Effects of Foliar Sprayed Calcium Sources on *Tomato mosaic virus* (ToMV) Infection in Tomato Plants Grown in Greenhouses

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Spray solutions containing 0.3% Ca which were prepared from four different calcium sources were foliar-sprayed on greenhouse-grown tomato plants, infected with the *Tomato mosaic virus* Tobamovirus (ToMV) or not. ToMV-infected and uninfected control groups were sprayed with distilled water. Growth and macronutrient (N, P, K, Ca and Mg) composition of tomato plants as well as virus concentration and its relative infectivity were investigated in treated and untreated plants. The Ca sprays were applied three times: on the same day as inoculation, and 15 and 30 days after inoculation. Virus concentration in tomato plants generally decreased with foliar-sprayed Ca. Virus concentration (DAS-ELISA absorbance) was reduced by foliar-sprayed Ca, but plants remained infected. At the same time, tissue Ca concentrations increased significantly with foliar-applied Ca, with the exception of $CaNO_3 \cdot 4H_2O$+0.05 *M* Na-EDTA. ToMV reduced the fresh and dry weights and Ca concentrations of tomato plants, but significantly raised P concentration in the tissue. Neither virus inoculation nor foliar Ca applications affected N and Mg concentrations in tomato plants. The foliar-applied Ca from all the sources gave K concentrations similar to those of control plants.

KEY WORDS: *Tomato mosaic virus;* tobamovirus; resistance; foliar spray; calcium source; *Solanum lycopersicon.*

Received May 23, 2006; accepted Sept. 11, 2006; http://www.phytoparasitica.org posting Jan. 26, 2007.

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