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*Meloidogyne javanica*  
*Fusarium oxysporum f.sp. lycopersici*

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*Meloidogyne javanica*  
*Fusarium oxysporum f.sp. lycopersici*

(Roma VF)

( )

) ( )  
(

( )

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( ) .()

(PAL)

(POX)

(PPO)

:

( )

( ) .()

( )

*M. incognita*

( ) .()

.()

(HPRG)

( , )

(HGRG)

( )

( )

.( , )

( )

TMV

( )

*Meloidogyne incognita*

( ) .()

*Radopholus similis*

( )

.()

*M. incognita*

Dopamine

(3-hydroxytyramine)

( ) .( )

Dopamine

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(

(SAR Signaling)

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( )

*Puccinia hordei*

*M. javanica*

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*Meloidogyne javanica*

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*Fusarium oxysporum* f.sp. *lycopersici*

Roma VF

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Roma VF

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( ) ( )

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±

**(Total phenol)**

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( )

spss

excel

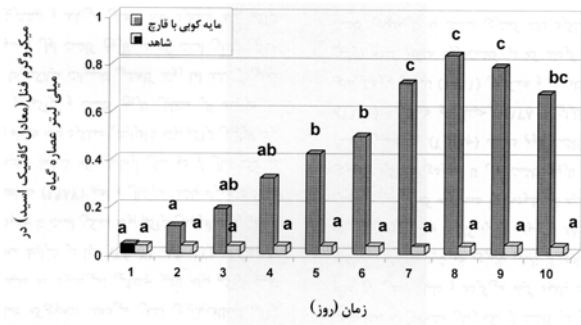
(uv-visible shimadzu)

$\lambda$  max = nm

(c)

( )

(a)



Roma VF

*F. oxysporum* f.sp. *lycopersici*

%

pH=2

(v/v)

× g

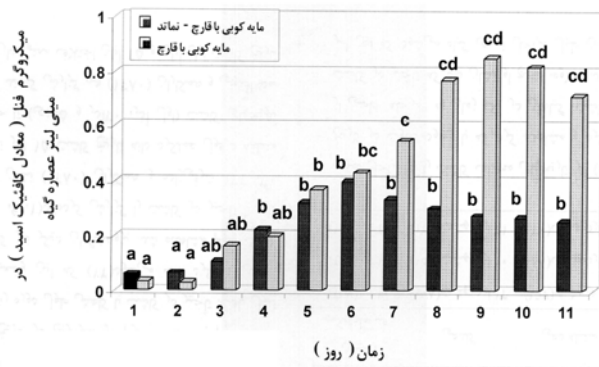
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(

( )

(b )

( )

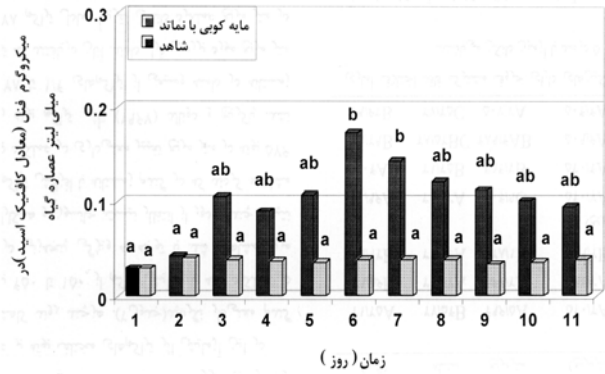


Roma VF

*F. oxysporum* f.sp. *lycopersici*

*M. javanica*

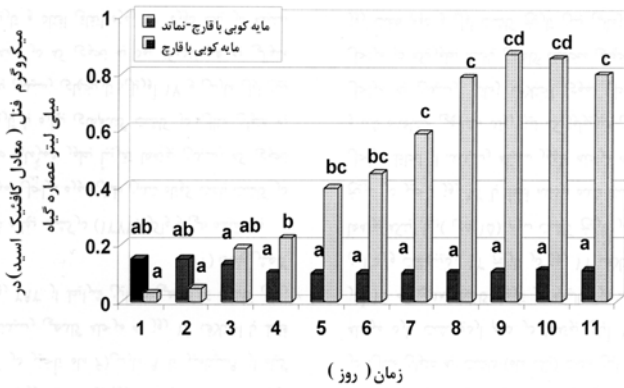
%



Roma VF

*M. javanica*

%



Roma VF

*F. oxysporum* f.sp. *lycopersici*

*M. javanica*

%

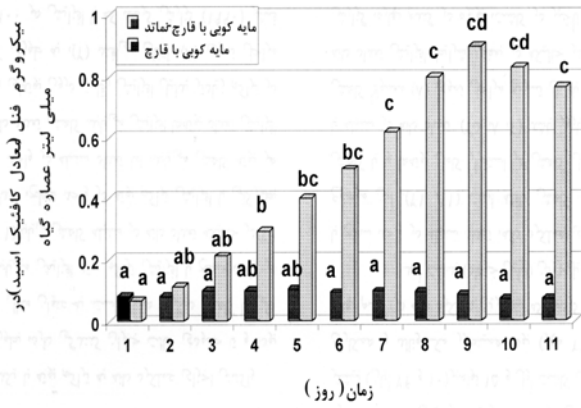
d

b

( )

Roma VF

*M. javanica*



Roma VF

*F. oxysporum* f.sp. *lycopersici*

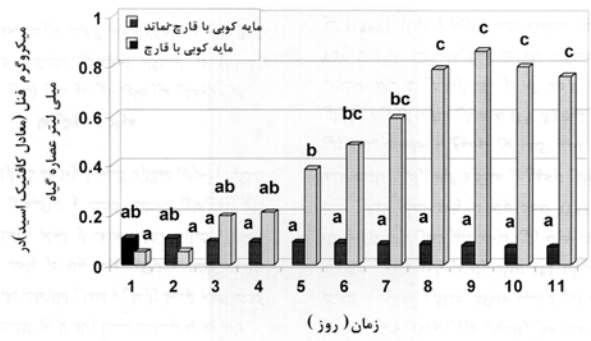
*M. javanica*

%

(a )

(c )

( )



Roma VF

*F. oxysporum* f.sp. *lycopersici*

*M. javanica*

%

(cd )

(a )

( )

Roma VF

( )

( )

( )

( )

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*Fusarium oxysporum* f.sp. *lycopersici*

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