

O-13 (141)**STUDY OF THE RESPONSES OF TOMATO PLANT TO AMMONIUM AND NITRATE NUTRITION USING THE RELATIVE ADDITION RATE TECHNIQUE**

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Different N sources (NO_3^- , NH_4^+ , or NH_4NO_3) at relative addition rate (RAR) of 0.25 day^{-1} were supplied to tomato (*Lycopersicon esculentum* Mill.), a species sensitive to NH_4^+ toxicity. At RAR 0.25 day^{-1} growth reduction occurred by NH_4^+ application, slightly. Tomato roots had a more efficient NH_4^+ assimilation than shoots when N was supplied solely in the form of NH_4^+ , and dominant amino acids in tomato were glutamine and asparagine. Low tissue levels of calcium and magnesium in the NH_4^+ -fed plants constituted part of the NH_4^+ -toxicity syndrome. The supply of NO_3^- led to the accumulation of Fe in tomato roots, but leaves Fe concentration in NO_3^- -fed plants was low in comparison to NH_4^+ supply. It is concluded that due to high sensitivity of tomato to NH_4^+ , even at RAR 0.25 day^{-1} the relative addition rate technique was not able to reduce deleterious effects of NH_4^+ in tomato plants.

Keywords: Amino acid, ammonium, *Lycopersicon esculentum*, nitrate, relative addition rate technique