TOLERANCE RESPONSE TO BIOTIC STRESS IN TOMATO PLANTS WITH SELENIUM

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Introduction. Bacterial canker in tomato plants caused by *Clavibacter michiganensis subesp. michiganensis* (CMM), is one of the major limitations of tomato production in the world (1).
Metalloids such as selenium, in low concentrations, can induce a pro-oxidant effect that could cause the induction of defense responses in plants (2).
The aim of this study was determinate the tolerance effect to CMM in tomato seedlings with the application of sodium selenite.

Methods. Greenhouse-grown 4 week-old tomato seedlings cv. Rio Grande with four or five fully expanded leaves were used for all experiments. Plants were grown in pots in a soil mix containing peat moss: perlite (proportion 70:30). Application of sodium selenite was in irrigation system (2 mg/L) (SS) and foliar (10 mg/L) (SA). Four days latter was added the inoculum (CMM) sprayed on leaves. There were 3 samples for measuring parameters related to photosynthesis (2 and 7 days after sodium selenite application) using Licor 6400. Incidence and severity of the disease were determined at 20 days of inoculation using a scale (3).

Results. The parameter of severity was reduced 11% in the treatment of plants treated with irrigation system selenium and inoculated (SS + CMM) and 8% in the plants treated with foliar selenium and inoculated (SA + CMM), compared to the control inoculated (CMM).

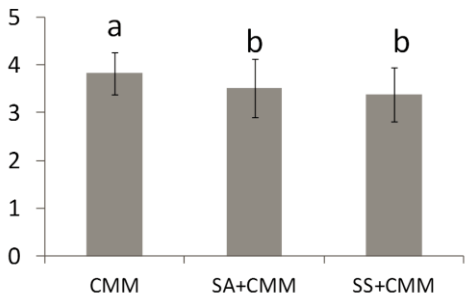

Figure 1. Sodium selenite application effect in tomato plants in severity symptoms. 5= dead plant, 0= healthy plants (Tukey α≤0.05).

The parameters related to photosynthesis shows higher values in treatments with SS.

Table 1. Sodium selenite application effect in tomato plants in parameters related to photosynthesis. * 2 days, ** 7 days after selenium application (Tukey α≤0.05).

Treatment	Photosynthetic rate mmol CO2 m-2 s-1	Conductance mol H2O m-2 s-1	Intracellular CO2 mmol CO2 mol-1	Transpiration mmol H2O m-2 s-1
TA*	8.115b	0.4515ab	316.75a	7.8225b
SA*	7.8475b	0.1975b	282.5b	5.8625b
SS*	12.1125a	0.61725a	310.25a	11.975a
TA**	3.455abc	0.10235ab	275.75a	6.235ab
SA**	4.1675ab	0.128525ab	277.75a	7.77a
SS**	4.5175a	0.149075ab	286a	8.535a
CMM**	2.755abc	0.1329ab	306a	7.4625ab
CMM+SA**	3.4925abc	0.161425a	303.75a	8.0875a
CMM+SS**	3.4925abc	0.14825ab	298.5a	8.63a

Conclusion. The application of selenium as sodium selenite can cause an effect of tolerance to the disease caused by CMM, besides photosynthesis related changes.

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