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(Fe/Mn)

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pH

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Fe-EDTA

(.)

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Stewart

Malo

Almaliotis *et al.*

Serrano *et al.*

Fernandez and Elbert
Gaziantep

pH =

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DTPA

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EC

pH

Archive of SID

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Endosperm

SAS

%

Table 1. Characteristics of irrigation water in the experiment.

(SAR)	Soluble ions (meg l ⁻¹)						pH	(Dsm ⁻¹) EC
	Na ⁺	Mg ⁺⁺	Ca ⁺⁺	Cl ⁻	HCO ₃ ⁻	CO ₃ ⁻⁻		
5	12.4	5.6	6.8	20	1.2	0	7.6	2.5

Table 2. Soil characteristics of experimental location.

Soil texture	Sand (%)	Silt (%)	Clay (%)	(ppm)			Fe (ppm)	K (mg kg ⁻¹)	P (mg kg ⁻¹)	(SAR)	EC (Dsm ⁻¹)	(pH)	Depth (cm)
				Ca ⁺⁺	Mg ⁺⁺	Na ⁺							
	82.2	7.4	4.4	9	4.4	16.7	4.6	223	19	6.4	3.8	8.1	0-40
	82.2	13.4	6.4	7.4	3.4	10.6		280	12	4.6	2.1	8.2	40-80
	82.2	13.4	4.4	20.4	11.8	14.7		252	11	3.7	4.5	8.2	80-120

Table 3. Effect of cultivar on ecophysiological characteristics in pistachio trees.

	'Ohadi'	'Kaleghoochi'	'Akbari'	'Ahmadaghahi'
Photosynthesis ($\mu\text{mol m}^{-2} \text{s}^{-1}$)	6.00a [†]	5.50ab	4.34c	5.05bc
Stomatal conductance ($\text{mol m}^{-2} \text{s}^{-1}$)	0.16 ab	0.25a	0.10b	0.12b
Transpiration ($\text{mol m}^{-2} \text{s}^{-1}$)	5.57 b	6.38a	3.90c	4.22c
Stomatal resistance ($\text{m}^2 \text{s mol}^{-1}$)	6.53 c	5.46c	10.40a	8.66b
WUE ($\mu\text{mol mol}^{-1}$)	1.06 a	0.83b	1.10a	1.16a

[†] Means in each row with the same letters are not significantly different at 5% level of probability.

%

†

Table 4. Effect of the foliar application of chelated Fe on ecophysiological characteristics in pistachio trees.

	Control	Fe (0.5 g l ⁻¹)	Fe (1 g l ⁻¹)
Photosynthesis (μmol m ⁻² s ⁻¹)	3.26c [†]	5.33b	7.07a
Stomatal conductance (mol m ⁻² s ⁻¹)	0.17a	0.13a	0.18a
Transpiration (mol m ⁻² s ⁻¹)	4.43b	4.73b	5.90a
Stomatal resistance (m ² s mol ⁻¹)	8.66a	8.35a	6.28b
WUE (μmol mol ⁻¹)	0.75b	1.15a	1.21a

[†] Means in each row with the same letters are not significantly different at 5% level of probability.

Table 5. Effect of the foliar application of chelated Fe on photosynthesis (μmol m⁻² S⁻¹) in pistachio trees.

Cultivar	Control	Fe (0.5 g l ⁻¹)	Fe (1 g l ⁻¹)
'Ohadi'	4.19e [†]	6.17c	7.65ab
'Kaleghoochi'	2.79g	5.60cd	8.11a
'Akbari'	3.47f	4.32e	5.23d
'Ahmadaghahi'	2.61g	5.24d	7.32b

[†] Means in each row with the same letters are not significantly different at 5% level of probability.

Table 6. Effect of the foliar application of chelated Fe on stomatal conductance ($\text{mol m}^{-2} \text{s}^{-1}$) in pistachio cultivars.

Cultivar	Control	Fe (0.5 g l^{-1})	Fe (1 g l^{-1})
'Ohadi'	0.14ab [†]	0.15ab	0.18ab
'Kaleghoochi'	0.35a	0.16ab	0.24ab
'Akbari'	0.10b	0.09b	0.12b
'Ahmadaghahi'	0.09b	0.12b	0.16ab

[†] Means in each row with the same letters are not significantly different at 5% level of probability.

%

[†]

Table 7. Effect of the foliar application of chelated Fe on transpiration ($\text{mol m}^{-2} \text{s}^{-1}$) in pistachio cultivars.

Cultivar	Control	Fe (0.5 g l^{-1})	Fe (1 g l^{-1})
'Ohadi'	4.93c [†]	5.20c	6.58b
'Kaleghoochi'	5.41c	6.12b	7.63a
'Akbari'	3.77de	3.74de	4.21d
'Ahmadaghahi'	3.61e	3.87de	5.18c

[†] Means in each row with the same letters are not significantly different at 5% level of probability.

%

[†]

Table 8. Effect of the foliar application of chelated Fe on stomatal resistance ($m^2 s mol^{-1}$) in pistachio cultivars.

Cultivar	Control	Fe (0.5 g l ⁻¹)	Fe (1 g l ⁻¹)
'Ohadi'	7.24bc [†]	6.68bc	5.66bc
'Kaleghoochi'	5.82bc	6.35bc	4.22c
'Akbari'	10.70a	11.80a	8.70ab
'Ahmadaghahi'	10.87a	8.58ab	6.52bc

[†] Means in each row with the same letters are not significantly different at 5% level of probability.

Table 9. Effect of the foliar application of chelated Fe on water use efficiency ($\mu\text{mol mol}^{-1}$) in pistachio cultivars.

Cultivar	Control	Fe (0.5 g.L ⁻¹)	Fe (1 g.L ⁻¹)
'Ohadi'	0.85d [†]	1.18b	1.15bc
'Kaleghoochi'	0.52f	0.92d	1.05c
'Akbari'	0.92d	1.15bc	1.23b
'Ahmadaghahi'	0.72e	1.34a	1.41a

† Means in each row with the same letters are not significantly different at 5% level of probability.

Table 10. Correlation between measured ecophysiological factors in pistachio trees.

	Photosynthesis	Stomatal conductance	Stomatal resistance	Transpiration	WUE
Photosynthesis ($\mu\text{mol m}^{-2} \text{S}^{-1}$)	1				
Stomatal conductance ($\text{mol m}^{-2} \text{s}^{-1}$)	0.06 ^{ns}	1			
Transpiration ($\text{mol m}^{-2} \text{s}^{-1}$)	0.56 ^{**}	0.714 ^{**}	1		
Stomatal resistance ($\text{m}^2 \text{s mol}^{-1}$)	0.719 ^{**}	0.344 [*]	0.762 ^{**}	1	
WUE ($\mu\text{mol mol}^{-1}$)	0.694 ^{**}	0.242 ^{ns}	0.037 ^{ns}	0.013 ^{ns}	1

*, ** significant at 5 and 1% levels, respectively.

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$$WUE = \frac{A}{E}$$

E

A

WUE

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(PSII) II

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Fe-EDDHA

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(PSI)

CO₂

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