

SUPPLEMENTARY DATA

Modesti, M., Forniti, R., Brunori, E., Mencarelli, F., Bellincontro, A. & Tonutti, P. (2022).

Ozone treatments to induce systemic-acquired resistance in leaves of potted vines: molecular responses and NIR evaluation for identifying effective dose and exposition duration. *OENO One*, 56(1).<https://doi.org/10.20870/oeno-one.2022.56.1.5373>

Supplementary Material

Table S.1. Gene name, forward and reverse sequence, GeneBank number access and efficiency (%) of primers used in RT-qPCR for gene expression analyses.

Gene name	Forward primer sequence	Reverse primer sequence	GeneBank access number	Efficiency %
<i>β</i>-1,3-Glucanase	GTATGCTATGGAATGCTAGGC	GCCCAAAATGTTTCTCCAACGTG	AF239617.2	102
CHIT IV	AGCTGCGCCGGAAGAAGAAC	GTTAATAGCCCGAATCGTCGC	NM_001281244.1	96
CHIT B	CCCAAGCCTTCCTGCCATA	TGTGATAACACCAAACCGGG	Z54234	99
PR1	TGGTGTGGGCCTATGTCAT	TATAGTGCCACATTGCCCA	XM_002273752.3	109
PR6	AGTTCAGGGAGAGGTTGCTG	CGTCGACCCAAACACGGACCCTAGTGC	AY156047	93
GST	TGCATGGAGGAGGAGTTCGT	CAAGGCTATATCCCCATTTCTTC	AY156048	107
UBQ-L40	CATAACATTTGCGGCAGATCA	TGGTGGTATTATTGAGCCATCCTT	EC929411	102

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Table S.2. Confusion matrices and tables referred to calibration and prediction (CV) PLSDA model – fig. 4 - performed on NIR spectra detected, in 2019 season, on leaves collected 12 hours after ozone treatment at 10 °C with 300 ppb for 12 hours (T1_O3), 100 ppb for 6 hours (T2_O3) and 100 ppb for 3 hours (T3_O3) or on control leaves (CK) kept at 10 °C for 12 (T1_CK), 6 (T2_CK) or 3 (T3_CK) hours.

2019

CALIBRATION MODEL

Confusion Matrix:

Class:	TPR	FPR	TNR	FNR	N	Err	P	F1
T1_CK	1,00	0,00	1,00	0,00	5,00	0,00	1,00	1,00
T1_O3	1,00	0,00	1,00	0,00	5,00	0,00	1,00	1,00
T2_CK	1,00	0,04	0,96	0,00	5,00	0,03	0,83	0,91
T2_O3	0,80	0,00	1,00	0,20	5,00	0,03	1,00	0,89
T3_CK	1,00	0,04	0,96	0,00	5,00	0,03	0,83	0,91
T3_O3	0,80	0,00	1,00	0,20	5,00	0,03	1,00	0,89
AVERAGE	0,93	0,01	0,99	0,07	5,00	0,02	0,94	0,93

Confusion Table:

Actual	Class	Class					
		T1_CK	T1_O3	T2_CK	T2_O3	T3_CK	T3_O3
Predicted as	T1_CK	5	0	0	0	0	0
Predicted as	T1_O3	0	5	0	0	0	0
Predicted as	T2_CK	0	0	5	1	0	0
Predicted as	T2_O3	0	0	0	4	0	0
Predicted as	T3_CK	0	0	0	0	5	1
Predicted as	T3_O3	0	0	0	0	0	4

**PREDICTION MODEL
(CROSS-VALIDATION, CV)**

Confusion Matrix (CV)

Class:	TPR	FPR	TNR	FNR	N	Err	P	F1
T1_CK	1,00	0,00	1,00	0,00	5,00	0,00	1,00	1,00
T1_O3	1,00	0,00	1,00	0,00	5,00	0,00	1,00	1,00
T2_CK	1,00	0,08	0,92	0,00	5,00	0,07	0,71	0,83
T2_O3	0,80	0,00	1,00	0,20	5,00	0,03	1,00	0,89
T3_CK	0,40	0,00	1,00	0,60	5,00	0,10	1,00	0,57
T3_O3	1,00	0,08	0,92	0,00	5,00	0,07	0,71	0,83
AVERAGE	0,87	0,03	0,97	0,13	5,00	0,05	0,90	0,85

Confusion table (CV)

Actual	Class	Class					
		T1_CK	T1_O3	T2_CK	T2_O3	T3_CK	T3_O3
Predicted as	T1_CK	5	0	0	0	0	0
Predicted as	T1_O3	0	5	0	0	0	0
Predicted as	T2_CK	0	0	5	1	1	0
Predicted as	T2_O3	0	0	0	4	0	0
Predicted as	T3_CK	0	0	0	0	2	0
Predicted as	T3_O3	0	0	0	0	2	5

TPR = true positive ratio; FPR=false positive ratio; TNR=rue negative ratio; FNR=false negative ratio; N = number of classes; Err= total error; P= Precision = total positive (TP)/total positive.

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Table S.3. Confusion matrices and tables referred to calibration and prediction (CV) PLSDA model – fig. 5 - performed on NIR spectra detected, in 2020 season, in leaves collected 12 hours after each ozone treatment at 10 °C with 100 ppb for 3 hours (T1_O3, T2_O3 and T3_O3), or on control leaves (CK) kept at 10 °C for 3 hours (T1_CK, T2_CK, T3_CK) hours.

2020

CALIBRATION MODEL

Confusion Matrix

Class:	TPR	FPR	TNR	FNR	N	Err	P	F1
T1_CK	0,60	0,04	0,96	0,40	5,00	0,10	0,75	0,67
T1_O3	0,60	0,08	0,92	0,40	5,00	0,13	0,60	0,60
T2_CK	0,80	0,12	0,88	0,20	5,00	0,13	0,57	0,67
T2_O3	0,60	0,12	0,88	0,40	5,00	0,17	0,50	0,55
T3_CK	0,60	0,00	1,00	0,40	5,00	0,07	1,00	0,75
T3_O3	0,80	0,04	0,96	0,20	5,00	0,07	0,80	0,80
AVERAGE	0,67	0,07	0,93	0,33	5,00	0,11	0,70	0,67

Confusion table

Actual	Class	Class					
		T1_CK	T1_O3	T2_CK	T2_O3	T3_CK	T3_O3
Predicted as	T1_CK	3	1	0	0	0	0
Predicted as	T1_O3	1	3	0	1	0	0
Predicted as	T2_CK	1	0	4	1	0	1
Predicted as	T2_O3	0	1	1	3	1	0
Predicted as	T3_CK	0	0	0	0	3	0
Predicted as	T3_O3	0	0	0	0	1	4

**PREDICTION MODEL
(CROSS-VALIDATION, CV)**

Confusion Matrix (CV)

Class:	TPR	FPR	TNR	FNR	N	Err	P	F1
T1_CK	0,00	0,08	0,92	1,00	5,00	0,23	0,00	NaN
T1_O3	0,60	0,20	0,80	0,40	5,00	0,23	0,38	0,46
T2_CK	0,40	0,20	0,80	0,60	5,00	0,27	0,29	0,33
T2_O3	0,20	0,12	0,88	0,80	5,00	0,23	0,25	0,22
T3_CK	0,20	0,08	0,92	0,80	5,00	0,20	0,33	0,25
T3_O3	0,40	0,16	0,84	0,60	5,00	0,23	0,33	0,36
AVERAGE	0,30	0,14	0,86	0,70	5,00	0,23	0,26	0,33

Confusion table (CV)

Actual	Class	Class					
		T1_CK	T1_O3	T2_CK	T2_O3	T3_CK	T3_O3
Predicted as	T1_CK	0	1	1	0	0	0
Predicted as	T1_O3	3	3	0	2	0	0
Predicted as	T2_CK	2	0	2	2	0	1
Predicted as	T2_O3	0	1	1	1	1	0
Predicted as	T3_CK	0	0	0	0	1	2
Predicted as	T3_O3	0	0	1	0	3	2

TPR = true positive ratio; FPR=false positive ratio; TNR=rue negative ratio; FNR=false negative ratio; N = number of classes; Err= total error; P= Precision = total positive (TP)/total positive + false positive; F1= F1-score.