Soil Salinization of Organically-grown Greenhouse Tomato.

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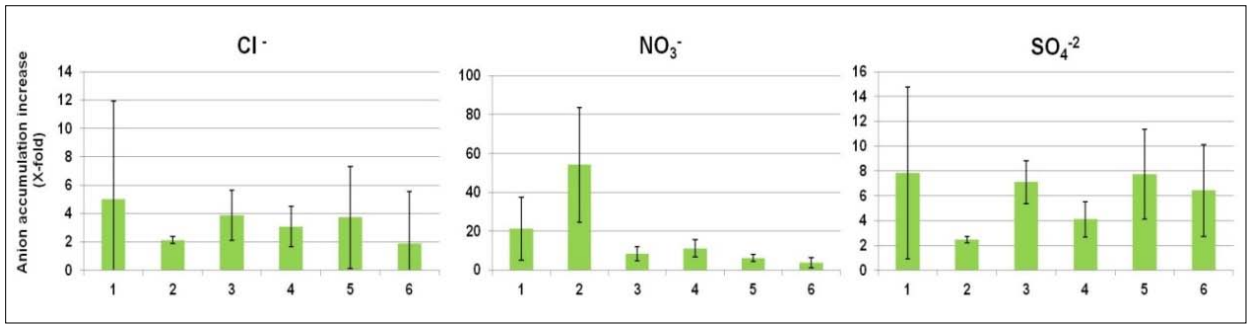
Background:
Irrigation management and nutrient mineralization are important aspects to consider in organic farming in order to optimize fertilisation management and consequently productivity. Those are also closely linked with a problem often observed in soils under organic production, soil salinization.

Project Overview:
The organic soils with different physical properties used were: 1) sandy soil, 2) peat soil amended with sawdust, 3) reconstituted organic soil with 40% air porosity, 4) sandy loam, 5) loam, and 6) muck soil. Ten grafted tomato plants (*Solanum lycopersicum*) were cultivated in each growing container from March 2010 to January 2011. The crop was fertilized using certified organic compost, crab meal and seaweed extract. Soil solution samples were collected weekly from suction lysimeters installed at a depth of 15 cm and ion contents was evaluated using an ion chromatography analyser ICS-1100 (Dionex Canada Ltd, Oakville, ON). A higher NO_3^- accumulation was observed in soil 2 compared to the others. The concentration of SO_4^{-2}, NO_3^- and Cl^- ions in the soil solution increased in all six soils throughout the production period. This overall increase in anions was associated with a decrease in biomass accumulation in tomato plants toward the end of the cropping season.



Conclusions:
Even though an accumulation in SO_4^{2-} and Cl^- in the soil solution was observed, no visual damages were noticeable on tomato plants. However, the increasing concentration in those anions might have resulted in the lower biomass accumulation observed towards the end of the experiment.

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