

Supplementary material:

Table S1: Identification of phenolic compounds by HPLC-DAD-MS/MS in leaves of *Solanum tuberosum* under water stress and inoculation of arbuscular mycorrhizal fungi.

Compound	t <sub>R</sub> (min)	Tentative Identification	λ max (nm)	[M - H]-	Product ions
HCAD1	5.9	5-caffeoylquinic acid	325	353.09	191.06; 161.02; 135.04
HCAD2	12.8	caffeoylquinic acid isomer	325	353.08	191.05; 175.11; 161.02; 133.0
HCAD3	16.4	caffeoylquinic acid isomer	325	353.08	191.05; 171.04; 135.04
HCAD4	19.5	caffeoylquinic acid isomer	325	353.08	191.06; 179.03; 135.04
HCAD5	20.6	no identified	290	-	-
HCAD6	24.5	no identified	320	-	-
FLAV1	13.4	no identified	350	-	-
FLAV2	14.5	quercetin-pentoside-rutinoside	351	741.18	300.1
FLAV3	15.4	no identified	351	-	-
FLAV4	16.1	quercetin-rutinoside	353	609.14	449.02; 301.12
FLAV5	17.9	kampferol-rutinoside	345	593.15	429.17; 285.02
FLAV6	21.6	no identified	351	429.17	-
FLAV7	24.1	no identified	352	431.19	333.10

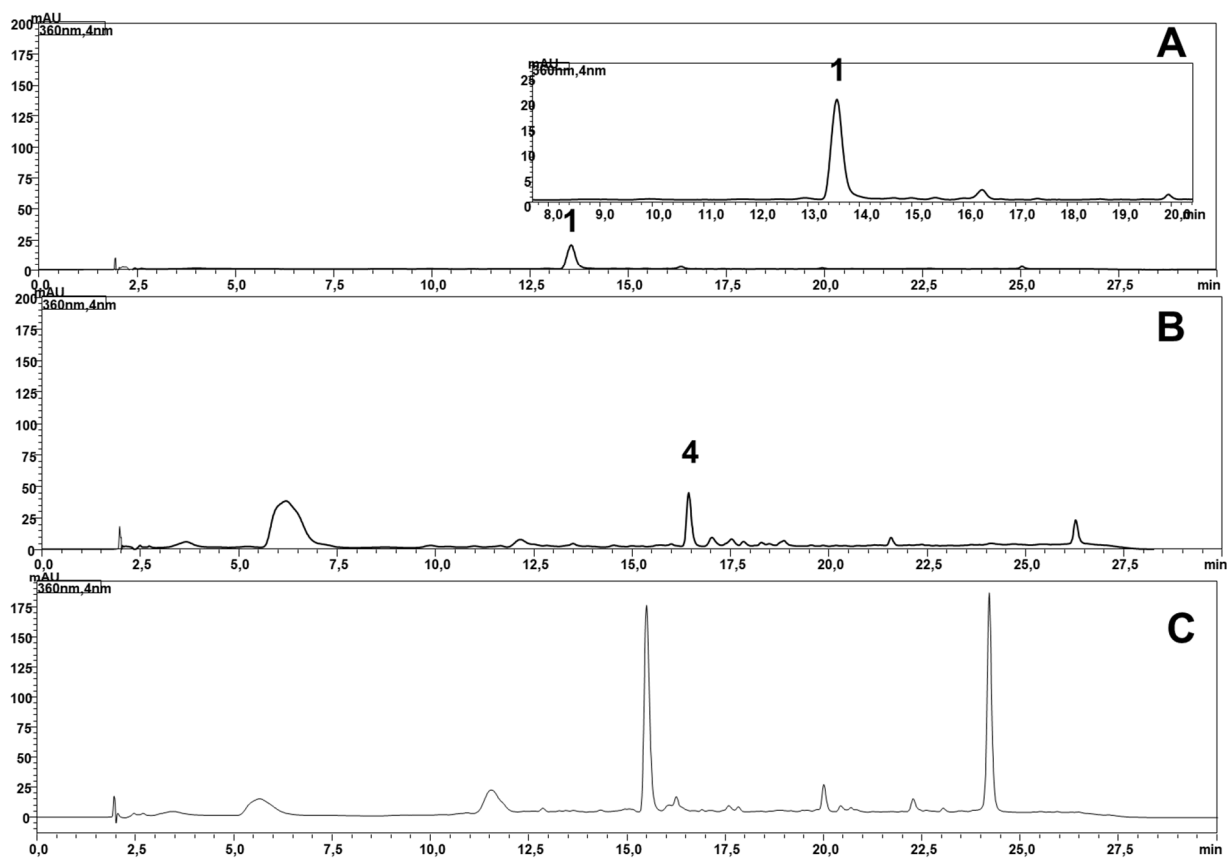


Figure S1: HPLC-DAD chromatogram (360 nm) for leaves of *Solanum tuberosum*, genotype VR808 under water stress and inoculation of arbuscular mycorrhizal fungi. Where: A: first harvest; B: second harvest; C: third harvest; 1: no identified; 4: quercetin-rutinoside (please Table S1)

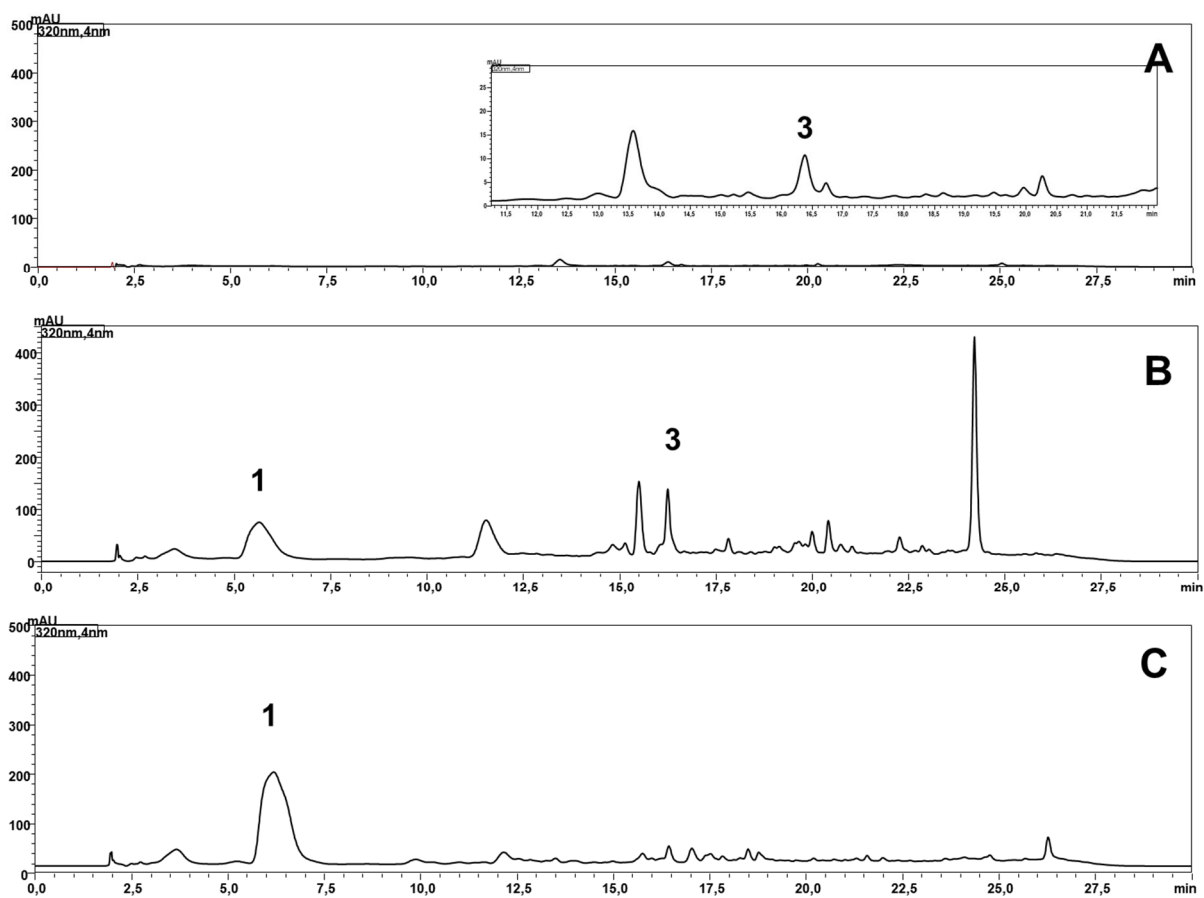


Figure S2: HPLC-DAD chromatogram (320 nm) for leaves of *Solanum tuberosum*, genotype VR808 under water stress and inoculation of arbuscular mycorrhizal fungi. Where: A: first harvest; B: second harvest; C: third harvest; 1: 5-caffeoylquinic acid 1; 3: caffeoylquinic acid isomer (please see Table S1)

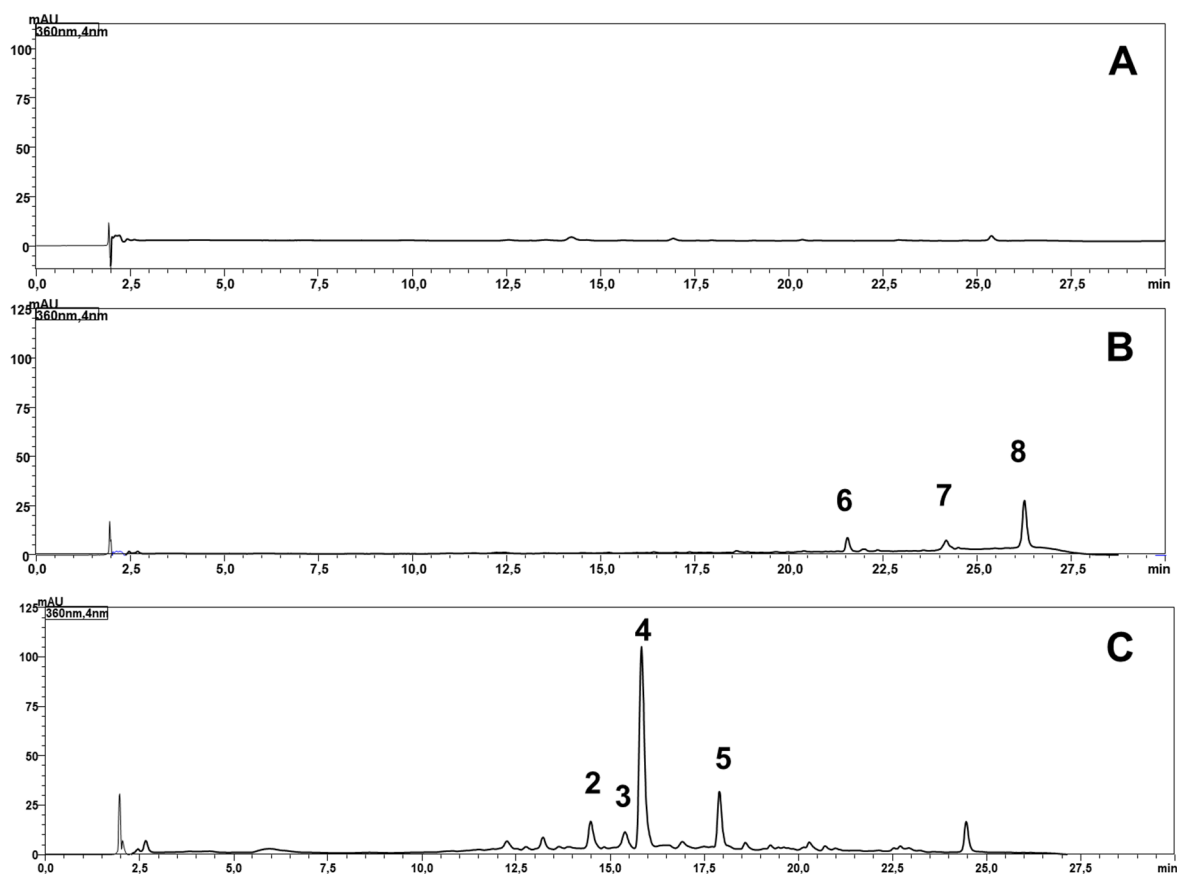


Figure S3: HPLC-DAD chromatogram (360 nm) for leaves of *Solanum tuberosum*, genotype CB2011-104 under water stress and inoculation of arbuscular mycorrhizal fungi. Where: A: first harvest; B: second harvest; C: third harvest; 2: quercetin-rutinoside-pentoside, 3: no identified, 4: quercetin-rutinoside, 5: kampferol-rutinoside, 6: no identified, 7: no identified (Please see Table S1)

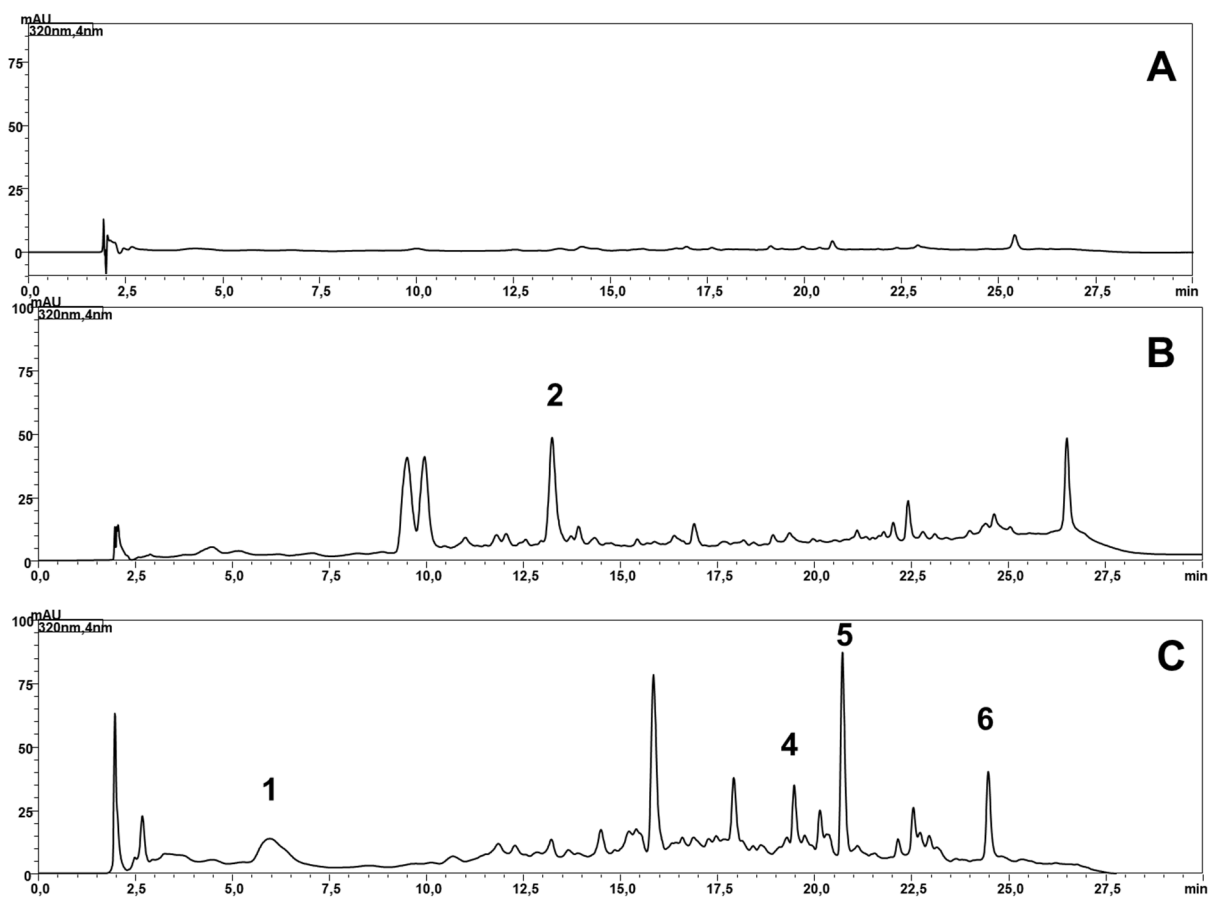


Figure S4: HPLC-DAD chromatogram (320 nm) for leaves of *Solanum tuberosum*, genotype CB2011-104 under water stress and inoculation of arbuscular mycorrhizal fungi. Where: A: first harvest; B: second harvest; C: third harvest; 1: 5-caffeoylquinic acid, 2: caffeoylquinic acid isomer, 3: caffeoylquinic acid isomer, 4: caffeoylquinic acid isomer, 5: no identified, 6: no identified (Please see Table S1)

Table S2: Individual flavonols (FLAV) and Hydroxycinnamic acid (HCAD) concentrations in leaves of *Solanum tuberosum*, genotype VR808 under water stress and inoculation of arbuscular mycorrhizal fungi, in the second harvest. Where, WM: without mycorrhiza inoculation, CC: *Claroideoglomus claroideum*, HMC26: *Claroideoglomus lamellosus* and MIX: CC + HMC26; 0: normal irrigation; S1 and S2: levels of water stress; nd: no detected. Means followed by the same lowercase letter compare the difference in stress level within the same inoculation condition (Tukey 5%). Identifications according to Table S1

AMF	Stress	FLAV4	HCAD1	HCAD3
WM	0	6.12 ± 1.64 <i>ab</i>	13.59±8.60 <i>c</i>	2.29±0.15 <i>b</i>
	S1	5.56 ± 2.81 <i>abc</i>	59.73±56.21 <i>a</i>	0.18±0.01 <i>de</i>
	S2	3.43 ± 1.88 <i>cd</i>	3.44±1.54 <i>c</i>	0.96±0.02 <i>cd</i>
CC	0	2.42 ± 0.67 <i>d</i>	2.81±0.91 <i>c</i>	1.16±0.51 <i>c</i>
	S1	4.35 ± 1.84 <i>bcd</i>	58.96±72.20 <i>ab</i>	2.19±1.06 <i>b</i>
	S2	2.77 ± 1.33 <i>d</i>	1.79±0.47 <i>c</i>	nd
HMC26	0	7.50 ± 0.61 <i>a</i>	16.51±8.36 <i>bc</i>	nd
	S1	3.29 ± 1.19 <i>cd</i>	4.85±1.53 <i>c</i>	1.60±0.49 <i>bc</i>
	S2	2.46 ± 0.70 <i>d</i>	16.62±16.93 <i>bc</i>	<i>nd</i>
MIX	0	5.81 ± 2.61 <i>abc</i>	4.61±1.17 <i>c</i>	3.48±1.46 <i>a</i>
	S1	4.38 ± 1.52 <i>bcd</i>	4.54±1.56 <i>c</i>	nd
	S2	2.65 ± 0.19 <i>d</i>	3.82±1.67 <i>c</i>	1.29±0.29 <i>c</i>

Table S3: Individual flavonols (FLAV) and Hydroxycinnamic acid (HCAD) concentrations in leaves of *Solanum tuberosum*, genotype CB2011-104 under water stress and inoculation of arbuscular mycorrhizal fungi, in the second harvest. Where, WM: without mycorrhiza inoculation, CC: *Claroideoglomus claroideum*, HMC26: *Claroideoglomus lamellosus* and MIX: CC + HMC26; 0: normal irrigation; S1 and S2: levels of water stress; nd: no detected. Means followed by the same lowercase letter compare the difference in stress level within the same inoculation condition (Tukey 5%). Identifications according to Table S1

AMF	Stress	FLAV6	FLAV7	HCAD1	HCAD2
WM	0	nd	4.55±2.64 <i>ab</i>	5.00±1.80 <i>abc</i>	2.89±0.93 <i>abc</i>
	S1	nd	6.78±3.03 <i>a</i>	5.87±4.64 <i>abc</i>	4.78±3.06 <i>ab</i>
	S2	1.12±0.09 <i>b</i>	3.77±0.78 <i>bc</i>	4.62±1.91 <i>abc</i>	3.84±0.49 <i>abc</i>
CC	0	nd	2.57±0.99 <i>bc</i>	10.99±11.39 <i>a</i>	4.95±4.61 <i>a</i>
	S1	nd	1.87±0.35 <i>c</i>	2.16±0.50 <i>bc</i>	1.57±0.52 <i>bc</i>
	S2	1.29±0.20 <i>a</i>	3.96±1.20 <i>bc</i>	nd	2.3±0.85 <i>abc</i>
HMC26	0	nd	2.14±0.99 <i>c</i>	2.71±1.10 <i>bc</i>	1.59±0.80 <i>bc</i>
	S1	nd	2.72±0.61 <i>bc</i>	3.27±2.50 <i>bc</i>	2.56±1.93 <i>abc</i>
	S2	1.12±0.10 <i>b</i>	3.20±1.12 <i>bc</i>	8.24±10.23 <i>ab</i>	4.17±3.21 <i>abc</i>
MIX	0	nd	3.10±1.31 <i>bc</i>	1.28±0.22 <i>bc</i>	1.40±0.38 <i>c</i>
	S1	nd	1.83±0.86 <i>c</i>	1.89±0.71 <i>bc</i>	1.37±0.54 <i>c</i>
	S2	nd	2.14±1.10 <i>c</i>	1.72±0.45 <i>bc</i>	2.66±1.68 <i>abc</i>

Table S4: Individual flavonols (FLAV) and Hydroxycinnamic acid (HCAD) concentrations in leaves of *Solanum tuberosum*, genotype VR808 under water stress and inoculation of arbuscular mycorrhizal fungi, in the third harvest. Where, WM: without mycorrhiza inoculation, CC: *Claroideoglomus claroideum*, HMC26: *Claroideoglomus lamellosus* and MIX: CC + HMC26; 0: normal irrigation; S1 and S2: levels of water stress; nd: no detected. Means followed by the same lowercase letter compare the difference in stress level within the same inoculation condition (Tukey 5%). Identifications according to Table S1.

AMF	Stress	FLAV4	HCAD1	HCAD2	HCAD3	HCAD4	HCAD6
WM	0	6.46±3.10 <i>ab</i>	20.73±19.98 <i>b</i>	5.13±3.31 <i>b</i>	6.29±3.95 <i>cde</i>	5.77±0.63 <i>abc</i>	32.70±3.17 <i>b</i>
	S1	3.06±1.50 <i>bcd</i>	8.84±6.24 <i>b</i>	nd	1.60±1.19 <i>f</i>	2.96±0.76 <i>de</i>	20.46±6.25 <i>b</i>
	S2	3.53±1.58 <i>bcd</i>	2.72±0.70 <i>b</i>	nd	7.52±2.94 <i>bcd</i>	5.02±1.71 <i>bcd</i>	23.87±9.80 <i>b</i>
CC	0	1.66±0.14 <i>d</i>	2.42±0.51 <i>b</i>	nd	3.80±2.10 <i>def</i>	4.08±3.10 <i>cde</i>	16.51±12.39 <i>b</i>
	S1	1.91±0.81 <i>cd</i>	5.03±0.77 <i>b</i>	nd	10.75±0.54 <i>ab</i>	8.07±0.43 <i>a</i>	32.41±6.52 <i>b</i>
	S2	3.13±1.46 <i>bcd</i>	4.02±1.31 <i>b</i>	nd	7.48±1.00 <i>bc</i>	6.35±0.90 <i>ab</i>	34.11±2.97 <i>ab</i>
HMC26	0	8.61±5.51 <i>ab</i>	47.55±48.88 <i>ab</i>	11.21±6.11 <i>a</i>	4.14±3.45 <i>cdef</i>	3.97±2.33 <i>cde</i>	29.31±16.92 <i>b</i>
	S1	5.79±3.21 <i>ab</i>	75.36±92.66 <i>a</i>	nd	12.34±4.01 <i>a</i>	6.94±1.48 <i>ab</i>	54.16±32.15 <i>a</i>
	S2	3.66±2.73 <i>bcd</i>	6.71±6.87 <i>b</i>	nd	5.21±3.69 <i>cdef</i>	2.32±1.28 <i>e</i>	17.51±15.88 <i>b</i>
MIX	0	3.74±1.15 <i>bcd</i>	3.06±1.04 <i>b</i>	nd	3.14±0.65 <i>ef</i>	3.89±0.60 <i>cde</i>	14.59±3.55 <i>b</i>
	S1	1.75±0.34 <i>d</i>	2.47±0.23 <i>b</i>	nd	2.85±1.34 <i>ef</i>	5.73±2.30 <i>abc</i>	19.08±9.51 <i>b</i>
	S2	5.65±2.16 <i>abc</i>	14.78±15.25 <i>b</i>	nd	7.98±2.12 <i>bc</i>	3.93±1.01 <i>cde</i>	29.73±10.29 <i>b</i>



Table S5: Individual flavonols (FLAV) and Hydroxycinnamic acid (HCAD) concentrations in leaves of *Solanum tuberosum*, genotype CB2011-104 under water stress and inoculation of arbuscular mycorrhizal fungi, in the third harvest. Where, WM: without mycorrhiza inoculation, CC: *Claroideoglomus claroideum*, HMC26: *Claroideoglomus lamellosus* and MIX: CC + HMC26; 0: normal irrigation; S1 and S2: levels of water stress; nd: no detected. Means followed by the same lowercase letter compare the difference in stress level within the same inoculation condition (Tukey 5%). Identifications according to Table S1.

AMF	Stress	FLAV2	FLAV3	FLAV4	FLAV5	HCAD1	HCAD4	HCAD5	HCAD6
WM	0	1.52±0.50 <i>a</i>	1.21±0.71 <i>a</i>	6.26±4.47 <i>ab</i>	2.40±1.02 <i>a</i>	29.80±26.16 <i>ab</i>	6.41±2.11 <i>bcd</i>	1.13±0.29 <i>cd</i>	12.17±6.70 <i>bc</i>
	S1	Nd	nd	nd	nd	5.80±2.99 <i>b</i>	4.22±0.89 <i>d</i>	2.83±0.58 <i>b</i>	9.82±0.49 <i>bc</i>
	S2	Nd	nd	nd	nd	2.41±1.99 <i>b</i>	5.20±1.55 <i>cd</i>	2.71±0.53 <i>bc</i>	10.95±6.06 <i>bc</i>
CC	0	Nd	nd	2.12±0.38 <i>bc</i>	nd	1.87±0.99 <i>b</i>	4.27±0.48 <i>d</i>	0.72±0.07 <i>d</i>	6.86±1.05 <i>c</i>
	S1	Nd	nd	nd	nd	1.27±0.11 <i>b</i>	6.97±1.85 <i>bcd</i>	3.83±1.37 <i>ab</i>	17.73±8.21 <i>abc</i>
	S2	Nd	nd	nd	1.36±0.23 <i>b</i>	18.90±8.37 <i>b</i>	9.96±7.69 <i>ab</i>	4.69±2.65 <i>a</i>	26.92±22.09 <i>a</i>
HMC26	0	Nd	nd	1.88±0.71 <i>bc</i>	nd	12.48±14.54 <i>b</i>	3.75±1.44 <i>d</i>	0.70±0.11 <i>d</i>	6.43±2.13 <i>c</i>
	S1	Nd	nd	nd	nd	23.18±24.27 <i>ab</i>	6.76±0.91 <i>bcd</i>	3.88±0.85 <i>ab</i>	19.97±7.26 <i>ab</i>
	S2	Nd	nd	4.19±3.66 <i>abc</i>	1.15±0.06 <i>b</i>	1.48±0.31 <i>b</i>	12.88±2.24 <i>ab</i>	4.81±1.25 <i>a</i>	27.40±7.14 <i>a</i>
MIX	0	Nd	nd	7.66±9.24 <i>a</i>	1.74±0.93 <i>ab</i>	75.76±110.3 <i>a</i>	6.70±1.52 <i>bcd</i>	1.13±0.13 <i>cd</i>	13.18±3.55 <i>bc</i>
	S1	Nd	nd	nd	nd	1.53±0.50 <i>b</i>	3.60±1.06 <i>d</i>	2.34±0.44 <i>bcd</i>	5.28±0.24 <i>c</i>
	S2	Nd	nd	2.59±1.13 <i>bc</i>	1.32±0.34 <i>b</i>	3.33±1.89 <i>b</i>	8.71±2.86 <i>abc</i>	5.34±1.02 <i>a</i>	14.70±6.92 <i>a</i>

Table S6: significance of  $p$ -values for the main effects and interaction for the variables measured and analyzed by means of factorial ANOVA to genotype VR808 in the first harvest.

Variable	Mycorrhiza	Stress	Interactions (M x S)
FLAV1	***	***	***
HCAD3	***	***	***
TOTALPHENOLICS	ns	***	***
DPPH	ns	***	ns
TEAC	***	ns	***
CUPRAC	***	***	***
FRAP	***	***	ns

ns, not significant  
\*\*\* $p < 0.01$

Table S7: significance of  $p$ -values for the main effects and interaction for the variables measured and analyzed by means of factorial ANOVA to genotype CB2011-104 in the first harvest.

Variable	Mycorrhiza	Stress	Interactions (M x S)
TOTALPHENOLICS	***	***	***
DPPH	***	***	***
TEAC	ns	***	ns
CUPRAC	***	***	***
FRAP	***	***	***

ns, not significant  
\*\*\* $p < 0.01$

Table S8: significance of  $p$ -values for the main effects and interaction for the variables measured and analyzed by means of factorial ANOVA to genotype VR808 in the second harvest.

Variable	Mycorrhiza	Stress	Interactions (M x S)
FLAV4	***	***	***
FLAVTOT	***	***	***
HCAD1	***	***	***
HCAD3	***	***	***
HCADTOT	***	***	***
TOTALPHENOLICS	***	***	***
DPPH	***	***	***
TEAC	ns	***	***
CUPRAC	ns	***	***
FRAP	***	***	***

ns, not significant  
\*\*\* $p < 0.01$

Table S9: significance of *p*-values for the main effects and interaction for the variables measured and analyzed by means of factorial ANOVA to genotype CB2011-104 in the second harvest.

<b>Variable</b>	<b>Mycorrhiza</b>	<b>Stress</b>	<b>Interactions (M x S)</b>
FLAV6	***	***	***
FLAV7	***	ns	***
FLAVTOT	***	***	***
HCAD1	***	ns	***
HCAD2	***	ns	***
HCADTOT	***	ns	***
TOTALPHENOLICS	***	***	ns
DPPH	***	***	***
TEAC	***	***	***
CUPRAC	***	***	***
FRAP	***	***	***
ns, not significant			
*** <i>p</i> < 0.01			

Table S10: significance of *p*-values for the main effects and interaction for the variables measured and analyzed by means of factorial ANOVA to genotype VR808 in the third harvest.

<b>Variable</b>	<b>Mycorrhiza</b>	<b>Stress</b>	<b>Interactions (M x S)</b>
FLAV4	***	***	***
FLAVTOT	***	***	***
HCAD1	***	ns	***
HCAD2	***	***	***
HCAD3	***	***	***
HCAD4	***	***	***
HCAD6	***	***	***
HCADTOT	***	ns	***
TOTALPHEN	ns	***	***
DPPH	ns	***	***
TEAC	ns	***	***
CUPRAC	***	***	***
FRAP	ns	***	***
ns, not significant			
*** <i>p</i> < 0.01			

Table S11: significance of  $p$ -values for the main effects and interaction for the variables measured and analyzed by means of factorial ANOVA to genotype CB2011-104 in the third harvest.

Variable	Mycorrhiza	Stress	Interactions (M x S)
FLAV2	***	***	***
FLAV3	***	***	***
FLAV4	***	***	***
FLAV5	***	***	***
FLAVTOT	***	***	***
HCAD1	***	***	***
HCAD4	***	***	***
HCAD5	***	***	***
HCAD6	***	***	***
HCADTOT	ns	ns	***
TOTALPHEN	***	***	***
DPPH	ns	ns	***
TEAC	***	***	***
CUPRAC	***	***	***
FRAP	ns	***	***
ns, not significant			
*** $p < 0.01$			

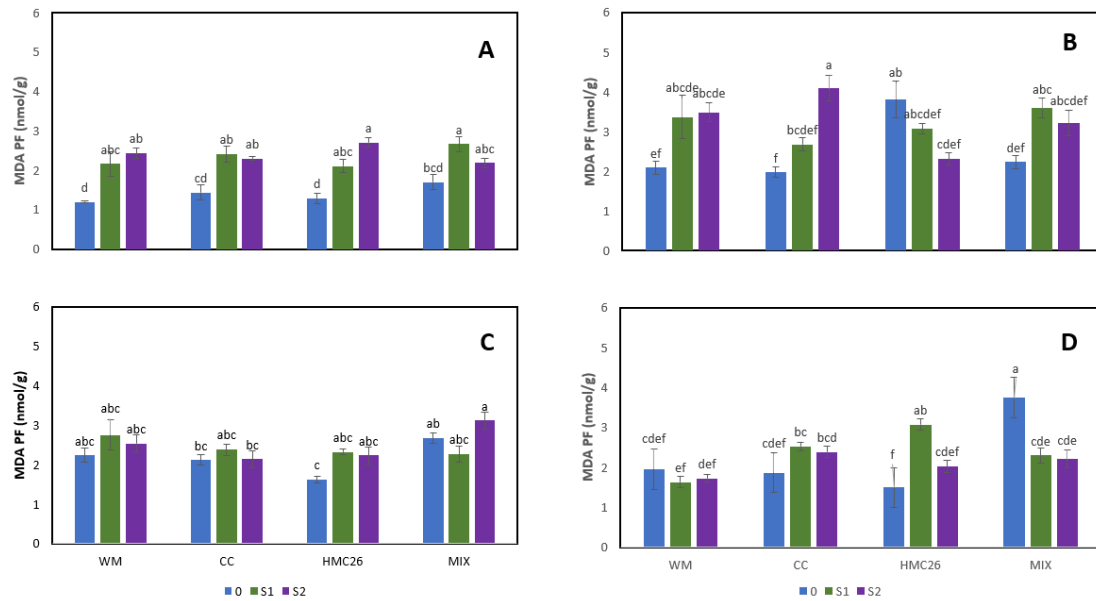


Figure S5. Lipid peroxidation in *Solanum tuberosum* leaves, under water stress and inoculation with arbuscular mycorrhizal fungi, genotype VR 808 second harvest (A), genotype VR 808 third harvest (B) genotype CB2011-104 second harvest (C), and genotype CB2011-104 third harvest (D). Means followed by the same lowercase letter compare the difference in stress level within the same inoculation condition (Tukey 5%). Where, WM: without mycorrhiza inoculation, CC: *Claroideoglomus claroideum*, HMC26: *Claroideoglomus lamellosum* and MIX: CC + HMC26; 0: normal irrigation; S1 and S2: levels of water stress.

Table S12. Tuber numbers of *Solanum tuberosum*, genotype VR808 under water stress and inoculation of arbuscular mycorrhizal fungi. Means followed by the same lowercase letter compare the difference in stress level within the same inoculation condition (Tukey 5%). Where, WM: without mycorrhiza inoculation, CC: *Claroideoglomus claroideum*, HMC26: *Claroideoglomus lamellosum* and MIX: CC + HMC26; 0: normal irrigation; S1 and S2: levels of water stress

	0	S1	S2
WM	7 ± 1 <i>a</i>	8 ± 1 <i>a</i>	5 ± 0 <i>bc</i>
CC	9 ± 1 <i>a</i>	9 ± 0 <i>a</i>	7 ± 0 <i>ab</i>
HMC26	7 ± 1 <i>ab</i>	8 ± 0 <i>a</i>	4 ± 0 <i>c</i>
MIX	8 ± 1 <i>a</i>	5 ± 0 <i>bc</i>	5 ± 0 <i>c</i>

Table S13. Tuber numbers of *Solanum tuberosum*, genotype CB2011-104 under water stress and inoculation of arbuscular mycorrhizal fungi. Means followed by the same lowercase letter compare the difference in stress level within the same inoculation condition (Tukey 5%). Where, WM: without mycorrhiza inoculation, CC: *Claroideoglomus claroideum*, HMC26: *Claroideoglomus lamellosum* and MIX: CC + HMC26; 0: normal irrigation; S1 and S2: levels of water stress

	0	S1	S2
WM	16 ± 3 <i>ab</i>	7 ± 1 <i>ab</i>	7 ± 5 <i>b</i>
CC	20 ± 4 <i>ab</i>	15 ± 5 <i>ab</i>	11 ± 1 <i>ab</i>
HMC26	14 ± 4 <i>ab</i>	22 ± 4 <i>ab</i>	12 ± 3 <i>ab</i>
MIX	25 ± 5 <i>a</i>	14 ± 4 <i>ab</i>	12 ± 4 <i>ab</i>