

Effect of zinc rates, arbuscular mycorrhiza and two types of organic matter on corn growth and micronutrients-uptake in a calcareous soil

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Abstract

A greenhouse experiment was conducted to study the effect of zinc rates, arbuscular mycorrhiza and organic matter, on corn growth and micronutrients-uptake in a calcareous soil. Experimental design was factorial based on complete randomized design with 3 replications. Treatments consisted of 3 levels of Zn (0, 5 and 10 mg Zn/kg), 2 types of organic manure (sheep manure and municipal waste compost, each at 0 or 1% w/w) and 2 levels of mycorrhiza (no inoculation and inoculation with *Glomus intraradices*). Plants were harvested 8 weeks after emergence and used for chemical analysis. Roots were used to determine the degree of colonization. Results showed that application of Zn increased plant dry matter weight, total Zn and Cu uptake, root mycorrhizal colonization and decreased total Fe and Mn uptake. Arbuscular mycorrhiza increased plant dry matter weight, root mycorrhizal colonization and total Zn, Fe, Mn and Cu uptake. Application of both organic manures increased plant dry matter weight, root mycorrhizal colonization and total Zn, Fe, Mn and Cu uptake.

Keywords: Micronutrients, Arbuscular mycorrhiza, Organic Matter, Corn.

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