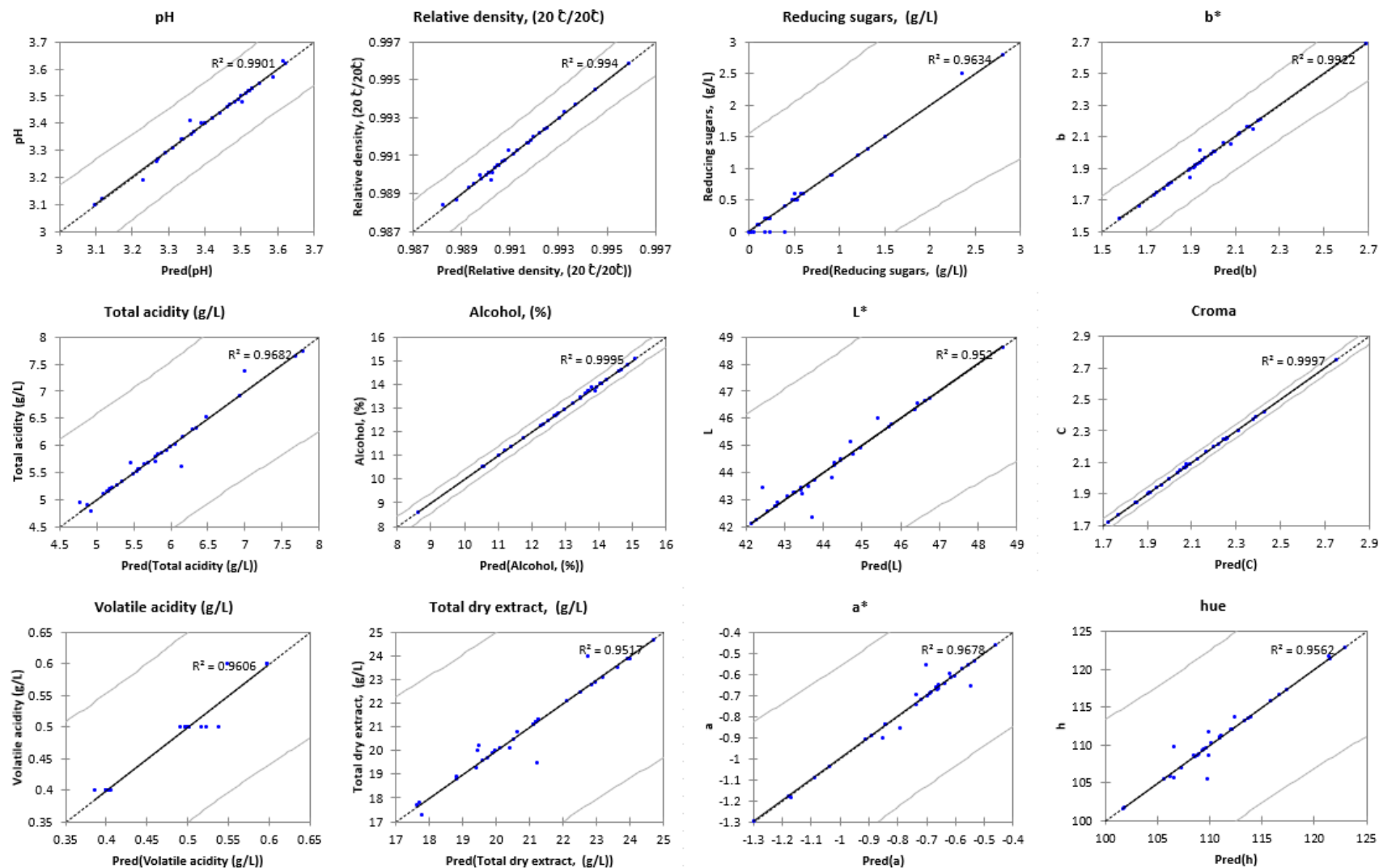


Figure S2. Predicted values for the studied compounds (calculated from the developed models) vs. experimental data. Blue circles represent the calibration data for wines calculated from PCR models based on must data in the range of confidence interval (grey lines).

Table S1. Geographical position of vineyards and wine subregions.

| Name of Vineyard | Sample Abbreviation | Trellis System | Wine Subregion | Vineyard Geographical Position |
|--|---------------------|------------------|-------------------------------|--------------------------------|
| Dračevica | D | bilateral cordon | Central and Southern Dalmatia | 42°55'36" N, 16° 54' 0" E |
| Institute for Adriatic Crops and Karst Reclamation | IJK | bilateral cordon | Central and Southern Dalmatia | 43°30' 35" N, 16°29' 85" E |
| Kruševo | K | bilateral cordon | Central and Southern Dalmatia | 42° 55' 20" N, 16° 53' 54" E |
| Prapatna 1 | P | bilateral cordon | Central and Southern Dalmatia | 42°54' 51" N, 16°54' 58" E |
| Prapatna 2 | P2 | bilateral cordon | Central and Southern Dalmatia | 42° 54' 50" N, 16° 54' 52" E |
| Kaštel Kambelovac | VP | bilateral cordon | Central and Southern Dalmatia | 43° 33' 34" N, 16° 22' 32" E |
| Polača | N | bilateral cordon | Northern Dalmatia | 44° 0' 28" N, 15° 29' 41" E |
| Smilčić | S | bilateral cordon | Northern Dalmatia | 44° 7' 23" N, 15° 28' 52" E |
| Vukšić | V | bilateral cordon | Northern Dalmatia | 43° 56' 37" N, 15° 43' 46" E |
| Stankovci | Z | bilateral cordon | Northern Dalmatia | 43° 57' 20" N, 15° 43' 6" E |

Table S2. The physicochemical data of must and wines produced from grapes of the ‘Maraština’ variety grown in 10 different vineyards in two Dalmatian subregions. Different letters in the same column represent significant differences at $p < 0.05$. Means \pm SD (n = 3).

| Vineyard | Must | | | Wine | | | | | | |
|------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|----------------------------------|-------------------------------|-------------------------------|------------------------------|
| | °Brix | pH | TA (g L ⁻¹) | pH | TA (g L ⁻¹) | VA (g L ⁻¹) | RD (20/20°C) | Alcohol (vol %) | TDE (g L ⁻¹) | RS (g L ⁻¹) |
| D | 18.1 \pm 0.6 ^a | 3.48 \pm 0.07 ^a | 5.72 \pm 0.67 ^a | 3.35 \pm 0.03 ^b | 6.31 \pm 0.55 ^a | 0.5 \pm 0.00 ^a | 0.9947 \pm 0.0011 ^a | 9.9 \pm 1.12 ^a | 20.83 \pm 1.45 ^a | 1.63 \pm 1.11 ^a |
| IJK | 22.4 \pm 0.5 ^b | 3.61 \pm 0.04 ^b | 6.41 \pm 0.18 ^a | 3.50 \pm 0.03 ^c | 5.67 \pm 0.22 ^a | 0.47 \pm 0.06 ^a | 0.9912 \pm 0.0006 ^b | 13.37 \pm 0.78 ^c | 22.13 \pm 1.42 ^a | 0.27 \pm 0.12 ^a |
| K | 21.9 \pm 1.4 ^b | 3.62 \pm 0.04 ^b | 3.7 \pm 0.27 ^b | 3.50 \pm 0.06 ^c | 5.4 \pm 0.22 ^b | 0.47 \pm 0.06 ^a | 0.9899 \pm 0.0003 ^c | 14.06 \pm 0.02 ^c | 20.8 \pm 0.7 ^a | 1.03 \pm 0.23 ^a |
| P | 18.8 \pm 0.5 ^c | 3.60 \pm 0.08 ^a | 4.14 \pm 0.34 ^b | 3.59 \pm 0.07 ^c | 4.95 \pm 0.19 ^b | 0.4 \pm 0.00 ^b | 0.9908 \pm 0.0010 ^c | 12.12 \pm 0.80 ^b | 17.6 \pm 0.26 ^b | 1.07 \pm 1.25 ^a |
| P2 | 22.4 \pm 0.9 ^b | 3.47 \pm 0.06 ^a | 3.85 \pm 0.15 ^b | 3.38 \pm 0.04 ^b | 5.78 \pm 0.22 ^a | 0.53 \pm 0.06 ^a | 0.9896 \pm 0.0009 ^c | 13.85 \pm 0.93 ^c | 19.63 \pm 0.42 ^a | 0.27 \pm 0.31 ^a |
| VP | 22.1 \pm 1.5 ^b | 3.5 \pm 0.05 ^a | 4.92 \pm 0.08 ^a | 3.41 \pm 0.01 ^b | 5.4 \pm 0.21 ^b | 0.4 \pm 0.00 ^b | 0.9912 \pm 0.0017 ^b | 12.59 \pm 1.79 ^b | 19.87 \pm 1.16 ^a | 0.47 \pm 0.64 ^a |
| N | 21.9 \pm 1.2 ^b | 3.6 \pm 0.06 ^b | 3.73 \pm 0.07 ^b | 3.49 \pm 0.04 ^c | 5.33 \pm 0.32 ^b | 0.43 \pm 0.06 ^a | 0.9903 \pm 0.0004 ^c | 13.37 \pm 0.51 ^c | 19.9 \pm 1.18 ^a | 0.07 \pm 0.12 ^b |
| S | 23.0. \pm 0.9 ^c | 3.59 \pm 0.02 ^b | 4.07 \pm 0.12 ^b | 3.51 \pm 0.05 ^c | 5.47 \pm 0.47 ^a | 0.5 \pm 0.00 ^a | 0.9895 \pm 0.0010 ^c | 14.3 \pm 0.72 ^c | 20.5 \pm 0.70 ^a | 0.00 \pm 0.00 ^b |
| V | 23.4 \pm 1.0 ^b | 3.53 \pm 0.07 ^a | 4.97 \pm 0.24 ^a | 3.43 \pm 0.10 ^b | 5.82 \pm 0.53 ^a | 0.43 \pm 0.06 ^a | 0.9920 \pm 0.0011 ^b | 13.22 \pm 1.20 ^b | 23.83 \pm 0.9 ^b | 0.23 \pm 0.25 ^b |
| Z | 20.5 \pm 1.5 ^b | 3.33 \pm 0.03 ^b | 5.05 \pm 0.27 ^a | 3.27 \pm 0.02 ^a | 6.27 \pm 0.27 ^a | 0.43 \pm 0.06 ^a | 0.9921 \pm 0.0013 ^b | 12.26 \pm 1.21 ^b | 21.37 \pm 0.67 ^a | 0.03 \pm 0.06 ^b |

TA—total acidity; VA—volatile acidity; RD—relative density; TDE—total dry extract; RS—reducing sugars.

Table S3. Colour parameters of must and wine. Different letters in the same column indicate significant differences at $p < 0.05$. Lowercase letters are used for must and uppercase letters for wine.

| Samples | L^* | a^* | b^* | Chroma | Hue | |
|---------|-------|-------------------------|-------------------------|------------------------|------------------------|--------------------------|
| Must | D | 38.9 ± 0.1 ^a | 0.1 ± 0.1 ^a | 3 ± 0.3 ^a | 3 ± 0.3 ^a | 88.7 ± 1.9 ^a |
| | IJK | 39.1 ± 0.5 ^a | -0.3 ± 0.1 ^b | 3.1 ± 0.2 ^a | 3.1 ± 0.2 ^a | 96 ± 1.7 ^b |
| | K | 38.8 ± 0.6 ^a | 0.1 ± 0.1 ^a | 3.2 ± 0.2 ^a | 3.2 ± 0.2 ^a | 89 ± 2.8 ^b |
| | P | 40.9 ± 0.4 ^b | 0 ± 0.1 ^b | 3 ± 0.3 ^a | 3 ± 0.3 ^a | 89.1 ± 3 ^b |
| | P2 | 39.7 ± 0.6 ^b | 0.1 ± 0.1 ^b | 3.1 ± 0.2 ^a | 3.1 ± 0.2 ^a | 88.7 ± 1.9 ^b |
| | VP | 43.6 ± 1.2 ^b | -0.4 ± 0.2 ^a | 2.9 ± 0.2 ^a | 3 ± 0.2 ^a | 98 ± 3.2 ^a |
| | CSD | 40.2 ± 1.8 ^b | -0.1 ± 0.2 ^b | 3.1 ± 0.2 ^a | 3.1 ± 0.2 ^b | 91.6 ± 4.5 ^a |
| | N | 39.2 ± 0.5 ^a | -0.2 ± 0.2 ^b | 2.6 ± 0.1 ^b | 2.7 ± 0.1 ^b | 94 ± 4.4 ^b |
| | S | 41.1 ± 0.5 ^b | 0.1 ± 0 ^b | 2.8 ± 0.1 ^a | 2.8 ± 0.1 ^a | 87.7 ± 0.8 ^b |
| | V | 40.7 ± 0.2 ^b | 0.4 ± 0.1 ^a | 2.6 ± 0.3 ^a | 2.7 ± 0.3 ^a | 82.2 ± 1.5 ^a |
| | Z | 42.6 ± 1.1 ^b | -0.1 ± 0.2 ^b | 3 ± 0.3 ^a | 3 ± 0.3 ^a | 92.6 ± 4.2 ^b |
| | ND | 40.9 ± 1.4 ^b | 0.0 ± 0.3 ^b | 2.8 ± 0.2 ^a | 2.8 ± 0.2 ^a | 89.1 ± 5.6 ^b |
| Wine | D | 42.7 ± 0.6 ^A | -0.6 ± 0.1 ^A | 2 ± 0.2 ^A | 2 ± 0.2 ^A | 106.9 ± 4.5 ^A |
| | IJK | 43.3 ± 0.5 ^A | -0.7 ± 0 ^A | 1.8 ± 0.2 ^A | 1.9 ± 0.2 ^A | 110.3 ± 2.8 ^A |
| | K | 43.7 ± 0.5 ^A | -0.7 ± 0 ^A | 1.9 ± 0.1 ^A | 2 ± 0.1 ^A | 110.6 ± 1.9 ^A |
| | P | 43.7 ± 0.7 ^A | -0.7 ± 0 ^A | 1.9 ± 0.2 ^A | 2 ± 0.2 ^A | 110 ± 1.3 ^A |
| | P2 | 43 ± 0.6 ^A | -0.6 ± 0 ^A | 2.1 ± 0.1 ^A | 2.2 ± 0.1 ^A | 106.1 ± 0.8 ^A |
| | VP | 45 ± 0.6 ^B | -0.8 ± 0.2 ^A | 2.2 ± 0.4 ^A | 2.3 ± 0.4 ^A | 110.2 ± 7.6 ^A |
| | CSD | 43.6 ± 0.9 ^A | -0.7 ± 0.1 ^A | 2.0 ± 0.2 ^A | 2.1 ± 0.2 ^A | 109.0 ± 3.8 ^A |
| | N | 42.7 ± 0.4 ^A | -0.6 ± 0.1 ^A | 1.8 ± 0.1 ^A | 1.9 ± 0.1 ^A | 108.4 ± 2.7 ^A |
| | S | 45.2 ± 0.8 ^B | -0.8 ± 0.1 ^A | 2.1 ± 0 ^A | 2.3 ± 0 ^A | 111.6 ± 2.2 ^A |
| | V | 46.9 ± 1.5 ^B | -1.1 ± 0.2 ^B | 2.1 ± 0.1 ^A | 2.3 ± 0.1 ^A | 117.4 ± 5.4 ^B |
| | Z | 46.7 ± 0.1 ^B | -1.2 ± 0.1 ^B | 2.0 ± 0.1 ^A | 2.3 ± 0.1 ^A | 120 ± 2.9 ^B |
| | ND | 45.4 ± 1.9 ^B | -0.9 ± 0.3 ^B | 2.0 ± 0.2 ^A | 2.2 ± 0.2 ^A | 114.3 ± 5.7 ^B |

L^* —lightness; a^* —the range from green to red; b^* —the range from blue to yellow; chroma—colour intensity; hue—colour changes from must to wine; ND—Northern Dalmatia; CSD—Central and Southern Dalmatia.