EFFECT OF NaCl ON NITRATE ASSIMILATION IN BARLEY.


Nitrate assimilation is related with nitrate reduction in leaves, stoichiometric malate synthesis, malate transport to the roots as K-malate, decarboxylation and exchange of NO₃ by N0₂⁻.

Barley seedlings (5 days old) were cultivated during 5 days in nutrient solutions with 0, 30, 60, 90, 120 and 150 me.⁻¹ of NaCl. Cl⁻, NO₃, Na⁺, K⁺ and malate were analyzed in leaves at the end of experiment. Nitrate and nitrite reductase activity were tested during experiment.

The activity of nitrate - and nitrite- reductase had not variations with the different NaCl treatments. The malate content in leaves decreased from 290.1, without NaCl to 26.6 seq. -g⁻¹ (d.w.) with 150 me⁻¹ of Na Cl in nutrient solution. In leaves K⁺ is changed by Na⁺ and NO₃ was changed by Cl⁻. Decrease of malate can explain the effect of NaCl decreasing total, organic and inorganic nitrogen in the plant. It could be produced by Na⁺ K⁺ or Na⁺ NO₃ : Cl⁻ relations.