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Effects of salt -affected soil ameliorated with gypsum, compost or sulphuric acid on the reproductive parameters of root knot nematode; Meloidogyne incognita infecting tomato plants var. castlerock under green house conditions

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Abstract : The effects of increasing salt concentration measured in terms of electrical conductivity on nematode developmental parameters and plant growth response in ameliorated and non ameliorated soil were studied on tomato var. castlerock under greenhouse conditions. The results revealed that in salt-affected soil, infected control plants without ameliorants exhibited significant variations in nematode reproduction and plant growth response. The present results indicate that increasing salt concentration up to EC 2 resulted in significant decrease in number of juveniles in soil, number of egg masses, number of galls associated with mild increase in plant growth parameters in control without ameliorants. With increasing salinity up to EC 3, data indicated significant increase in juvenile's number in soil, and significant increase in plant growth in control without ameliorants. On the other hand, tomato plants grown on salt- affected non infected soil without ameliorants exhibited significant decrease in plant height which was correlated with the degree of salinity. The results also show that application of gypsum, compost, and sulphuric acid produced variable effects on nematode development and plant growth response. The most remarkable percentage decrease in number of juveniles in soil associated with highest increase in plant growth was found by application of compost at low salinity level (EC1). Although the application of gypsum and sulphuric acid as soil ameliorants decreased the nematode growth parameters, there were less remarkable effects on plant growth parameters as compared to the infected control without ameliorants. On the other hand, the application of soil ameliorants gypsum, compost or sulphuric acid on salt-affected, non infected plants revealed that the highest plant length was observed by application of gypsum at medium salinity level (EC2).
In conclusion, compost improves tomato plant growth infected by *Meloidogyne incognita* at low salinity levels. Moreover, gypsum enhances non infected tomato plants at medium salinity levels. Generally it could be assumed that the influence of salt concentration on the development and reproduction of nematode depends on nematode species, plant variety, and soil electrical conductivity
Key words: soil salinity, ameliorants, gypsum, compost, sulphuric acid, root knot nematode, tomato plants.

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