

## ABSTRACT

Literature on the accumulation of nitrite nitrogen in soils, its metabolism in plants, and symptoms of nitrite toxicity was reviewed. A relationship between the metabolism of nitrite nitrogen, iron, magnesium and organic acids in plants was suggested.

Experiments were done to study the effects of nitrite nitrogen on nutrient absorption and the organic acid content of tomatoes (Keystone) grown in sand culture. The effects of root aeration, magnesium and iron supply on symptoms of nitrite toxicity were also studied. Nutrient solutions were standardised to pH 4.5 and contained from 0-250 p.p.m. nitrite nitrogen; the solutions were renewed frequently to maintain a constant concentration of nitrite nitrogen.

Increasing the concentration of nitrite nitrogen decreased dry matter yields, total acidity, and concentrations of potassium, magnesium, nitrogen, phosphorus and iron in tomato plants, and increased chlorosis in the leaves and lignification of the roots. Plants only wilted at the first application of nitrite nitrogen at concentrations greater than 75 p.p.m.

Two types of chlorosis were observed; the old leaves of magnesium deficient plants were deep yellow, while the young leaves of plants receiving nitrite nitrogen were pale yellow. These nitrite toxicity symptoms were similar to those described for iron deficiency.

Shortage of iron and magnesium, and poor root aeration caused toxicity symptoms to appear at a lower concentration of nitrite nitrogen, and also increased the severity of the symptoms.